

**PAGES
MISSING**

FARMER'S ADVOCATE

AND HOME MAGAZINE

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

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EDITORIAL.

Start Right in Dairying.

The possibilities of the future dairy cow all lie in embryo in the heifer calf. Breeding determines the first of these, feeding and general management the rest. Success or failure, profit or loss in the dairy have their beginnings in the calf, and the first year of its life is the most important. How to raise the heifer-calf is, therefore, a vital question to the dairy farmer. At this time of the year the subject is especially seasonable, and we give elsewhere letters which embody the practical experience of men who have made it a life study, and will be glad to hear from others who have points of value to add or whose advice may vary from that given.

A Warning.

The attention of our readers is especially drawn to the letter elsewhere in this issue from Dr. Lintner, New York State Entomologist, calling attention to the serious danger that would arise from "igniting" carbon bisulphide, as inadvertently recommended by a correspondent in our last issue, for the destruction of pea bugs. To accomplish the latter, it is not necessary to run the risk of an explosion or a conflagration. The heavy vapor of the chemical penetrating the peas will destroy the insect. Mr. Raynor probably had, fortunately, never tried the plan he suggested, and we trust this warning will prevent any misfortune arising.

Pleuro-pneumonia in England.

The following, from the *Mark Lane Express* (London, Eng.) of February 15th, shows the wisdom of maintaining the ninety days' quarantine against cattle from Great Britain, as is the case in the new Canadian regulations:—

"By order of the Board of Agriculture, the first batch of seventy-one bullocks, cows, and steers, which have been condemned in consequence of the prevalence of pleuro-pneumonia, were slaughtered on Tuesday on Norton Hall Farm, Purleigh, Essex. In addition to these over 100 animals have been slaughtered on other farms in the immediate locality during the past few weeks. It is believed that the outbreak originated by the introduction into the district of a cow which was brought from Ireland to Romford market, where it was purchased by a Purleigh dealer."

For years some British journals and parliamentarians have been clamoring against the admission of Canadian "store" cattle, and finally managed to get their "embargo" made permanent in order to shut out "pleuro," but had it been against Ireland instead of Canada it would have been of some practical service. It is no secret that the "embargo" was largely a "sop" to the raisers of Irish and other Old Country store cattle, and it seems like one of the ironies of fate that the Britisher should now be sorely wounded in the house of his friends. Where were the lynx-eyed veterinary experts who in bygone days were continually "discovering" "marbled" lungs and other alarming conditions in Canadian cattle landed at British ports? With the making of a permanent embargo their favorite occupation seems to have departed. Is it possible that these diseased Irish cattle have the run of England without let or hindrance?

The U. S. Free Seed Scandal.

The U. S. Secretary of Agriculture in Mr. Cleveland's Cabinet excited a great deal of animosity by persistently preaching economy in public expenditures and practicing it in his own department at Washington. This he did in two particulars, free seeds and free publications, upon a large class of which a fixed price has now been set. He has steadily opposed the free seed humbug, which has grown to enormous and wasteful proportions this

year, amounting on a retail valuation to more than \$2,000,000. This year's distribution will fill seventy-seven of the largest U. S. mail cars, and to handle which costs the postal department \$100,000. But after two hours' discussion the U. S. House of Representatives recently, by a vote of 70 to 39, resolved to continue a practice which one of their members characterized as a "shame and disgrace" to the Government. This year the appropriation is increased and an amendment adopted under which, we are told, "there is nothing to prevent a member selecting say two or three varieties of farm or vegetable seeds and having them sent to a few favored constituents, and the importance of this act to the favored ones may be imagined from the statement made by Secretary Morton in his last report, that under last year's distribution each Congressman received enough seed to plant 169½ acres, and that under the prevailing prices the next year's quota would plant nearly 325 acres. With the added appropriation the amount for each Congressman will supply nearly enough for 350 acres."

Mr. Mercer, of Nebraska, offered an amendment that, in addition to seeds, every farmer be furnished by the Government with half a dozen chickens, hogs, horses, and cattle, all thoroughbreds. His motion was looked upon as a joke, and treated as such, notwithstanding his earnest protest that it was offered in the most serious earnestness. And he may well have been in earnest in his efforts to have his constituents given free cattle, for it is no more reprehensible or absurd than the other measure. If it is right for the Government to furnish a man with seeds free with which to stock his farm or garden, it is equally proper to provide him with poultry or cattle. It is exactly in line with the paternalism which appears to be spreading and strengthening day by day. We believe, further, that these gratuities in many instances confer little or no real benefit upon the recipients.

We do not wonder to hear protests from a self-respecting press, and men of independent spirit, against the purchase and free distribution by Government of seeds as a gratuity or form of political bribe, paid for by money raised from all the people and bestowed upon a favored few, and for which the legitimate seedsmen of the country are taxed, in common with others, to support in direct competition with themselves. Originally this was begun for the purpose of introducing "rare, valuable and improved" seeds, "not common in the country," to be distributed for experimental purposes; but this has long since been forgotten, the political manipulator seizing upon it as a nice piece of campaign machinery under the guise of "doing something for the farmer."

Secretary Morton, whatever may have been the merit or otherwise of his general administration, succeeded in reforming the system very materially, but the real improvement needed is the total abolition of the promiscuous and gratuitous vote-bribing distribution by governmental agencies of seed. In this enlightened age the seed business may well be left to the progressive seedsmen of the country.

We, in Canada, have the free seed business in its incipient stages—probably at about the commendable point where it began in the United States. A dispatch from Ottawa in the daily papers lately announced that 6,717 three-pound parcels of grain (more than ten tons) had been mailed free up to the middle of February. It is therefore attaining considerable proportions already, and under the "fostering care" of some future politician may be developed after the manner of its Yankee prototype. Our authorities should see that it is kept strictly within proper bounds, and any tendencies to expand the bud into a flourishing political green bay tree should be promptly nipped unless we are to inaugurate Bellamyism and have the Government to take over the seed business and other leading industries of the country.

How to Help the Farmer.

Mr. R. C. Allan, of Northumberland Co., Ont., writes as follows: "The whole subject (Mr. Macpherson's letter) is well worthy consideration by all the older portion of our farming population. I think an editorial in the *ADVOCATE* discussing the feasibility of any schemes for the advancement of Canadian farming would have much influence."

As we understand it, the plan suggested by Mr. Macpherson is for the Government, after a preliminary trial, to advance funds—in the form of a loan, we presume—for proper equipment and stock, and to assume oversight of the impoverished, nonpaying farms till properly running. We might frankly state that we cannot regard this as a feasible plan for general adoption, nor one in which the Government should embark. To our mind there is already too much of the spirit of paternalism abroad. Taking advantage of complaints of diminished farm profits, office-seekers, contractors and others come to the front with plans to help the farmer, but like the Arkansas jurymen, who returned no verdict till his fees were paid, they "find" for themselves first. They are aching to "help the farmer" by spending his money, and politicians too often are very much more ready to do that than to conduct public affairs upon an economical, businesslike basis.

Mr. Macpherson's own success, as he describes it, may give him faith in his plan, and we do not question the sincerity or the disinterestedness of his motives, but if one farmer is to be assisted, why not all? Who is to determine the needy ones, how is this to be arrived at, and how about those who will not stay right after being started on the pathway to success? Furthermore, if unsuccessful farmers are to be helped this way, why should not the Government go along the streets of Montreal, Toronto, London, or Winnipeg, and set merchants properly agoing who are making a failure of their business? Where, in short, is the limit to be drawn?

In every agricultural township of Canada men can be found whose success in the past and to-day, as farmers, stands out distinctively in spite of adverse conditions, and the same intelligent study of methods and markets, industry and thrift, that makes farming pay with them will do it with others under like natural conditions.

We ought to say here that there is a wide and important field for careful scientific investigation relative to nearly every branch of agriculture, upon which the staffs of our Experimental Farms are now engaged and which is susceptible of still further development in some directions. Apart from this, what the farmer needs from the Government really to-day is a fair field, proper facilities for getting access to the best markets, reasonable transportation charges, and a lightened burden of taxation brought about by tariff adjustment, the cessation of wild-cat public expenditures, and in general a more economical system of managing public business. If this be done he can get along with a little less "governing," "helping" and "spoon-feeding," and the *ADVOCATE* has confidence enough in his self-reliant independence and his ability to think that he will be well able to hold his own in the battle of life.

Assemblyman Brennan, of N. Y., has introduced at Albany a bill providing for the appropriation of \$500,000 from the State treasury for a system of new State roads and the improvement of the old ones. The bill provides that the Governor shall appoint three citizens of the State of New York to act in conjunction with the Superintendent of Public Works and the State Engineer and Surveyor in drawing up a plan for a system of roads throughout the State of New York, which plan, when submitted to the Superintendent of Public Works, shall be used by him in carrying out the purposes of this Act. Ten thousand dollars are appropriated for the expenses of the commission. "A commission and an appropriation" seems now to be the order of the day.

THE FARMER'S ADVOCATE
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2. 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.
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The Coming Seeding.

The answers contributed by a number of correspondents in reply to our series of questions as to their views and methods in relation to selection of seed, preparation of the soil, varieties of grain succeeding best in their section, etc., will no doubt be studied with interest by our readers, and it may not be amiss to sum up the salient points of these letters briefly in a short article. It is said that "in the multitude of counsellors there is wisdom," and while our readers will find much in most of the papers which is not new to them, they will also find in most of them some ideas which are new and which they may with profit and advantage adopt in their own practice. The selection and careful cleaning of seed grain is held by all to be of the first importance. While some attach much importance to frequent changes of seed from one locality to another, others do not take so much stock in that idea; but all are agreed that selection and cleaning is of vital importance. It is generally agreed that time should be taken by the forelock in the matter of early seeding. That is, that just as soon in the spring as the ground is dry enough to work without "poaching," seeding operations should commence. The harrow and cultivator may be started a day or two before the seed drill, opening up the land to the action of the sun and air to facilitate drying. This applies only, as a rule, to the first few days of seeding. The seed should all be cleaned and measured some time in advance of seeding time, so that no time may be lost during the busy days of the season for seeding. It is also important that harrows and cultivators be sharpened before the spring work commences. It makes all the difference in the world whether cultivator teeth are sharp or dull when the land begins to get dry and hard. If worn and dull they will slip over the hard places where good work is most needed, and will do good work only in the loose soil of the lowlands where a harrow alone would be sufficient. Look out for this point. As to the advantages of drilling or broadcasting, the weight of evidence is in favor of the former as a rule; there may be exceptions as to seed and soil in which the latter may be advantageous, and the farmer should use his own judgment and be guided by his experience. The prevailing opinion is that peas succeed best on fresh plowed sod, but where the land is clear of thistles will do well on any fairly fertile soil, and being a nitrogen gatherer, leave the land in good condition for the succeeding crop, especially if shallow cultivation is practiced in the preparation for the following crop.

The all-important question how best to secure a catch of clover seed is variously treated, the consensus of opinion being that to sow in early spring on fall wheat while the ground is frozen is the

surest way to get a catch, but sown with spring grain rich in humus or vegetable matter in average seasons a good catch may be relied on, especially with barley or spring wheat. If seeding is done with oats, the oats should be sown thinly, as being a gross grower they are apt to smother the young clover plants and leave them so weak that they cannot withstand the heat of the sun after the oats are harvested.

In the case of these small seeds, a finely pulverized seed-bed is indispensable to successful germination, and considering the high cost of the seed we are persuaded that on clay soils especially, and on most soils indeed, it is economy to harrow after the drill. Sow the clover seed by hand or machine and cover with a light harrow or brush. One thing may be put down for a certainty, and that is that to sow clover seed on poor land, void of vegetable matter, is wasting seed and money.

As to varieties of spring grain recommended, their name is legion, and opinions differ widely; but the results of experiments at the Dominion Experiment Stations, and of the Ontario Experimental Union, published in our last issue, together with the answers furnished by our correspondents in this series of papers, give a fair idea of the varieties most likely to give satisfaction in different sections of the country.

The Tuberculin Test—Note from the Minister of Agriculture.

To the Editor FARMER'S ADVOCATE:

DEAR SIR,—In reply to yours of the 25th February about veterinary certificates, etc., the quotation you make is correct. The certificate of tuberculin test is no more a government matter than is a certificate of blood or registration. The reason that we make a scale of fees is that the United States requires certificates signed by a government appointee, and we only appointing a limited number would make something of the nature of a monopoly, and therefore we require to regulate the fees to prevent the people being unduly charged. At the same time these fees must be fair enough to induce the best veterinarians to undertake the test. The test is a delicate one, and the continuance of our arrangement with the United States is contingent on its being properly carried out and the certificates being unimpeachable. After full consideration we have fixed them as was stated by Dr. McEachran.

I will publish a list of inspectors as soon as possible.

Yours very truly,
SYDNEY FISHER.

Department of Agriculture, Ottawa, March 4, '97.

[NOTE.—The scale of fees for testing set by the Department is as follows: Five dollars for one animal; \$1 per head up to ten; and over ten, 50 cents per head. The owner must also pay for the tuberculin and traveling expenses.—EDITOR.]

Farmers and Dairymen's Association of New Brunswick.

The annual meeting of the above association was held in the Temperance Hall, Fredericton, on the 10th, 11th and 12th February.

President Tompkins in his opening address referred very feelingly to the death of the late Lieutenant-Governor, the Hon. J. J. Fraser, after which the Hon. Lieutenant-Governor, A. R. McClelland, addressed the meeting in an encouraging manner, contrasting the condition of the farmers, their facilities and comforts now, with those of forty years ago. In the afternoon, the Legislature adjourned their session, and nearly all of the members of the Government were present except the Hon. Premier, James Mitchell, who has been the leader of every movement to encourage and assist the farmers of the Province for many years, but because of the state of his health could not attend. His friendly presence and kind and wise words of counsel were greatly missed.

The Hon. L. J. Tweedie, Provincial Secretary, said the Provincial Government was pleased to see so many farmers assembled at their annual meeting, and he was glad to know that what the Government had been doing to assist the farmers in the past had been approved of, and they were quite willing, so far as their limited means would allow them, to continue that assistance, and any suggestions that the Association could give would be carefully considered by the Government.

The Hon. Mr. Emerson, Commissioner of the Board of Works, gave a practical address on "Good Roads," and asked the farmers to take more interest in the subject than they have done in the past.

Hon. A. T. Dunn, Minister of Crown Lands, spoke on hog raising and producing pork as a profitable branch of farming.

The following members of the Legislature addressed the Association: Messrs. Charles Smith, Carleton Co.; Porter, Victoria Co.; Killam, Westmoreland Co.; Dr. Alward, St. John; Farris, Queen's Co.; and Labllois, Restigouche Co.; after which Mayor Vanwort, Fredericton, gave an address of welcome on behalf of the city, which was replied to by Mr. J. R. Taylor, on behalf of the Association, who said among other things: "Fredericton has always been looked upon by us with admiration, being the capital of our Province when our Legislature meets; but it has another attraction since it has become the seat of our 'farmers' parliament,' where we plan and discuss matters relating to our own occupation."

The vice-presidents from each county and the secretaries of agricultural and dairy societies gave in their annual reports of the business transacted, and a resumé of the crops of the season. The general results were mostly satisfactory, except in two or three counties where the season had been very dry, causing very light crops of hay and pasture.

In connection with the meetings there was an exhibit of dairy butter in two classes, pound prints and ten-pound crocks or tubs. Nine entries in prints; highest score of points, 95, 94, 93, 92. Crocks, highest score of points, 94, 93, 92, 91. Then followed the report of the corresponding secretary, which gave an account of meetings held in different parts of the Province during the year, and touched upon a number of subjects relating to the Association's work. A number of papers were read, and some lively discussion followed on the registration of pure-bred stock, on the importation of stock by the Government, and mistakes in dairying, etc., which made up a good programme.

Prof. F. T. Shutt, Chemist, Experimental Farm, Ottawa, gave an address on stable management of cattle, giving prominence to pure air, light, pure water, and clean, wholesome food; advised growing corn, oats, peas, and clover, as cheap, wholesome foods for cattle. Cleanliness and good ventilation were needful in all stables.

Mr. G. W. Forrest, Experimental Farm, Nappan, N.S., gave a good account of the experimental work carried on at the farm in growing different kinds of grain, roots, and potatoes, which was very interesting and instructive.

Mr. Gilbert, Poultry Manager of the Experimental Farm, Ottawa, gave a very instructive address on the management of poultry for profit.

Mr. Blair, Horticulturist of the Experimental Farm at Nappan, gave a very instructive address on fruit growing.

Mr. Macpherson Defended.

To the Editor FARMER'S ADVOCATE:

SIR,—In the March 1st ADVOCATE Mr. D. P. Cameron takes a tilt at Mr. Macpherson's letter of February 1st, and would have us believe that Mr. Macpherson, from a crop value of over \$5,000, only realized a profit of \$40. If Mr. Cameron would look over Mr. Macpherson's statement closely, with an eye to business, he would find that Mr. Macpherson has 68 head of fattening cattle, 170 pigs, and about 4½ months' milk from 70 cows, which he estimates will fetch him \$5,000, and I think his estimate is low, especially on his pigs, put below \$5 each at six months old. If my mathematics are right, according to Mr. Macpherson's statement he sold \$2,640.25 worth the first six months of the year, and estimates that he will be able to sell \$5,000 more, which would make the handsome sum of \$7,640.25 in the year. Now, as to his expenses:—

Purchased feed for the year	\$1,800
Fattening cattle	1,500
Wear, tear, and repairs	500
Manual labor	1,500
Total in all	\$5,300

Which would leave him a profit of \$2,340.25 (instead of \$40, as Mr. Cameron stated) to live on, or interest on capital invested.

Mr. Cameron wants to know how to make a small farm (a poor one at that) grow a good crop. I take from this that he is still in the old rut trying to make a living growing grain. If he will make his farm pay he must first adopt business principles—know what pays and what does not. My experience teaches me that every bushel of grain grown for sale is grown at a loss; therefore, the more bushels the farther in debt. Studying Mr. Macpherson's letter, we find he grows very little grain, and if we cannot do a big business like him, let us do what we can, and stop selling off fertility.

Elgin Co., Ont.

ED. TERRY.

STOCK.

The Canadian Horse Show.

More than usual interest will attach to the Spring Horse Show to be held in Toronto this year on the last two days of April and 1st of May. The improving prices for first-class horses and the general disposition to give more attention to breeding the classes demanded by the market will give new life to the industry, and will, no doubt, bring out many additional exhibitors and visitors. It is generally believed that the show this year will exceed all its predecessors, both in the number and quality of exhibits, especially in the breeding classes, and it is pretty certain the classes for riding and driving horses will be well sustained as usual. The prize list is a very liberal and extensive one, amounting to nearly \$5,000, embracing in all 63 classes, with first prizes of \$50, second prizes of \$30, and third prizes of \$20 in a large proportion of the classes. The list for breeding horses is liberal and encouraging, and it is hoped that breeders will generally avail themselves of the privilege of competing, and thus adding to the interest in the business as well as to the reputation of the character and parently become one of the established institutions of the country and is certainly one of the most enjoyable events of the season. Prize lists and all necessary information may be obtained by addressing Mr. Henry Wade, Parliament Buildings, Toronto, who is the Recording Secretary.

A Chester White Trio.

The porcine trio illustration on this page is the direct reproduction from a photograph taken at the Toronto Exhibition last September. The individuals represented are of Chester White breeding, and the property of Messrs. H. George & Sons, Crampton, Ont. The boar, Dominion King 761 (imp.), standing alone in the foreground, was the winner of 1st prize at Toronto, Montreal, and Ottawa, for boar under one year. He was then 11½ months old, and weighed 498 pounds. His length, depth of body and strength of back are indeed extraordinary. His offspring are strong and even. The sow standing next him is Bella of Calton 613, also winner of 1st prize at Toronto, Montreal, and Ottawa exhibitions, in the aged sow section. Her weight at that time was 742 pounds. She too possesses great development of sides, hams and back. As a breeder she has been most satisfactory, having suckled a litter of nine pigs last June while being fitted for the show campaign, and is still breeding. The other sow, Snow Ball, at 23 months old weighed 638 pounds. She possesses the typical Chester White characteristics, as the illustration shows. Her winnings last fall were 1st at Toronto and Montreal, 2nd at Ottawa, and along with her companions in the picture won the grand sweepstakes at Toronto, Montreal, and Ottawa, for best boar and two sows of any age, a prize claimed by this firm to have been taken six times out of seven when shown for at the Toronto Exhibition. Further notes on Messrs. H. George & Sons' herd appear in the Gossip columns of this issue.

Evils in the Shorthorn Business.

(Paper read at annual meeting of the Shorthorn Breeders Association.)

BY D. ALEXANDER, BRIDGE, ONT.

I think one of the evils working against us as a body of intelligent men, engaged in perhaps the grandest, most useful, and to the agricultural world the most intellectual as well as the most fascinating of the several lines composing the agricultural sphere, I say I believe the worst evil is men engaging in the breeding of pure-bred stock without the first talent of what makes a successful breeder. We all can call to mind men who thought they knew as well and much as any man how to choose good animals, how to feed, and how to mate them, and become, in their estimation, second to none as a breeder of pure-bred stock. But, gentlemen, I can count them by the dozen who have not only lost ground from the start, but have brought evils, decided evils, on others engaged in the business. The natural talents of stockmen are not theirs. Love for the business is not in it with them. The fascination and natural delight in caring for and in mating thoughtfully and intelligently is absent, and if we look closely we will find other motives, such as increased remuneration. The prices they hope to get are more fascinating to them than any pains they may take in breeding; and, as time passes, our friends get careless as well as being not adapted, and offer their stock at unremunerative prices to the public, depreciated in spirit, body, and ordinary value. Then we are met with the only too common remark, "Oh, I can get Mr. So-and-So's stock for half your price." We ask them what they are like? The answer is, "Not as nice as yours, but the blood is there and the price is one half." Yes, I answer, the price is one half, the other half this sort of breeder has lost and will continue to lose until he gets out of a business he should never have been engaged in. I defy you to satisfy the general public greed. And when once known that pure-bred cattle can be bought for half the price such cattle can be bred and sold for by those who make their business as remunerative as it should be, this downward plunge of our friend throws its spray over us all.

What can be done to remedy this? The Association raised the standard of the breed. May it not be possible to raise the standard of the breeder? I have often thought an intellectual standard or examination of those applying for membership might be carried out to the advantage of all, and might succeed better than at first sight. For instance, were a few questions asked that would set men thinking, such as the following:—

Have you given the subject of breeding pure-bred stock any consideration? What are the requirements of a successful and intelligent breeder? Describe how you would feed and care for such stock? Give the estimate cost or value of an animal (male or female) twelve months old, as you are or would care for it? I need not give other examples. The able men I see here could easily cover the ground of such a standard as I suggest to better advantage than I can; but you have an idea, and I believe it can be made to raise the standard of intelligence in those about to engage in the business.

Another evil is the grade bull business. I am satisfied that what is called pride in our work will never reach or prevent the keeping of grade sires—the country swarms with them, and legislative enactment can be the only sure remedy. By an enactment men are forced to respect their neigh-

bor's rights, in the building of their homes and places of their business, as to who shall manufacture or sell liquors, and many other things. The municipal system abounds with instances where individual right is more encroached on than it will be by taxing the grade bull or stallion ten to fifty dollars.

Why, gentlemen, need I remind you that none of us can take a wife to himself unless he pays a tax, or let all the world know of it weeks previous. After years of close and painstaking observation, I estimate that there are one-third of the males from common cows, and in some districts more, and they are generally owned by people who also own debentures.

Let all the live stock associations work for the overthrow of this curse to the stock of our country. The pride in our work or idea will never do it—legislative enactment will, and it will help those foolish people more than it will the breeders.

This removed, and an intellectual standard for our profession, as other professions have, and we are on equality with other trades and professions.

Feeding Dairy Cows.

The questions by G. A. A. and P. E. Island farmer, answered by Prof. Day, in another column, revive interest in a timely and most important subject—how to feed the dairy cow in order to get the best returns? A cow, in order to milk to her utmost capacity, must be fed on such food and in such a manner as to keep her in perfect health. Overfeeding a cow, or any other animal, will derange the stomach, and not only waste food, but impair digestion, assimilation, and the milk, flesh and energy forming functions. The best authorities have found by repeated detailed and wisely-conducted experiments and observation, and in every-day experience, that the greatest return from food consumed is obtained when it is composed of palatable, digestible foods compounded in certain proportion of flesh or casein (curd) forming material

thrifty growing condition at all times, but never fat, desiring to encourage the tendency to put fat in the pail and not on the back. It is advisable to handle heifers a good deal, so that they will learn to have no fear of the human animal.

Calves do much better in a cool, clean, well-ventilated stable than if left to shift for themselves during the hot summer season. They should have room for necessary exercise, but I have noticed that the majority of calves get a little too much of that article in their search for something edible. As heifers advance in age they should be fed largely on the more bulky foods, in order to extend to some extent the abdomen and give ample boiler capacity. Ensilage, roots, corn fodder, cut straw, etc., with very little grain, will carry them through the winter in hearty and vigorous condition, and they will be less affected by the change to grass in the spring than grain-fed animals.

Our heifers are generally bred to calve at 24 to 27 months old; have never had satisfactory results from those that did not calve until they were three years old. They acquire the habit of putting on beef, and like all bad habits, it sticks to them. After the heifer is in calf she should have plenty of feed in order to develop the milk glands, and for the last month or two before calving a liberal grain ration is of great service in producing a large udder and in giving her a start on the road to dairy success. Most cows are either made or marred during the first period of gestation. It is not safe to feed much grain to an aged cow just before calving, owing to the danger of milk fever, but two-year-old heifers very rarely suffer from this disease. After the heifer drops her first calf she should be fed sparingly for a few days till she regains her normal condition, after which the amount of succulent food should be gradually increased till she gets about all she will take, in order to encourage the milking tendency and further develop the milk glands.

Under this system of management we have never lost a calf and scarcely ever had a sick one. If a calf shows symptoms of scours a little starch dissolved in water is added to the milk, but in a bad case of scours it would be best to eliminate the poison from the system by means of a dose or two of castor oil before giving starch, laudanum or whatever corrective is used. Visitors at "Maple Hill" almost invariably express their admiration for the large and thrifty calves, and we feel proud that six years of persistent care and labor along the above lines has enabled us to build up a dairy herd that has few superiors anywhere in heavy production, rich breeding, and uniformity of type. G. W. CLEMONS, Brant Co., Ont.

From Eight to Ten Thousand Pounds of Milk the First Year.

We select and raise all our heifer calves from our best cows. We find it to be beneficial to the dam and the calf to allow the little one to remain with the mother for twenty-four hours, when it is removed to calf pen, where it is fed new milk three times a day for three weeks, and then we add one half skimmed milk direct from the separator for two weeks, after which they are fed skim milk only, with a little oil-cake meal. They are early taught to eat bran and oat chop dry, and clover hay, the latter of which is always kept in their racks; and when two months old we feed them corn ensilage, and continue to feed skim milk until they are about four months old, when water is mixed with the milk for a few days, when they are weaned. We continue feeding the clover hay, ensilage, bran, and chop feed, with a little oil cake, until they are turned out to pasture at six to eight months old, great care being taken not to let them get too fat. The winter following we divide them into lots of half a dozen each, putting them into warm, dry pens, about 20 x 30 feet, with outside yard attached, in each of which there is a watering trough with a continuous flow of spring water which never freezes. In very cold weather they are allowed out in the yards only a short time, say an hour or two. In mild weather they are allowed to run out and in at pleasure. They are served to come in at two years of age; special care being exercised in feeding for ten days before and after calving. Our heifers are milked the first year for twelve to fourteen months, thereafter from ten to twelve months each year, giving them six to eight weeks' rest. With the above treatment, the best of our heifers give eight to ten thousand pounds of milk the first year. E. D. TILLSON, Norfolk Co., Ont.

A Good Dairy-Bred Sire Essential.

It is a fact that dairying has become the foremost and most profitable industry for the Canadian farmer. No other branch of his business has for a number of years given him as good returns, and yet in no other branch does the average farmer show so much neglect as in the breeding and raising of his dairy stock. Little or no thought is given as to the proper selection of a dairy bull. In many instances any bull at all is used, no matter how



A SWEEPSTAKES CHESTER WHITE TRIO, THE PROPERTY OF H. GEORGE & SONS, CRAMPTON, ONT.

(protein) to a certain proportion of "digestible" heat, fat and energy forming foods (carbohydrates), and withal, of sufficient bulk to satisfy hunger at each meal. Not only is it important that a cow's stomach be well filled to give her comfort and contentment, but by the pressure of fibrous fodder on the lining of the stomach digestive juices are more liberally secreted.

Raising Heifer Calves for the Dairy.

To the Editor FARMER'S ADVOCATE:

SIR.—All the calves at "Maple Hill" are pure-bred Holstein-Friesians. Constitutional vigor and inherited dairy tendency are absolutely essential: they are the foundation on which a dairy herd must be built. When a calf is dropped we allow it to remain with the dam for a few hours only, just long enough for it to secure a good square meal of the mother's milk. It is then placed in a clean and roomy box stall, and taught to drink, usually at the first or second trial. We find that the cow does not fret so much, and the calf learns to drink with less trouble, when we follow this plan. We feed whole milk for six weeks or two months, about ten or twelve pounds per day at first, and gradually increase to about twenty pounds; two feeds per day, but three would be preferable for the first month. When the calf is three or four weeks old we put a little bran or chopped oats in the feed box after giving the milk, and in a few days the prospective cow cultivates a taste for bran, oats, oil meal, and clover hay, which are freely supplied. Whole milk is all that is necessary for the first month, after which the ruminating stomach begins to develop and the calf is able to make a start on solid foods. We never feed any gruel, jelly, porridge, or anything of that kind, preferring to develop the powers of mastication from the start. When the solid feeds are readily taken we change gradually to skim milk, of which we are fortunate enough to have an abundant supply at nearly all times of the year. The skim milk is continued until the calf is six or eight months old, and sometimes even longer. We aim to keep our heifers in

ill-bred or scrubby he is, or how inferior individually, as long as he can be had for little or no service fee. Others use sires of the true beef type and breeding. Would a breeder of trotting horses ever think of using a draft sire to produce trotters, or a breeder of draft horses use a trotting-bred sire to produce heavy horses? I think not; they breed for their special purpose. How, then, can the dairyman ever think of obtaining the best results under the manner in which he frequently pursues his calling? When dairying can be made to pay under such adverse circumstances, what would the possibilities be if intelligent use were made of the material within the reach of all?

To produce a superior and profitable dairy cow it is of the utmost importance that we select a sire bred on dairy lines for generations, and the further back we can trace him descending from superior dairy sires and dams the better. A few extra dollars spent in this direction are well spent, and will return a high per cent. of interest on the invested capital. Take, for instance, that you raise four heifers in a year from a sire of the right type and breeding, raise them properly and when they come in milk and will only produce three or four pounds more daily than their dams (very often they produce ten pounds more), take only four pounds for 300 milking days and you have 1,200, which at 75c. per cwt. will give you an increase of \$9, or \$36 per year for the four improved cows from only one year's produce of a good dairy bull. Supposing that you milk these cows ten years, you have a grand profit of \$360 on the investment of \$40 to \$50. How a dairyman can say he cannot afford to use a good bull is beyond my comprehension.

Now, in answer to your question how I breed, rear, and feed my heifers until they enter the dairy as milkers, the foregoing is part of my answer. I select a sire bred right and that conforms to my ideal as to dairy form and type. When his calves are dropped, I allow them to be licked dry and then remove them from their dams. They never suck, but are at once taught to drink from a pail, commencing with a quart three times daily, which is gradually increased to about twenty pounds. This I feed until they are about four weeks old, when I change to sweet skim milk to which is added a gruel made of oil-cake meal scalded in hot water. This warms the milk to the right temperature. At this time they have placed before them a little bran, which they soon learn to lick up, also a few pulped mangolds, and a little silage and whole oats, all of which they soon enjoy. A little fine hay is placed before them after they are a week or ten days old, at which they begin at once to nibble. I prefer to keep them in the stable during the first summer, as I find that they thrive better on the above feed when kept in the cool barn than when out in the scorching sun in the pasture. My aim is to keep them growing, but never allow them to get fat. During the winter they are fed on bulky foods, such as ensilage, chaff or cut straw, to which is added a little meal, bran and pulped roots. I breed them so as to drop their first calves at from 24 to 28 months old; at this time it is of importance that they are in good hearty condition. If they are on good pasture nothing else is required, but if on winter feed a liberal supply of bran and chopped oats is given. After they are in milk they should be fed liberally on such foods which will produce milk, thereby developing and establishing their milk-producing powers. Under the above system I have produced heifers that at two years old milked from 40 to 50 pounds daily, and four-year-olds that milked over 15,000 pounds in a year, which should be sufficient evidence that my system is not far from the right road to success.

Oxford Co.

H. BOLLERT.

Feeding Horses on Old Potatoes.

It would appear that there is something more than a modicum of danger in feeding old potatoes to horses. Some time ago we referred to the mysterious deaths of twelve horses owned by Mr. A. D. Wells, Baker Farm, Wallingford. At the time the deaths were shrouded in mystery, but at last a ray of light has been shed upon the cause, which should act as a warning to farmers and others similarly situated. In a great many parts of the country the feeding of potatoes is a common, and we believe wholesome enough, practice. But if these potatoes are stale, and merely used up for food because they cannot profitably be sold, then there is a certain amount of danger incurred by their use. Mr. Wells fed his horses on boiled barley, beans, and potatoes twelve months old. The deaths could not be attributed to poisoning in the ordinary way, nor could they be traced to the beans or barley. Prof. McFadyean, however, conducted an experiment with an old cab horse at the Royal Veterinary College, and his investigations clearly established the complicity of the potatoes as the cause of death. When boiled, the potatoes easily broke in two, and occasionally turned color. It will therefore be wise policy on the part of farmers to clearly comprehend the condition of the potatoes they wish to feed to their horses and feed moderately.—*Farmer and Stock Breeder, London, Eng.*

The British Markets.

Cables this week have been favorable to shippers, choice States cattle making 12c. per lb., Canadian and Argentine 11c. (sinking the offal). Sheep market strong, and 1c. to 1c. higher, at 13 1/2c. per lb.

New Classification and Freight Rates on Pure-bred Cattle, Sheep, and Swine.

The case of the Canadian breeders of pure-bred stock for more reasonable transportation charges was very fully set forth in the February 1st and previous issues of the FARMER'S ADVOCATE. We are now able to announce that the Transportation Committee of the Dominion Cattle, Sheep, and Swine Breeders' Associations has met the representatives of the various Canadian railways and has obtained the following reduction in shipping rates of pure-bred animals. The weights at which pure-bred animals will hereafter be taken by the Canadian railways are as follows. The charge per cwt. remains as heretofore:—

Bull calves, six months old and under	500 lbs. each
Bulls, and bull calves over six months and under one year old	1,000 " "
Bulls one year and up to two years	2,000 " "
Bulls over two years old	2,500 " "
Cows, one animal	2,000 " "
Cows, two animals in same car	3,500 " "
Cows, three animals in same car	5,000 " "
Each additional animal in same car	1,000 " "
(Must be from one shipper to one consignee, in one shipment, to one destination.)	
Heifer calves, six months old and under	500 " each.
Heifer calves over six months and up to one year old	1,000 " "
Heifers over one year and up to two years old	1,500 " "
Heifers over two years old same as cows.	

Certificates of registration must, in all cases, be produced by shipper. Agents will take note of particulars as to name of animal and age, and keep record of same, also make note of billing accordingly. Pedigreed stock, as above, may be taken without man in charge, provided owners sign the usual contract releasing the Company from liability in consequence thereof. The above special estimated weights will only apply when owners sign the usual valuation agreement for ordinary stock. If extra values are declared, the weights and rates will be as per classification for valuable stock, page 42, classification No. 10.

RATE FROM ANY POINT IN ONTARIO TO ANY POINT IN MANITOBA AND THE CANADIAN NORTHWEST.

The joint Transportation Committee of the Dominion Cattle, Sheep, and Swine Breeders' Association has arranged with the officials of the Canadian Pacific Railway and the Grand Trunk Railway to carry pure-bred cattle, sheep, and swine from any point in Ontario and Quebec (west of Montreal) at the rate of half a cent per ton per mile for carload lots. This is the rate charged on settlers' effects. The charge for a carload of pure-bred stock from any point in Ontario to any point in Manitoba may be learned from any agent of the C. P. R. or the G. T. R., and is published in the pamphlet known as "F. T. No. 45, Canadian Pacific Railway Special Through West-bound Tariff on Settlers' Effects." The rate for a carload of 20,000 pounds from any point in Ontario or Quebec (west of Montreal) to Winnipeg is \$72 per carload; to Regina, \$90; to Calgary, \$114; and corresponding rates to all other western points. (The rates heretofore in force for a similar carload have been: To Winnipeg, \$130; to Regina, \$164; to Calgary, \$202; and these latter rates are now charged for animals not recorded.)

Under the new arrangements it is not necessary to load all the animals composing a carload at any one point; i. e., part of a car may be loaded at London, part at Woodstock, part at Toronto, or at any other stations on the direct line between the starting point and the destination of the car. No additional charge will be made for a car so loaded, except shunting charges, which are \$3 for the first stop and \$2 for each subsequent stop.

One man will be passed free with each carload, and he will be returned from the destination of the car to the original point of shipment at one cent per mile, second class. All animals sent at the above rates must be pure-bred, and shipped for breeding purposes only; and a certificate of registration for each animal must be presented to the agent at the shipping point. After being examined by the agent, each certificate will be returned to the shipper.

Parties who wish to ship single animals from any point in Ontario to Manitoba and the West may do so at carload rates by corresponding with the Secretary of the Associations, and as soon as enough animals to fill a car are offered the car will be forwarded in charge of a suitable attendant. The price charged for the transportation of such animals will be about \$6.50 per head for cattle over two years old, when sent to Winnipeg. If sent to Regina the charges will be about \$7.50 per head, and to Calgary \$8.50. Young cattle and sheep and swine will be carried at proportionate rates. (From three to four sheep, and from two to six pigs, usually occupy as much space as one bullock.) In addition each shipper will be required to pay shunting charges necessitated by his shipment. In all cases the shipper must furnish enough feed to support the animal or animals from the starting point to their destination. Freight in all cases must be prepaid. Pure-bred animals shipped to Winnipeg or other distributing points, in carload lots, may be distributed singly therefrom over the various railway lines at reduced freight rates.

Further particulars may be had by applying to the general or local freight agents of the C. P. R. or the G. T. R., or to F. W. Hodson, Guelph, Ont.

Bullock Fattening in England.

Geo. Sach, of Elmstead, Colchester, Eng., describes his method of fattening bullocks, which will be of special interest to FARMER'S ADVOCATE readers who have been closely following the letters published during the past season in our columns on this subject:—

"I generally fatten about 30 in the winter and spring. My first lot I have about latter part of October. I always buy good ones, as I do not believe in having poor cattle. I always feed them well. They have the best stover I can get, cut up into chaff, mixed with barley caven (chaff) or oak caven, all they can eat. They also get 2 1/2 bushels of meal, 1/2 maize meal, and 1/2 American flour, with 6 lbs. per head per day of best oil cake, with a little cotton cake added per day, half in the morning and half at night, along with 3 good bushels of mangels to 14 bullocks at every meal. Put the chaff with meal and cake in the cribs first, then cut the mangels and put on the chaff, and stir up all together with a four-tine fork. I always feed bullocks twice a day, morning and afternoon. Some people feed three times a day. I think this a mistake, as it unsettles their rest at midday, when mine are lying quiet. Another point is to make them eat up every meal clean before again feeding. I always like a clean plate, and so do they. I give them all they want of clean water in a tank. They like a little bunch of good hay in the hay crib. I think it helps them to digest their food. A bullock always likes a clean bed to lie down on. It does not matter so much about a dirty yard, but they must have clean beds to lie on. Some people say mangels are not good to eat before the New Year; but as I had neither swedes this year nor last, I find the mangels answer my purpose very well. My cattle have plenty of yard room and good barns to go in when they please. They are polled bullocks. I like them best, as they lie more quiet than horned ones."

A New English Flock Book.

At Taunton, Eng., recently, a preliminary meeting was held of the breeders of Devon Long-wool sheep to inaugurate a Flock Book Association for that well-established breed which has been long known in the neighborhood of Bampton. They sprang from the old Bampton variety, which was the North Devon breed most generally kept in that part of the kingdom in the last century. These Bampton sheep were exceeding hardy, robust, and of large size, but, like all other long-wool flocks throughout the United Kingdom, they were destined to be transformed into quite another type by Bakewell's rams, giving them more wool and size and a better quality of mutton. Some specimens show signs of Lincoln blood as well. They were well represented at the great meeting of the Royal Agricultural Society in 1889. They have quite a number of enthusiastic breeders. The Devon Long-wools are a white-faced and heavy-framed sheep.

FARM.

His Farm Accounts Analyzed.

To the Editor FARMER'S ADVOCATE:

SIR,—The publication in your columns of Mr. Macpherson's letter has caused considerable stir in the farming community, and many conflicting opinions are expressed as to its facts and the results to be drawn therefrom. In my long experience of nigh seventy years, I have often been called upon to investigate such facts in my own interest. Will you allow me, therefore, the privilege of a line or two with reference to his letter. As to his sales, we must take them as given; as to his debit accounts, we must take them with grains of allowance, the word "about" being very unsatisfactory in the matter of account. I take it, that a fair rent for Mr. Macpherson's land, with its immense buildings and farm accommodation, would be five dollars per acre—this sum capitalized would make the value of his farm \$12,500. The question of profits or otherwise would be very easily determined if Mr. Macpherson had given us the exact sum of his expense, as well as the exact sum of his receipts; this he has not done. The statement which he makes of "about" \$1,000 for hired labor is not satisfactory. Then the statement of "about" \$500 for wear and tear, etc., is also far within the actual fact, in my opinion. He seems to include in this blacksmith's bill, harness bill, carpenter work. He has doubtless a power, whether it is air or water, horse or steam; in such an establishment we would say it would be absolutely necessary. Then there must be pulp mill, grinding mill, carriers, shafts, jacks and belts, all liable to get out of order and deteriorate by use. Upon all these points Mr. Macpherson is silent, or thinks to satisfy us with the word "about" \$500. Under these circumstances the following statement is given as a fair result of Mr. Macpherson's work for the year. It is a simple method of keeping account of progress on a farm and is perfectly correct if properly kept:

DEBIT.		CREDITS.	
Rent \$5 per acre, 125 acres..	\$ 625 00	Milk.....	\$1,506 21
Taxes, say.....	50 00	Pork.....	984 00
Five horses, valued at \$75,	375 00	Calves.....	150 00
375, 10 per cent.....	37 50		
Hired help, "about.....	1,500 00		
Repairs and accounts, etc.,	750 00		
Food purchased.....	2,000 00		
Fertilizer purchased.....	100 00		
Cattle, plus 6 mos. int.....	1,545 00		
Superintendent.....	500 00		
	\$7,107 50		
Balance.....	533 25		
Rent as above.....	625 00		
Total profits of farm for			
the year.....	\$1,158 25		
9 per cent. on \$12,500.00.			

Ontario Co., Ont.

G. H. GRIERSON.

Another Reply to Mr. Macpherson.

To the Editor FARMER'S ADVOCATE:

SIR,—Having been an interested reader of Mr. Macpherson's statement in the ADVOCATE of his farming and its results—past, present, and prospective—as well as the discussion of his methods by your correspondents, I desire to say, as a plain farmer, that I am in sympathy and agreement with the general principles advocated and practiced by Mr. Macpherson (excepting his Government scheme, which I consider impracticable); that is, the practice of intensive farming and the marketing of the produce of the farm, not in the raw material, but in the finished articles of beef, pork, butter, cheese, wool, mutton, eggs, etc., thereby, if judiciously managed, realizing a higher market value for all feeds consumed, and also adding considerable value to the farm each year in fertility obtained by keeping a much larger per cent. of stock by the farmer in order to consume the foods raised. I am fully persuaded of the importance of keeping enough stock on the farm to consume the foods produced, and also of being able through intensive farming to grow more feed and keep more stock, which should be grown as much as possible on the farm; but, while admitting all this, I must say that I take exception to some of Mr. Macpherson's theories, and I confess to a lack of faith in his figures, which are largely speculative, and in many cases mere estimates. For instance, when he puts down in his statement ensilage corn at an average of 29 tons to the acre, the ordinary farmer naturally falls into wondering whether he is talking about "scale weights" or whether it is simply in the mind's eye that such results are obtained. We have been led to believe that 20 tons of corn to the acre was a very heavy crop, and I am inclined to think is very seldom exceeded even by the most advanced farmers. Mr. E. D. Tillson, one of our most successful corn growers, who feeds a large number of cows and manures his land heavily, gave a statement of his work in this line at the Dairymen's convention at Woodstock last year, in which he said he had raised 50 acres of ensilage corn the previous year which produced just 20 tons to the acre. He had weighed the corn and measured the acres and knew just exactly what he was talking about. Now, when Mr. Macpherson talks about 29 tons to the acre, and in a later letter to the ADVOCATE affirms that over 40 tons per acre can be raised, I think he need not be surprised if the ordinary farmer gets the idea into his head that the aforesaid Mr. Macpherson is "talking through his hat," as the slang phrase goes.

Now, suppose we put his crop of corn at 20 tons per acre, which is certainly a very liberal estimate, and is probably nearly double the average crop obtained throughout the country, this would show a reduction of nine tons to the acre, which, at Mr. Macpherson's valuation of \$3 per ton, would make a little difference of \$27 per acre, or on his 26-acre patch a difference of \$702, to be deducted from his estimated value of the products of his farm. Again, Mr. Macpherson values his ensilage at \$3 per ton, which is much higher than we have been used to seeing it valued—certainly high when we consider the enormous crop said to have been raised. I believe that about \$2.00 per ton is generally considered a liberal valuation, while many feeders put it even less. But suppose we take the happy medium and value it at \$2 per ton, this would make a further reduction of \$750, or a total of over \$1,450 on the estimated value of his corn crop alone. Then his hay crop is estimated in his statement at three tons per acre, and valued at \$3 per ton. The yield in this case also strikes the ordinary farmer as being very high. Two tons per acre is, I believe, considered a first-class crop, even on the best managed farms. It will, therefore, not be considered unfair to make a reduction of \$8 per acre on this account, or say \$300 on the estimated value of produce of the 39 acres of hay, or a total of \$1,750 on the two crops—hay and corn. Of course, this is only a trifle when dealing with such large figures, but the ordinary farmer is getting used to dealing with small sums in these times.

To show that I have not, in regard to these crops, figured on low averages, I may here state that the report of the Bureau of Industries for Ontario gives the average weight of green fodder corn, for the Province, in 1894, at 9.43 tons; for 1895, 11.85 tons, and for 13 years past at 10.75 tons per acre. The average of hay and clover, for the 13 years, is given as 1.33 tons, or less than 1½ tons per acre. Surely, if we grant 20 tons of corn and

2 tons of hay per acre, Mr. Macpherson will have no cause to complain. I notice, also, that Mr. Macpherson makes no allowance in his statement for the farmer's living, which has to come out of the farm, and which, with many farmers, would be in itself a very fair income. This, I suppose, may be set down as anywhere between \$500 and \$1,000, and would, according to good bookkeeping, be deducted from the profit claimed.

I have indulged in these comments, not in the spirit of captious criticism, but to show how widely men differ in their judgment and estimates of crops and values, and how figures, which enjoy the reputation of being very truthful, may in the hands of earnest, enthusiastic persons of optimistic tendencies be made to present a more dazzling and favorable appearance than they will bear out when subjected to the search-light of criticism and investigation. We are reminded by this of the story of a young lady who, having accepted an offer of marriage, was met by serious objections from her father, on the ground of the impecuniosity of her spouse. The lady promptly met the objection by stating that she had money enough in the savings bank to buy a dozen hens, and with her little lead pencil proceeded to figure out that each hen should lay at least 200 eggs in a year, which, by the natural process of incubation, would produce 2,400 chickens the first year, which would at once provide employ-

An Inexpensive Stock Barn.

The stock barn illustrated on this page is situated on the farm of Lewis T. Page, in the County of York, Ont. The barn proper, which is 55 feet by 77 feet, contains two drive floors, two granaries, and three mows, the large center one being filled half from each floor. The two silos, 10 x 12 and 10 x 15 feet, take up a portion of the small mow. The chutes, marked in Fig. 1, are for feeding the horses and putting down straw, etc. The horses' racks are perpendicular, which prevents dirt falling into their manes. T D in Fig. 1 represent trap doors to root house and stable beneath.

The walls of the basement are eight feet high, built of concrete made of one part Queenston cement to six of gravel. A quantity of field stone was also worked into the center of the wall. The silos, cistern, water tank, troughs for watering cows and horses, and floors are all made of cement. The work was done by Mr. Page and his help. There is a large cistern beneath the approach to the barn, with a pipe in the bottom connecting it with a tank in the basement which is two feet deep, two feet wide, and twelve feet long. A gas pipe connects this with a cement trough in front of the cows. This is built in connection with the bottom of the feed box. The top of the trough is on a level with the bottom of the box. The plank that forms the side of the feed manger next the cows extends over the trough, and a board leading from the top of this to the outer edge of trough encloses it all in except a small opening at the side of stall for each cow to drink out of. The troughs of the different stables are connected with gas pipe. The inflow of water through a fine wire screen is regulated by a float in tank marked F in cut. This tank extends into a small concrete milk room marked M R in cut. The milk is kept in this room in summer. The first cost of this milk room and water supply was very little, and it runs itself now and gives perfect satisfaction. The silos extend to the roof. About one third of their cost was saved by using the walls of the basement on two sides as part of silo walls. The total cost of the whole structure in which cement was used was \$275, less the gravel and stone, which were found on the farm.

The horse stalls are five feet wide and eight feet long. The mangers consist of boxes, which pull out into the feed room to receive the oats and chaff. All the hay and straw is fed from the floor above. The horse water trough marked W T is supplied from a spring well just outside the wall.

The cow stalls are double, seven feet wide and five feet four inches long from manger. The gutters behind the cattle are fourteen inches wide and seven inches deep. A three-foot passage connects the different stables.

There are four square ten-inch ventilators reaching from basement to roof, one at each side and each end. There are also a number of two-inch tile passing through the wall near the top, and also near the bottom, about fifteen feet apart. The ventilation system is very satisfactory, as Mr. Page claims that he has not had a sick horse or cow during the two years he has used this barn. He considers the cement floors as being far ahead of any other sort he has ever seen.

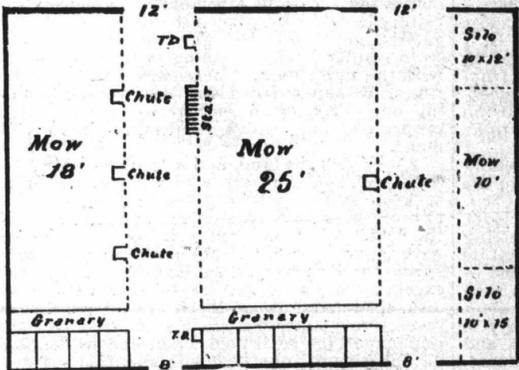


FIG. I.—BARN FLOOR PLAN.

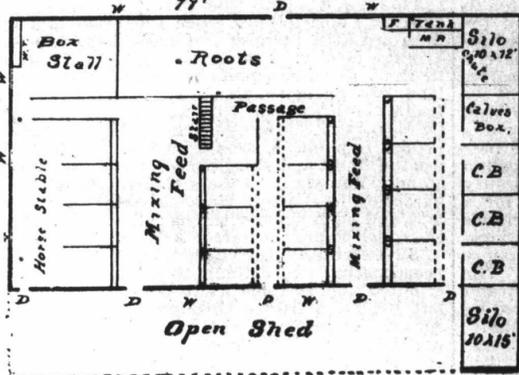


FIG. II.—BASEMENT PLAN.

ment for her husband in their care; and if only one half of these were producers the next year's results would show a flock of 240,000, which only needed to be multiplied by a few figures representing the years they would need to remain in the business, and fortune was theirs just as surely as the rising of the sun. On the same assumption, what is to hinder Mr. Macpherson from becoming a millionaire in a very few years if he will but plant his whole farm to corn, with the assurance of reaping a crop of 30 to 40 tons per acre, valued at \$3 per ton. It is a simple question in arithmetic, and means from \$12,000 to \$15,000 a year.

I will only add that it has struck me as being remarkable, when Mr. Macpherson made so favorable a showing of his crop yields, that the returns from the sale of milk from his cows show only an average of \$20 per cow for the six summer months, and I can only account for this from the probability that the milk was subjected to the test of scale weights, as I understand the milk went into the cheese factory, and no doubt an accurate account was kept, while the corn and hay weights were estimated. One would naturally have expected that on such a prosperous farm, where so much money was paid out for feed, the cows would have made a better showing, and we are led to wonder that such a progressive farmer would put costly feed into such unproductive cattle. Evidently there is room for improvement even in the system of farming which Mr. Macpherson heralds as so very successful. I am inclined to think that there are not a few modest Canadian farmers who would make just as good a showing if we were able to see the actual results of their operations side by side.

Ontario Co., Ont.

A. O. F.

Cultivation and Seeding.

(Continued from page 104.)

- 1.—What estimate do you place upon the careful selection and cleaning of seed grain? Kindly outline your method.
- 2.—How do you prepare fall-plowed ground for spring seeding? Mention the sort of cultivator preferred—straight tooth, disc, spade, spring tooth, broad tooth, etc.—giving reasons for your choice; also, refer to harrowing and rolling before and after seeding.
- 3.—Which do you prefer, drilling or broadcasting seed, and why?
- 4.—Following what crops do you secure the best yields of peas? How do you prepare the ground and how do you manage to escape the bug?
- 5.—Outline what you consider the best method of securing a catch of clover and grass seed.
- 6.—Have you had any experience with lucern and orchard grass; if so, kindly give your impression of either or both for pasture, soiling, hay, or for improving the soil?
- 7.—What variety of oats, barley, peas, and spring wheat do you find give the most general satisfaction?

Careful Selection of Seed and a Good Seed-bed.

1.—The handling of seed grain receives the most careful attention of the many features of grain-growing on our farm. Selection commences with the harvest, when the best developed part or parts of the field crop is selected, threshed separately, and put into small bins or large boxes. Seed grain is always cleaned in winter, when more time can be given (and not when seeding time comes) and a proper job made of it. All light grain is blown out and screens rearranged so as to separate all small grain, saving only the largest and best grains for seed.

2.—If plowed ground is rough or uneven we apply the harrow to even the surface for a wheeled

spring-tooth cultivator. If your ground is uneven the wheels will be raised and lowered, and the teeth of the cultivator also, and will not make the work thorough. The object is to get the tillage of an even depth. If the ground does not reduce fine enough with the cultivator to commence sowing, the harrow is again applied, because it is before sowing that the seed-bed must be prepared. Do not attempt to make a seed-bed when grain has been sown. After sowing a light stroke of the harrow to cover any grain left up and to reduce any lumps and bring the coarsest soil to the top to be then crushed with a roller, which will also pack the soil around the grain. The spring-tooth cultivator with wheels is used because of efficiency of work, ease in handling, and durability. They can be easily set deeper or shallower, backed up or turned.

3.—I have always used a drill on the principle that the grain is deposited in direct contact with the capillary attraction of moisture from below and the loose soil allowed to fall upon it and check evaporation. The grain, being deposited upon the firm ground, roots in it, and if drouth follows it is not so much affected by it as if deposited broadcast among the loose cultivated soil.

4.—Our best crops of peas are generally obtained from sod (clover best), as the roots of the pea vine love a loose, warm soil, and this is supplied in the decomposing of sod. In preparing a seed-bed the object to be most looked for in peas is to secure a deep and finely pulverized seed-bed. This is most easily obtained from spring plowing, and is, I believe, the reason why some people prefer spring plowing for peas; but I have equal results from fall plowing where a good seed-bed is procured. With regard to the bug pest, we have had no trouble here for many years and only hope to be left so.

5.—One of the greatest mistakes in seeding clovers and grasses is from a lack of fertility in the soil. Do not attempt to seed down land that will hardly grow another crop. The tiny plant of clover or grass seed has such a small scope for getting food that if there is little or no food in the soil its existence is a matter of doubt. Get your land in good condition and it will not be hard to get a good stand of grasses. Fall wheat is a fine crop to get a catch with, as the seed can be sown very early in spring. We generally seed down after corn and roots with spring grain, wheat, barley and oats, and when a little extra care is taken in preparing the seed-bed no fear is entertained concerning the catch.

6.—My experience with lucern is only beginning, having a field just seeded and a very good catch to start with. Orchard grass has been grown for many years. It gives a great quantity of pasture when kept down, but if let get a start it is not relished by stock. For hay it must be cut early, when it makes an excellent coarse fodder hay.

7.—In oats the Joannette, a black oat, has been an enormous yielder of grain, with a very fine straw. The Siberian (white) is one of the best white oats we have grown. In barley the Canadian Duckbill is our favorite. The Canadian Beauty peas stand at the top of the list with us for a productive pea with fine, clean straw. Herrison's Bearded spring wheat, a comparatively new variety, is a good yielder. It presents a somewhat scraggy appearance when growing, but yields well. The grain is below average in size, but very plump and hard and over weight, and is well recommended by millers.

Peterboro Co., Ont.

Seed Selection More Important than Changing.

I attach the greatest importance to the careful selection of seed grain, and in all cases have it cleaned thoroughly and of the best possible quality. I usually try and grow my own seed as far as possible, and can see no advantage in changing seed from one locality to another, nor is there any perceptible advantage in changing from a light soil to a heavy one, or vice versa. Smutty seed, both in fall wheat and oats, needs our careful attention. As a preventive, I have used the copper sulphate solution and think that results prove its efficacy. In preparing fall-plowed land for spring seeding, it is difficult to say what plan can always be followed, as varying conditions make varying methods necessary, and here is one of the circumstances where the skill of the farmer shows to good advantage.

In my own practice, if the land is much run together by repeated freezing and thawing, I use the three-furrowed gang plow, running it almost as lightly as possible so as to turn it all, then an Acme pulverizing harrow across the plowing; then sow. This usually makes an excellent seed-bed, and also has the advantage of leaving the field almost perfectly level and in good condition for seeding down if it is desirable to do so. In spring, I would not think of rolling before sowing, but always roll after, but not until the surface is as dry as possible. In sowing, I prefer drilling wheat and peas, and broadcasting barley and oats. The reason for drilling wheat is because it is a deep feeder and delights in a mellow soil; barley and oats feed nearer the surface, and require a compact soil to retain the moisture. In growing peas, I prefer an inverted sod, spring plowed, and well cultivated on the surface; but any soil, particularly one of a light or limestone composition, will usually give good peas. I think it a mistake to apply fresh manure under peas; as a rule, the fermentation resulting

from this causes the soil to become too open and dry. In order to escape the pea weevil, or bug, as it is sometimes called, it is only necessary to sow perfectly clean seed and sow late. I consider the best time to sow is from the 10th to the 20th of May.

In order to secure a good catch of clover and grass seeds, I know of no better way than to seed down with fall wheat as a nurse crop. Sow early—not later than the 1st of April; on the snow, if possible; no harm will come to the seed if it should lie a month before sprouting. Next to fall wheat I prefer barley, and after preparing and sowing in the usual way, I then sow with a barrow grass seed sower (about 14 pounds per acre, mixed Alsike, red clover and timothy) and then roll, and, as a rule, seldom fail to get a good stand of grass. Have had no experience with lucern or orchard grass, but think they are not well adapted to our short rotation.

The varieties most generally grown here, and which doubtless are the most satisfactory, are Banner oats, Mandscheuri barley, Golden Vine peas, and what little spring wheat is sown is Goose.

Perth Co., Ont.

JOHN BURNS.

Up-to-Date Methods.

1.—A proper estimate cannot be placed on it, but I would say from 25 per cent. to 50 per cent. of the crop might be made by sowing good clean seed. To be sure, I would select from the best parts of the field after a careful examination while maturing, being careful to keep separate while harvesting, or getting new seed that gave an extra good yield from similar land. Cleaning twice or three times with the mill; then, if necessary, hand pick at odd times. Be sure to sow clean seed; weed when heading out. Too often seed grain is sown without proper cleaning, which results in a serious detriment.

2.—Watch the land, and as soon as dry spots are to be seen run the harrow or cultivator over them to keep mellow and not bake; this often occurs two or three days in advance of the remainder of the field. We have used a spring-tooth cultivator with superior results. My preference would be a spring-tooth cultivator, for its all-round utility and excellent work in various soils. Straight tooth, disk, spade, and broad tooth are all good in their respective places, but it does not pay to have an implement for each field when one will suffice. I do not wish to infer that you should discard your cultivator and get a spring-tooth. By no means; but when you need a new one give them all a fair trial, then draw your conclusions. There are some instances when a cultivator is almost uncalled for, the harrow would do the work. The spring-tooth cultivator does the best work when time and horse-flesh are at a premium. I have reference to the average farmer. I would make one improvement in the cultivator. Some practice going over the land two or more times with a cultivator, and tramp the life out of it before they get it in shape (while other fields are suffering), when once, with a proper implement, would suffice. In harrowing use the finest and sharpest tooth harrow that will stand. You want to use a tool that does the best execution in shortest time. Harrow once, driving fast, and then finish with the roller. If lumpy use the roller before the harrow.

3.—I certainly believe that drilling is superior to broadcasting. In drilling, the seed is evenly distributed and systematically covered, and there is left behind a fissure through which the tender sprout can protrude against odds. With broadcasting there is a small per cent. that is not covered, and some more only partially covered, and some that cannot get out. The reason is not on account of its being too deeply covered, but a lump may fall on it and it has not the strength to protrude, consequently it may have to grow one and a half or two inches to get out to the surface; this has exhausted too much vitality, and it never amounts to much. We save time in broadcasting, only in case it should rain, then you have to repeat the preparation you have just finished before you can drill, and the extra tramping of the horses I think is detrimental.

4.—From killed-out clover meadow or seeding, or from barley ground fall plowed. A good crop of peas come from almost any land, if they are given a chance at all. When on clover meadow or seeding that has killed out, we sow the peas with a broadcaster first, then gang plow them under three or four inches deep, make fine with a harrow and roller, sow a few in furrows, and fill them up with the harrows by weighting or standing on them. Keep it harrowed and rolled up to plow, and not allow it to dry out. Now, on fall plowed land we prepare same as for wheat, and sow with drill. Remove all the sticks and stones, and try a pea harvester—one of the greatest time and labor saving machines a farmer can use. For short straw attach a table to bar, and for long straw try the buncher. You can make a table for yourself. *The Bug.*—To escape this the first thing to do is to doctor seed; and neither sowing too early nor too late gives us the best results; better be a little late than early both for crop and bugs. Peas should be more largely grown, for they nourish the impoverished land and enliven it.

5.—Have your land in a high state of cultivation, and manure plowed under in fall previous; if you have not enough to cover the whole, put where it is absolutely necessary, or top dress these places in spring. Use a cultivator both ways, then make fine where necessary. Sow your seed with broadcaster behind the teeth, following with the harrow

to cover clover and grass seed, finishing with roller. Use plenty of seed. We never fail to get a good catch, but are at a loss to know what to do to keep from wintering out. Seeds sown with barley give us the best results. Oats are so thick and grassy in the bottom they choke the seeds out. Wheat seems to rob the little plant of nourishment. Peas invite weeds to grow, and they run the clover out, or the peas fall down and smother the seeds. When the crop is harvested there is nothing to catch the snow, resulting in winter-killing. I would suggest green manuring to furnish plant food if manure is scarce.

6.—Have had no experience with lucern, but have grown orchard grass with good result, and can recommend it; it winters well where others are killed; starts early with vigorous blades; cows like it better than horses, they prefer a finer grass. On sandy loam, with a favorable season, you can cut two good crops, and you may get the third. It makes nice hay alone, with clover or timothy, for it is very leafy and the stalk is not hard. It has long roots and large top, which I would think would convey large amounts of nitrogen to the soil. For a permanent pasture this should be one of the seeds sown, for it held its own for ten years with us, and was the only survivor.

7.—Of oats, as well as other grain, it would be difficult to say which was the best, for there are so many good varieties. Banner and Bavarian are among the best. Barley—Trooper, Oderbrucker, and Mandscheuri, all six-rowed varieties. Peas—Golden Vine, Spring Wheat—Campbell's Silver Chaff and Colorado.

Prince Edward Co.

W. C. HUFF.

Unbounded Faith in Lucern.

1.—We believe as much depends upon careful selection of seed grain as upon the selection of breeding animals. We always sow plump, medium sized grain, thoroughly cleaned. When husking, we select our seed corn, leaving a few husks on the best ears. These are thrown to one side when unloading at the crib, and are piled or hung up by the husks in a dry, airy building. From seed corn so selected and cared for we have our largest yields.

2.—We find the quickest and most thorough way of preparing fall plowed stubble is to plow it cross-ways of the lands, harrow once or twice with a common straight-tooth harrow, and if the land is light and dry we roll ahead of the drill, as it makes much better drilling. It is again rolled immediately after drilling, if possible, especially if lucern clover is sown. The clover attachment is set to distribute the seed behind the drill tubes, and the roller coming after covers and presses the seed the required depth. Rolling also buries corn stumps, small stones, etc., that might injure cutting machinery. For cultivating sod, we prefer the disk harrow, because it pulverizes the surface without tearing up sods.

3.—We prefer the drill. The seed is sown more evenly and at a uniform depth, and we also think the clover does better when the nurse crop is in drills.

4.—After trying peas of every description, and sowing them "in the moon" and "out of the moon," the farmers of this district have, generally speaking, abandoned growing peas as the only means of escaping the bug.

5.—The seasons are so variable it is a hard matter to follow a set time or method for sowing grass or clover seed, for what proves successful one season is a failure the next. Much depends upon the weather of the two succeeding months. When possible, we sow about the middle of March, after a light fall of snow, or when the surface is in a honey-combed condition, caused by freezing and thawing. We use a "Little Giant" seeder, sowing six to eight pounds of Red clover and two pounds of Alsike per acre. The latter thickens up the bottom, grows where the Red clover is heaved out, and produces hay of superior quality. Nothing but the best seed should be sown. Buying low grades, probably paying the "best" price for the three pecks of inferior seed which a bushel of it contains, and getting the other peck of foul seed thrown in "free gratis," does not pay. Better sow less and have it pure.

6.—Have had no experience with orchard grass, but we have unbounded faith in lucern. From nine acres of barley seeded down last spring, with 13 pounds of lucern, 5 pounds Red clover, and 1½ pounds Alsike per acre, we last fall cut between 12 and 15 tons of the best milk-producing hay we ever handled. Not only does it make good hay if cut at the proper time, but is also splendid for either soiling or pasture, and there is no doubt but it is a great soil enricher. In fact, after six years' experience with lucern, we do not see how we could manage without it.

7.—White Siberian, Black Tartarian, and Joannette. Very few peas and less spring wheat grown.

Kent Co., Ont.

W. A. MCGEACHY.

Believes in Changing Seed.

1.—The selection and cleaning of seed grain is of the greatest importance; in fact, it is the first principle to securing a first-class crop. No ordinary cleaning of once through the mill should be tolerated. Run through a grading mill to secure the largest grains, as such grains produce a stronger plant, which, according to the old adage, "like produces like," we secure large grain and also a greater yield. I also think that seed grain of any variety should be frequently changed, say once in four or five years. To exemplify what I say: Two years ago I changed my seed oats, with the result that I have grown in those years heavier crops and no smut, and it is also notable that in those years

there has been more smut in this section that I have ever known before.

2.—As to preparing the ground for spring seeding, I use a disk harrow as soon as dry enough to work well, then harrow and drill the seed and roll. The reason I use a disk is that I consider it a better implement than a spring-tooth cultivator, doing its work in a more workmanlike manner, lifting the soil and allowing the air to penetrate the soil.

3.—I prefer a drill, as the seed is more uniformly planted, particularly in a dry season, securing quicker germination, which prevents loss of seed and secures more even crops.

4.—Peas are not grown here with any success. A neighbor tells me that the only way to escape the bug is to sow in the full moon in June, but I notice that he had neither peas or bugs.

5.—This is one of the problems of the closing years of the nineteenth century—How to secure a good stand of clover? I have experimented and have tried every scheme to further this end, and find that the surest way is the oldest on earth, which is to sow clover chaff at the rate of about four bushels of chaff to the acre, sown on the snow in February or March; but do not mean to say that I strictly follow this plan, but it has proved the most successful. I have the best success when sowing merchantable seed by sowing after light freezing, so that the thawing out covers the seed. This is not scientific, but science does not always fill the pocket nor fit in with practice successfully.

6.—I have sown five acres of lucern in '95 and '96. I cut about one acre of the '95 crop and got about one ton; the balance of field was a failure. It would neither grow nor let it alone. The '96 experiment is likely to prove just as successful as the first. The acre cut did not grow after being cut, and I am inclined to think I have had experience enough in that line.

7.—Varieties of oats most successful in this section are White Russian, Early Siberian, and a variety received from the O. A. C., for white; for black, Tartarian. Barley, Mandschouri. Peas and spring wheat not sown. Fall wheat, Dawson's Golden Chaff, Michigan Amber, and Hybrid Mediterranean. Corn, High Mixed and Mastodon. Essex Co., Ont. W. G. BALDWIN.

Cleaning Seed Grain.

1.—I place a very high estimate on the careful selection and cleaning of seed grain. The fanning mill should be run with very little shake and plenty of wind and screens that will take out everything of an inferior grade.

2.—It depends on the soil, and the variety to be sown. For wheat, I would not cultivate. Oats, barley and peas I would cultivate. Spring-tooth cultivator, I think, is the best. When cultivated, I prefer harrowing and rolling after sowing.

3.—I have tried both drilling and broadcasting and I can't see any difference on spring crops, only peas, which when drilled in can be covered much better.

4.—I have the best results on sod plowed in the fall and well cultivated in the spring and drilled in. Pea bugs have never bothered us in this section.

5.—I would prefer sowing clover and grass seeds following corn or roots. Sow early in the spring; harrow and roll as soon as possible after.

6.—I have had no experience with lucern or orchard grass.

7.—Banner oats take the lead; barley, six-rowed; peas, Prussian Blue; wheat, White Russian and Thick-set. J. F. MALYON. Ontario Co., Ont.

From Nova Scotia.

1.—We consider it of great importance to get good clean seed grain. Our practice is to run all seed grain through a cleaner or through a good stiff wind, taking about half for seed.

2.—Harrow well with spring-tooth cultivator, finishing off with a straight-tooth harrow, thus making a good seed-bed and leaving the surface fine and smooth.

3.—I would prefer drilling seed, as it puts the grain at a more uniform depth, insuring a more even ripening of the grain.

4.—Not grown, except with other grains.

5.—Have generally had best success by seeding down with spring wheat following a root crop. Always run the roller over clover and grass seed.

6.—No experience.

7.—Hazlett's Seizure or Canadian Triumph oat, Six-rowed barley, Golden Vine pea, white Russian wheat. Our soil is generally a sandy loam. Cumberland Co., N. S. C. H. BLACK.

Cost of a Pound of Pork.

BY F. J. SLEIGHTHOLM, STRATHROY, ONTARIO.

Noting in your February 15th and March 1st numbers many opinions regarding "feeding and management of swine," I would offer the following data on the cost of producing a pound of pork in answer to your ninth question.

To make a statement of the cost of a pound of pork, beef, mutton, or any other product, without the needed details, seems next to valueless, savoring of guess work. Accurate knowledge of the cost of production is almost unknown. Surely there is need of an awakening! The following results are based on the feeding of spring litters, and we have therefore given the cost of feeding the dam through the winter.

Cost of Feeding a Brood Sow in Winter.—Three sows were in the experiment; one was an old sow, the other two were carrying their first litters.

DAILY RATION.	
Three pecks mangels, at 5c. per bushel.	\$0.04
(Note—5c. equals actual cost of growing.)	
Quarter bushel barley (refuse) at 16c. per bushel.	04
Total.....	\$0.08
Total per day per animal.....	023
120 days (four months, December to March).....	3.20

Quarters.—Underneath a stack of straw. The average date of farrowing for the three sows was April 2nd, and eight was the average of the litters.

Cost of Feed while Suckling Litter.—Time, six weeks. Feed—A mixture of peas, two parts; barley, two parts; and oats one part, by measure, all ground and fed dry. The total cost of the food of each sow for the forty-two days, together with that eaten by the litter, was \$4.61; winter feed, \$3.20; total, \$7.81; cost of each pig (8) at six weeks 7.81 ÷ 8 = 97c.; average weight, 32 lbs.; average cost of 1 lb., 3c.

Feed from this time forward.—1, shorts and barley, half and half; 2, shorts, 3; and barley, 3 (by measure); 3, Finishing period—Shorts, 3; barley, 3; peas, 1.

Four and four-fifths lbs. of this mixture made one pound of pork (dressed), and cost three and one-half cents at market prices for grain, viz.: shorts, \$13 per ton; barley, 35c. per bushel; peas, 50c. per bushel. The cost on foot was 2½c. But, as indicated, this cost is based on market prices, which, though a customary method of estimating cost, is an erroneous one, and should be dropped. This applies to all products grown by the farmer. A crop of barley yielding 35 bushels per acre can be grown at a cost not exceeding 25c. per bushel, allowing \$3 per acre for rent; while peas can be raised for 35c. to 40c. if a crop of 25 bushels per acre be obtained, and this is the proper basis for computation.

At these estimates, which are the results of yearly practice, the above pork cost: Dressed, 2½c. per pound; on foot, 2½c. per pound, from the time of weaning until marketing. All these pigs were marketed at dressed weights, varying from 100 to 150 pounds.

Salt, wood ashes, and sulphur were supplied at pleasure. Green peas in the straw and green corn in their respective seasons were fed in small quantity once a day. From the time of leaving the dam these pigs received nothing but water to drink. The ground feed was mixed soft (not watery) and allowed to ferment slightly, enough for the day being mixed each morning. Two single handfuls of salt were added to the evening meal (for the 24 head). Water in separate trough was supplied regularly. By way of variety, a tough grass sod was thrown to them occasionally. They were fed all they would eat, but never surfeited. They had one attendant, not five or six. Meals were given with strict, clock-like regularity. These results have been duplicated in the feeding of large numbers of hogs, as many as 200 being fed off annually. This work as here given is not calculation simply, but the outcome of actual practice. The results are not wonderful, but they are encouraging in these depressed times.

We have also made careful experiment on the cost of a pound of pork with pigs running on grass and clover, with a light addition of grain when finishing. The grain addition was peas and barley in varying proportions. With this diet we have raised pork at a cost of 2c. live weight, or about 2½c. dressed. Our chief objection to this method lies in the fact that these pigs were not ready for the market soon enough to catch the best prices, and yet there was a neat profit in them.

Addenda.—The chief source of loss in feeding pork is in the laziness or lack of understanding in the feeder. Food and water are best given in separate troughs. When mixing food with water (or s. milk) it should be mixed thinner on very warm days and drier on the cooler days. In winter it should be fed dry. In this one thing a clever feeder will feed at a profit and an ignorant one at a loss. Some tonic must be kept constantly before swine that are fattened in pens. Peas and corn (grain) are not as suitable as shorts and barley for feeding young pigs in hot weather. Indeed, we have known pigs almost at a standstill when fed these heat-producing foods when kept penned up in warm weather. Young sows are not as profitable as older ones, since they do not farrow as large litters, nor do the pigs grow and gain as well. As a rule farmers make a mistake when they take but one litter from a sow and then fatten her. In consequence, it is not best to choose brood sows from first litters.

Moral.—Farmers who cannot feed swine at a profit at current prices for pork are unacquainted with the principles and practice of successful swine rearing.

Dairy Convention at Strathroy, Ont.

The Western Butter and Cheese Association will hold a makers and patrons' meeting in the Dairy School, Strathroy, Ont., on Friday, March 26th. The afternoon session will be devoted particularly to addresses and discussions on practical cheese and butter making, and the evening session to the care and production of milk, and will be largely a farmers' meeting. Among those who will give addresses are: F. Sleightholm, Principal of the Dairy School; J. S. Pearce and R. Robertson, London; Wm. Waddell, Instructor in Cheesemaking, and H. Smith, Instructor in Buttermaking, at the Western Dairy School; J. B. Muir, Avonbank; J. W. Wheaton, Secretary of the Association; and others. The cheesemakers west of London are urgently requested to attend this meeting and discuss the methods of making before the season begins.

DAIRY.

Cheese and Butter Makers' Convention.

- LIVE TOPICS DISCUSSED—THE CAUSE OF TAINTS—
- CREAMERY MANAGEMENT—MAKING CHEESE
- FROM GASSY MILK—CURING-ROOMS AND
- CURING CHEESE—THE TURNIP IN
- DAIRYING—MILK TESTING—
- PASTEURIZING CREAM—
- BUTTERMILKING.

The second annual meeting of the Ontario Cheese and Butter Makers, held at the Guelph Dairy School on the afternoon and evening of Feb. 5th, was a very successful convention. The attendance was good, papers were short and to the point, and discussions lively and instructive. Mr. Alex. McLaren, M. P., President of the Western Cheese and Butter Association, occupied the chair during the afternoon session, and Mr. Daniel Derbyshire, President of the Eastern Association, in the evening. President McLaren opened the meeting by a few happy remarks, together with the expression of a hope that much good would result from the interchange of ideas, and that some heavy shot would be fired into the camp of turnip, apple, whey, and hog-pen flavors.

President Mills welcomed the visitors and expressed pleasure at seeing so many from whom he expected to hear and to bring them in touch with the Agricultural College Dairy School and to receive their sympathy and support. A little practical advice was tendered the students, whom he hoped would be patient and persistent in preparation for work. Education is a slow process where theory and practice go hand in hand. He hoped all the students would remain to finish the dairy course, and when they were graduated remember that their education had only commenced. The President's advice to all was not to simply work according to the pay they were to receive. It is much better to give \$100 work for \$60 pay in order to succeed and progress. The third point was to be scrupulously clean in the dairy business. This requires determination. Be clean and look clean. Always wear a clean apron, shave as often as necessary to look clean, keep the nails and teeth clean, and always keep the factory in such a condition that no matter who comes into it no apology need be made. In all things aim high. Seek to rise above the common level. Be ambitious, both for individual interest and the interest of the dairy business.

TAINTS IN MILK

was the subject of a paper by J. H. Findlay, who pointed out that most of the trouble from this source was due to carelessness on the part of patrons. The more common flavors found are known as "stable," "turnip," "apple," "whey can," etc. Carelessness in aeration is quite common, and utter neglect of this important duty is much to blame for this troublesome condition of milk. Taints can often be detected on opening the can when it arrives at the factory, but in very cold weather a sample should be taken and warmed up, and when taints are discovered the milk should be returned with explanations and suggestions for improvement. Aeration was spoken of as being an indispensable operation in supplying first-class milk.

In the discussion which followed, it was pointed out by G. H. Barr, Sebringville, that the best place for a milk stand was on a wagon which should be hauled to the windward side of the barnyard or hog pen, so that bad odors would be driven from the milk cans, especially while it was being aerated. Dirty whey cans, dirty strainer cloths, etc., were common causes of bad flavors. The strainer cloth should be boiled half an hour occasionally. The whey of the factory over which Mr. Barr has charge is conducted over 300 yards, in pipes, to the hog pen. The waste water is conducted beyond that point.

Another maker said milk should be strained as soon as possible after milking, then aerated while warm, and when cool it should be covered tightly.

"HOW I MANAGE MY CREAMERIES"

was dealt with by A. Wenger, Ayton. The cream is raised in shotgun cans submerged in cold water. Many patrons use ice in the warm weather. Every second day the teams call around and gather the cream. It is gathered in cream pails and measured with a foot rule. It is tested by the oil test churn. Cream that tests 100 produces one pound of butter per inch of cream in the cream pail. The patrons are paid according to the inches of cream and the quality as shown by the oil test churn. The cream is generally nearly ripe when it arrives at the creamery. If so, it is churned the same night. It is salted with best salt and packed in cases to suit the markets being supplied. Mr. Wenger insists on the patrons feeding properly and taking proper care of the whole milk and cream. It is not otherwise accepted. The butter when made is placed in cold storage at 35° Fahr., as that is about the same as the temperature of refrigerator cars. In the discussion which followed, it was pointed out that better results are obtained from cream testing 75 to 90 by the oil churn than cream testing much higher especially when raised by the gravity method. A complaint was made to the effect that mold had appeared in some square butter cases next the wood. Mr. Wenger has had no trouble in that regard, but suggests that it must have resulted from using unseasoned wood for butter cases.

MAKING CHEESE FROM GASSY OR TAINTED MILK

was discussed in a paper by J. A. Grey, Listowel. The best plan is to return gassy or tainted milk to the patron, but when such conditions develop after the milk has heated up in the vat it was recommended to hasten the process of making by adding more rennet earlier than usual; dip when the curd shows one-quarter of an inch of acid on the hot iron. Cut the curd lengthwise, then crosswise; mill earlier than usual, then wash the curds in water at 105 degrees to wash out the sour flavor.

Other makers objected to washing with water, because of the loss of fat that would thus be sustained. While some favor piling the curds to a considerable depth and leaving them until the gas holes had flattened out, others preferred shallow piling, early grinding, and spreading thinly for airing. One maker claimed much for washing the curds in clean-flavored whey from other vats.

Mr. J. A. Ruddick, of the Kingston Dairy School, recommended makers to divide gassy curds, and, for the sake of experiment, wash one half and treat the other in some other way, in order to determine the relative merits of washing.

Mr. D. M. Macpherson, M. P. P., Lancaster, expressed the opinion that the whole gain from washing came from the resultant increase in heat and moisture.

CURING-ROOMS AND CURING CHEESE

was discussed by W. A. Bothwell, Hickson, who claimed that a control of temperature is essential to successful curing. Makers must demand suitable buildings if first-class cheese is to be turned out. Keep the room tidy and in good order. Before using the room in the spring the shelves should be washed with weak lye and allowed to air properly. Always place the cheese on the shelves as uniformly as possible.

Mr. Derbyshire remarked that cheese is only half made when it enters the curing room. Provide good ventilation, and heat by means of steam pipes passing entirely round the wall. This was objected to because when the making had ceased in the fall, steam would have to be kept up purposely for heating.

Mr. J. S. Pearce remarked that many large curing rooms were attempted to be heated by a small stove in one end. He advocated using a good stove having a jacket to direct the heat near the ceiling.

Mr. Macpherson claimed that a curing room should have walls that will not allow heat or cold to pass through them. He advocated double boarded outside, with building paper between, and double boarded inside, also having paper between. Ventilate by having windows drop down from the top on either side of the building. For heating he recommended a large amount of stovepipe surface for radiation. It was remarked that cheese is often injured in transportation and storehouses not being properly cooled. They should be properly iced and ventilated.

Mr. Robt. Ballantyne, Stratford, recommended ice racks placed up near the ceiling, and beneath them sheets of galvanized iron from either side, sloping to run the dripping into a trough to carry it away. The rack can be held up between two posts. It is only necessary to use ice in very hot spells. It was also recommended to date the cheese on the shelves to direct the makers' education and avoid mistakes. Mr. Ballantyne recommended a hot air furnace for heating, jacketed with two cases of sheet iron with asbestos between them. Carry the sides high enough to extend above the cheese.

Mr. R. Robertson, London, recommended order and neatness in a curing room as being very important. When he, as a buyer, entered a slovenly factory or curing room, he unconsciously became prejudiced against the cheese, thinking there might be something wrong with it. He advised all makers to keep their rooms in a manner to give a good impression. To moisten the atmosphere in a curing room he advised placing a pan of water on the heater.

Reference was made by a number of speakers to boxing the cheese. There is apparently a great need for a better class of boxes. One factory has adopted the plan of paying for all the boxes that leave the factory in good condition, and those that are broken are not paid for.

J. T. Brill, Guelph, advocated co-operative buttermaking and weekly shipments in order to create a constant demand.

TURNIPS

were touched on by J. B. Muir, Avonbank, and T. B. Millar, Dairy School. The former claimed that his many patrons have abandoned feeding turnips, and find corn and other foods cheaper and better. Mr. Millar referred to a number of factories having lost from one to two cents per pound last fall because of "turnipy" flavor in the cheese. It is a mystery to him why farmers persist in feeding food that injures the dairy products, when corn, mangels, etc., can be so easily grown and fed.

Mr. Macpherson, in speaking on the question of carrying whey home in the cans, related an experience he had had by a few drops of sour whey falling into a cheese vat from a leak in an elevated tank. The result was bad-flavored cheese. The speaker remarked that they can be safely carried home if every one will wash, scald, and air the cans thoroughly. This, however, some will not do, and, therefore, no factory should allow any patron to follow the practice.

President Derbyshire's address, upon opening

the evening session, referred to the magnitude and importance of the dairying industry, going so far as to say that without the British outlet for our cheese much of Ontario that is now flourishing would have been in a deplorable condition financially. He impressed on the meeting the importance of close and intelligent attention to details and constant vigilance in every department of the manufacture of dairy goods.

Mr. D. M. Macpherson, M. P. P., in the absence of the Hon. John Dryden, was called upon and made an eloquent address. He made a strong plea for systematic and united endeavor on the part of patron and maker. His reference to the recent amalgamation of the Butter and Cheese Associations had no uncertain sound. He thought it was a timely movement, quite in keeping with the practical money-making movement of turning cheese factories into creameries in the winter season, as it saved expense and covered the ground. Business science in the dairy industry was referred to as being decidedly lacking. While quality and quantity of salable products are essential to success, profit is another important element that requires special study. We must discover ways and means of obtaining a return of profit from our business.

MILK TESTING AND ITS APPLICATION

was discussed by J. W. Mitchell, who referred to the Babcock tester and the lactometer as having superseded all other means of testing milk. These instruments are not being sufficiently used. They have three important functions: (1st) To detect adulteration; (2nd) to indicate the value of milk for cheese and butter making; and (3rd) to test the milk of cows to learn whether or not they are profitable. The necessity of guarding against adulteration or skimming is evident. The second use of the tester, that of paying for milk by the per cent. of fat, is altogether too little appreciated. The objections raised—trouble and expense—are very much overestimated. Except milk is paid for in that way it gives a premium to poor milk. A composite test is very easily and cheaply made. [NOTE.—The method advocated was given in last issue in our account of work at the Dairy School.—Ed.] The cost amounts to about one quarter of a cent per test, or twenty cents for each time in the ordinary factory. This is from one and one half to three cents per month to each patron for chemicals. The test need only be made once in two weeks, when an extra hand will be necessary for a half day. Painting the labels on each man's bottle with shellac will prevent them washing off. A strong solution of lye was recommended as a good cleanser of the test bottles. In making tests a uniform temperature is very important. Often in composite testing the samples will burn with the ordinary amount of acid, by reason of the effect of the preserving chemicals. In such cases less sulphuric acid should be used. The milk should be about 70 degrees when the acid is added and the water at 140 degrees. It was estimated that the cheesemaker could test the patrons' cows at ten cents per cow. If such were general, many poor, unprofitable cows would be weeded out. Two hundred and fifty pounds of butter or 600 pounds of cheese should be the minimum product of a dairy cow.

RECENT INVESTIGATIONS IN CHEESEMAKING

was the subject of an address by J. A. Ruddick, of Kingston Dairy School. The investigations referred to were of a bacteriological character. The reddish-yellow discoloration which appears in cheese and has given considerable trouble in some factories was discovered to have originated in drainage gutters or pipes which opened into the cheese factory. These, Mr. Ruddick advised, should be open for some distance after leaving the factory and be thoroughly cleansed occasionally. Where such had been done, the trouble had vanished. A lesson drawn from this result of bad bacteria, which showed itself by its color, aroused the question, Is it not probable that many other bad effects, which are not indicated by color, also come from foul cesspools, leaky floors, and the like? He advised that all drains be very carefully constructed and kept clean. Another source of contamination, causing tainted milk, has been found to originate in intestinal secretions of animals. Dirty milking yards, and dirty watering places, where cattle droppings fall into the water, were condemned. Road dust was said to be alive with these germs, which, if they fall into milk being taken to the factory, will cause trouble. These organisms are blamed for causing pinhole gas in curds.

PASTEURIZING CREAM

Mr. T. C. Rodgers explained fully the process of pasteurizing which has been followed at the Dairy School this winter. This was given in detail in the ADVOCATE, March 1st, page 107. Mr. Rodgers also explained a new pasteurizing pan which he is just commencing to use, and for which much was claimed. It is an invention of Mr. Rodgers', with some suggestions from dairy students. It consists of two pans, the under one 36 inches long, 18 inches wide, and 3½ inches deep. This has lying on its bottom a coil of half-inch steam pipe, plugged at the end, and perforated at close intervals to allow the steam to escape. In this pan is set another, which holds the cream, having a corrugated bottom. The corrugations are seven in number, extending the full depth of the pan, which provides over 2,400 square inches of surface. The lower pan is filled within an inch of the top with water, which is heated by the steam. The corrugated bottom of

the cream pan is arranged similar to a syrup evaporating pan. The cream runs in at one corner from a vat supplied from the four separators, and by the time it has passed around all the corrugations it is raised to the desired temperature of 100 degrees. A thermometer is kept standing in the cream at the outlet, and the amount of steam desired is admitted by a valve. A lid fits on the cream pan, and a vat on the top of that, from which the cream runs. From the pasteurizer it runs into the curing vat.

BUTTERMAKING

was the subject of a paper prepared by Mr. Gordon McKee, of Lansdowne, and read in his absence by Prof. Dean. The paper was quite up-to-date in its teaching. He advocated heating the whole milk to 106 degrees before separating to eliminate bad odors. Stress was laid on thoroughly scalding the vats each day before putting in the cream. A good clean flavored starter is recommended. The churning was recommended to be done at 58 degrees, which a number of makers considered too high. Other points made were much in common with the practices of Mr. J. B. Muir, as indicated in his articles in the ADVOCATE.

CHEMISTRY OF MILK

was ably discussed in a paper by Prof. Shuttleworth, Chemist O. A. C., by way of review of the valuable contributions of the chemist to the dairy industry. The Babcock tester was one of the subjects under discussion. The paper concluded with a technical description of the fat-casein system of paying for milk for cheesemaking according to the results of experiments conducted at the Guelph College, at the N. Y. Station, by Prof. Van Slyke and others.

Western Ontario Dairy Interests.

At a meeting of the directors of the Western Butter and Cheese Association at Stratford on Saturday, March 6th, Mr. T. B. Millar, Kincardine, was appointed chief instructor, and will have immediate charge of the territory north of the main line of the G. T. Railway, between Toronto and Sarnia, and will look after the prosecution of parties for tampering with milk in the whole Association district. The territory south of the G. T. R. will be divided into an eastern and western section. Mr. James Morrison, Henfryn, was appointed instructor for the western section, and Mr. Alex. Clarke, Shakespeare, instructor for the eastern section. Both are successful cheesemakers. The factories will be charged \$3 per day, or four days' instruction on four visits of one day's duration each for \$10, and for each additional day, \$2.50, the Association to pay the traveling expenses of the instructor.

The next annual convention will be held in London, on January 19, 20 and 21, 1898.

Mr. J. W. Wheaton tendered his resignation as secretary, and Mr. Geo. Hatley, of Brantford, was appointed. A cordial resolution of thanks was tendered Mr. Wheaton for his able services to the Association and a wish for his success in his new venture.

Mr. Hatley, the newly-appointed Secretary, has for a long time been personally interested in the cheese trade as an exporter, is Secretary of the Brantford Board of Trade and of the Southern Fair Board.

ENTOMOLOGY.

Carbon Bisulphide for Pea Weevil—A Serious Danger.

To the Editor FARMER'S ADVOCATE:

SIR,—I wish to call your attention to an error which has crept into your paper, that is not only misleading but dangerous. On page 111, of the issue for March 1, 1897, column 1, under "How to Rid Seed Peas of Bugs" (by T. G. Raynor), one reads: "A chemical preparation called the bisulphide of carbon is placed at the top of the peas in a shallow vessel and ignited." The italics are mine.

You are probably aware that carbon bisulphide is quite volatile and that its vapor is not only extremely inflammable, but that it also explodes when ignited. The recommendation as published would most likely lead to the firing of the building or place in which it was tried, and might even result fatally to the operator. The vapor of carbon bisulphide is quickly fatal to most animals and would be doubly so if blown by an explosion into the face of a person.

J. A. LINTNER.

Office State Entomologist, Albany, N. Y.

P. S.—TREATMENT: Place the infested peas in a tight box, barrel or bin, and on top of them a shallow vessel containing carbon bisulphide. Cover tightly for a day or two—the time being dependent upon the amount of peas treated and the tightness of the vessel. It has been found that a pound and a half of carbon bisulphide is amply sufficient for a ton of infested grain in a tight bin, and the same proportion would most likely be sufficient for peas. The sooner infested peas are treated after ripening and gathering, the less damage will be done by the weevils. After treatment they should be stored in tight boxes, barrels or paper bags to avoid reinfestation.

J. A. L. [NOTE.—In treating small quantities, Prof. Samuel Green, of the Minnesota State School of Agriculture, recommends filling a barrel nearly full of seed, then sprinkle on top an ounce of the liquid for each 100 lbs. of seed, and cover tightly for several hours.—EDITOR.]

GARDEN AND ORCHARD.

Pruning Apple Trees.

BY ELLIS F. AUGUSTINE, LAMBTON CO., ONT.

The systematic pruning of apple trees, performed with a definite end in view, is something that should be thoroughly understood by every farmer who is the owner of an orchard, whether large or small, as this is a work which cannot safely be entrusted to others if the future welfare of the orchard is given the consideration its importance demands. When trimming a tree with an unbalanced top I have sometimes found it necessary to cut back a limb with the object of diverting its growth in a particular direction for the purpose of filling up an open space so as to secure a balanced and symmetrical head. A note of this act is made as a guide for future work, but were the following pruning entrusted to other hands the probability is that the particular result aimed for would be entirely frustrated. For general pruning there is no season of the year better suited for the work than the warm days of late March and early April, for if done too early in the winter the severe freezing weather is very liable to cause damage where wounds are made. A result of severe winter pruning performed when the mercury registered at or below the zero point may be seen in two different orchards within one and one half miles of the writer's home. The one was a comparatively old orchard, very closely planted; the other consisted of young, thrifty trees; but in both instances the injudicious pruning had a fatal result. The severe shock sustained by the trees as a result of the cut surfaces being exposed to severe cold caused the bark to dry up and fall from the trunks and large limbs during the following summer. Where large limbs are to be removed the work should be delayed until late June or early July, as the wounds will then heal over with much less damage to the tree.

In such cases the cut surface should be treated to a coat of thick paint, grafting wax, or some other substance suitable for keeping out wet and facilitating early healing of the wound. But the necessity for removing large limbs may be prevented by the exercise of a little judgment and foresight when forming the head of the young tree.

If the tree arrives from the nursery with but two limbs, forming a crotch, one should be cut off, leaving the straightest, which should then be cut back at the height desired for the head. From this straight stem a number of shoots will start, and by rubbing off all but three or four suitable ones a well-balanced head can be formed. By timely attention to this and similar work, and frequent light pruning of the tree when young, there will be no necessity of lopping off large limbs in after years. There are several objects to be kept in view when trimming a tree. One is to allow sufficient space between the large limbs to admit the body of a grown person when gathering the fruit. Another is to keep the center of the tree well open, to facilitate spraying and admit sunlight and free currents of air, as without these the fruit will be small and uncolored and the propagation of fungi will be encouraged. On the other hand, if the center is allowed to become too open there is danger of the limbs becoming sunscalded, resulting in the drying up of the bark and the eventual death of the limbs. When pruning a tree with a spreading habit of growth, such as the Greening, a different system must be employed than for an upright growing one, such as the Northern Spy. In the former case the lower limbs are the ones usually required to be cut out, while the center of the tree needs less attention. In the latter the reverse of this should be practised. The King rarely requires much thinning out, but is greatly benefited by cutting back.

In the case of a young tree where a limb is inclined to grow in a wrong direction it can largely be corrected by cutting back and leaving the last bud (which is the one that will force) on the side in which the new growth is desired to extend. Thus the growth can be inclined upward, downward or to either side as desired to fill up a vacancy. One source of much trouble in some orchards is the quantity of young shoots that sprout up from the roots at the base of the trees. This is usually caused through the trees having been crown-grafted in the nursery.

When setting out a young orchard, if care is taken to procure only root-grafted stock this trouble will be largely avoided. The suckers that grow from the limbs of a tree, and which are usually most abundant after severe pruning, may be most expeditiously removed by rubbing off with the hand soon after starting growth. If their removal is delayed until the following spring a new growth will invariably start from the same source. The best authorities claim that late winter pruning tends to encourage the growth of wood and the general building up of the tree, while summer pruning performed during the latter part of June stimulates fruit production. This is certainly based upon scientific principles, but the average farmer can hardly do better than attend to the pruning of his orchard during the leisure hours of the present month.

J. B. HOBBS, Lambton Co., Ont., writes:—"Please find enclosed \$1, my subscription to the FARMER'S ADVOCATE, which I find a valuable help in farming. I would not like to do without it if it cost \$5."

THE HELPING HAND.

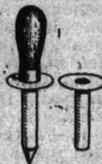
A Good Whiffletree.

C. L. G. THOMAS, Oxbow, Assa.:—"The accompanying illustration represents a very handy and serviceable whiffletree, which I find is much easier on the horses' shoulders than those generally in use. It does not act as a lever, throwing more pressure on the shoulder going forward, but it throws the same pressure on each shoulder. D is the single-tree, say 3 inches at the center; ring A should be 1 1/2 in. larger than the wood, say 4 1/2, to be made of 1/2 or 3/4 in. round iron, ring to be round and evenly made. Plate B, Fig. II., should be 5 in. long by 1/2 in. wide and 3/4 in. deep, with 6 1/2-in. holes drilled in it. The four outer holes, H H H H, should be countersunk for wood screw head. Now countersink the holes I I, Fig. II., on the opposite side to insert staple F, to be riveted. Have the holes I I 3-16 further apart than the size of your ring A, to insure free working. Now insert staple F into plate B and rivet the ends to fill the countersink made for it; fit plate B in wood D so that the ring A is in the center; insert screws at H H H H. If you break a singletree away from a shop you can easily take out the 4 screws (if you put them in with oil), knock off the end irons (J) and rough out a singletree; put on your center irons and drive in the screws with an ax or stone; drive on your end irons, and you are ready again. The end irons should have screw nails in them at J to keep them from working loose. I have used this style of whiffletree and I would not use any other that I ever saw. The ring A, if made round, will keep turning every time the traces are slack; thus it never wears a hole in one place. You will also see that it acts on a pivot and not on a lever. There is no patent on this, so all may make and use it."

T. P. HART, Oxford Co.:—"Having had occasion recently to put a ring in a bull's nose, I send you a description of an instrument that has been in use for that purpose several years, which surgeons call a trocar. A three-eighth round steel rod is used about six inches long; one end is drawn out smaller and inserted in a wooden handle, the other end is ground on three sides to a sharp point. Over this rod a tin tube about four inches long is fitted loosely. On one end of the tube a round disc of tin about two inches in diameter is soldered. This tube is called a cannula. To use this instrument the animal is securely fastened with a chain about his neck, then a rope around the horns and a hitch around the muzzle, the end passing over a beam to draw the head up. Now, with the thumb and finger, draw the nose out so that the instrument in passing through does not touch the gristly part of the partition between the nostrils. Give the steel with the tube on a quick thrust and withdraw the steel, leaving the tube in the animal's nose. Now slip the open end of the ring into the tube and push the ring into place by forcing the tube out. The trocar may also be used in cases of hoven or bloat in cattle by making an opening into the paunch and leaving the tube in till the gas escapes; or in opening up a deep ulcer and letting it discharge through the tube."

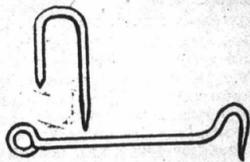
A Trocar.

[This instrument can be purchased at almost any hardware store.—ED.]



A Homemade Hook and Staple.

THOS. ROBERTS, Elgin Co., Ont.:—"Take a six or seven inch steel wire nail, put it into an iron vice and cut the head off with cold chisel and bend to above shape with claw hammer or wrench. Bore two holes with bit a size smaller than wire; the longest prong can be made the length to clench if under three inches thickness of wood."



A Combination Feeding Rack.

Fig. I. represents a combination feed rack for fodder, hay, straw, ensilage, grain or meal. We reproduce it from the report of the Kansas State Board of Agriculture. It is 5 feet wide, has a tight bottom, and may be made any desired length. The posts are 4x4 inches and 6 feet long; the slats that hold the fodder are 4 inches wide and 8 feet long; the space between the slats is four inches. A 2x4 is spiked through the center at the bottom; to these

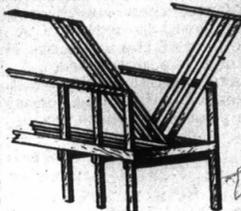


FIG. I.

the slats are nailed. The bottom is made of fencing, and a six inch board is put around the outside to hold ensilage, grain, etc. The rack is not expensive to build and is strong and durable. It can be used in sheds or yards. A similar rack for sheep, made lower, with slats straight up and down to prevent litter falling into the wool, would answer a good purpose.

SHEEP FEEDING RACK.

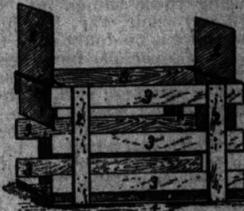
Fig. II. represents the sort of sheep rack used by Wm Laidlaw, Middlesex Co., Ont., also the Ontario Experimental Farm at Guelph. It is made 3 feet wide and as long as desired. The posts are 4 feet long. The dotted lines on the end represent the shape of the receptacle for the fodder. The sides are boarded close down to within 16 inches of the bottom, the opening being 12 inches wide at the bottom. Along the center of the bottom, endwise, stands an 8-inch board on edge to divide one side from the other. The bottom is close and has a 6-inch board along the outsides to form a trough in which roots, cut feed, and grain can be fed. We would suggest that the end of the rack might well be open, the same as the sides, to admit more sheep to feed. The bottom of the rack used at the Guelph Farm is divided in the center by an inverted V, and the width of the opening for the feed to be drawn through is gauged by a board suspended inside by ropes on either end and tied to holes bored in the top. When cut feed or roots are being fed it is lowered to within a few inches, as desired. This sort of rack prevents waste and does not allow chaff, etc., to get into the fleece of the sheep.



FIG. II.

A Handy Pig or Sheep Crate.

WM. J. WILLIAMS, York Co., Ont.:—"Father has taken your valuable paper for about 20 years, and we all like it very much. The figure represents a box or crate to weigh pigs in or to take sheep, calves or pigs to market in. It is about 5 feet long, 3 feet high, and about 18 inches wide inside. Nos. 1 are the sliding lids, Nos. 2 are the standards to which Nos. 3, the boards, are nailed, and No. 4 is the bottom. Two men can lift any common pig onto the scales, and all you have to do is to drive the pig in at the one end and drive it out at the other. It is made of 2x4s 1x4, lengthwise, and 20 inch boards across these. Standards are nailed to the sills, and the cross pieces hold them from spreading."



VETERINARY.

Treatment for Hog Cholera.

The U. S. Bureau of Animal Industry recommends the following prescription for hog cholera and swine plague: Wood charcoal, sulphur, sodium sulphate and antimony sulphide, one pound each; sodium chloride, sodium bicarbonate and sodium hyposulphite, two pounds each. These ingredients should be completely pulverized and thoroughly mixed. The dose of the mixture to be given is a large tablespoonful for each 200 pounds weight of hogs to be treated, and should be given only once a day. Hogs affected with the disease should not be fed on corn alone, but should have at least once a day soft feed made by mixing bran and middlings, or middlings and corn meal, or ground oats and corn, or crushed wheat with hot water, and then stirring into the mixture a proper quantity of the medicine. Hogs are fond of the mixture, and it increases their appetite. When once they taste it in the food they will eat it even when nothing else can tempt them. If animals are very sick and will not come up to their feed, they should be drenched with the medicine shaken up with water. Care is necessary in drenching hogs lest they be suffocated. Do not turn the hog on its back to drench it, but pull the cheek away from the teeth so as to form a pouch into which the medicine may be slowly poured. It will flow from the cheek into the mouth, and when the hog finds what it is, it will stop squealing and swallow it. In the experience of the Bureau, hogs that were so sick that they could eat nothing have commenced to eat very soon after getting a dose of the remedy, and have steadily improved until they appeared to be perfectly well. The medicine may also be used as a preventive of hog cholera and swine plague, and for this purpose should be put into the food of the whole herd. Care should, of course, be observed to see that each animal receives its proper share. In cases where it has been given a fair trial the Bureau of Animal Industry says that it has apparently cured most of the animals which were sick, and has stopped the further progress of the disease. It appears to be an excellent appetizer and stimulant of the processes of digestion and assimilation, and when given to thrifty hogs it increases the appetite, causes them to take on flesh and to assume a thrifty appearance.

POULTRY.

How to Make Hens Pay.

- 1.—How many hens do you consider it wise to keep on the average 100-acre farm, and to what age?
- 2.—With a view to eggs, table birds or both, what breeds or crosses would you recommend as likely to give most general satisfaction?
- 3.—What plans would you suggest for improving an ordinary farm flock of mixed fowls, such as selection of "weeding out," new breeding birds, setting of eggs, etc.?
- 4.—What period of the year is it advisable to retain male birds with the flock? How about numbers together?
- 5.—By what means do you secure the best eggs for hatching?
- 6.—What treatment would you suggest for a pen of breeding hens (from which the eggs are to be set) during the latter part of winter and spring?
- 7.—What sort of a house do you recommend with regard to (a) size, (b) location, (c) warmth, (d) sunlight, (e) ventilation, (f) dust bath, and (g) watering, and to what extent should fowls run out in winter?
- 8.—How do you manage to keep hens free from lice and disease?
- 9.—What foods or mixtures do you recommend for (a) egg production, (b) fattening, (c) how often would you feed per day, and (d) what value do you place on green bones, and vegetables, and sunflower seed?
- 10.—How many eggs per year should a good farm bird lay to be profitable, and at what age should broilers be sold?
- 11.—Should turkeys, ducks or geese be allowed to run in the same house with hens; if not, why?
- 12.—What is your idea of keeping turkeys, ducks or geese on the average farm, and how do they compare with hens as to profit, etc.?

Lessons from Mistakes.

I might say in the outset that I have made plenty of mistakes, and with your implied permission I will tell of some of them, as sometimes more can be learned by the mistakes of others than by their successes. When preparing my plan for my new henhouse, I was led, by reading the opinion of many who claimed to be practical poultrymen, to adopt a dirt floor. Now, I have a dry location, but I believe it draws dampness from beneath. I am troubled with colds in my hens, and I propose to put in a board floor next summer. In these days of close competition, if care is not given, accommodations provided and economy practiced, no stock of any kind will pay. Still biddy must stay on the farm to provide a roast or stew as well as the eggs. Taking these things into consideration, the hens will pay their way, but just allow them a chance and there is no doubt as to the result.

1.—If over 100 hens are kept in one flock (at large) the result is not so satisfactory per hen as a smaller number; still, if the farmer has a fad for chickens and wishes more, by penning them off in lots he may keep any number he pleases. The age at which a hen ceases to be profitable depends on the breed. If they are of the sitting varieties, not over one year; for the older the hens the less eggs and more sitting. I would not keep the average hen over two years, unless for some special reason.

2.—For eggs alone, Leghorns, Minorcas, Spanish or Hamburg; if I wanted nice yellow colored flesh and eggs, I would restrict to the Leghorn; if I wanted layers, good color and good size, I would say Plymouth Rocks or Wyandottes; here you have good sitters, and the farther you move up in size the less eggs, more meat and longer to get it. For a general purpose fowl, Barred Rocks or Silver-Gray Dorkings.

3.—I would say, get a pair or two of the breed fancied, and keep this lot separate, setting only eggs from this pen. Destroy all cockerels on the place except this one pen, and in the fall you can sell your mongrel stock and have a flock that will be a pleasure—not a medley of colors and sizes. A cheaper start may be made by buying a setting of eggs. Another way is to get a cockerel and grade up. How long will it take by grading up to get well-bred hens? For practical purposes, perhaps, grades may be just as good, but for all the difference in the cost it would be better to get the pure to start with.

4.—Male birds should not be allowed with the hens except in mating season. The eggs from hens not mated will remain fresh far longer than those mated. As to numbers together, a cockerel can generally be depended on in mating with 10 or 12 pullets; if running at large, the number might be increased to 15, but if confined to small pens, unless of the lighter classes, it is safer not to depend on over 8 or 10.

5.—I select the best hens or pullets and mate with a vigorous cockerel, and select eggs even in size, and set as fresh as possible; under a week in any case.

6.—A variety of feed is essential, as all the elements required for the make-up of the egg must be provided. I believe cooked feed to be the best for the morning meal, and let it be a mixed ration of all grains; vegetables at noon, and whole grain (corn, small wheat, etc.) in afternoon. A good supply of water at all times is necessary; also grit, lime, shell or bone. Do not feed for fat, but keep the hens busy, and plenty of eggs will be the reward.

7.—I will describe my poultry house, which can be modified to suit any ordinary poultry-keeper. It is 12 x 60 feet. The entrance is an anteroom for feed and supplies cut off from the pens. It fronts south, with double windows for each pen, which in summer can be opened to make a cool shed. The ceiling is fastened on the rafters, and there is a four-inch space between ceiling and roof, which is filled in with tanbark and ashes, making a roof very warm in winter and cool in summer. The rats and mice do not work in it as they do in sawdust or shavings. The sides are covered with tar paper and ceiled up, making it warm and comfort-

able. The interior is cut up into pens 9 x 12, which includes the alleyway. The doors into the pens are simply opened to cut the alleyway into the pens, allowing one to use the whole floor space. Many have the alley used only to go through the building.

(b) A building should be located on as dry a place as possible, allowing for sunlight from south and west. (c) I do not think it would pay to use artificial heat unless in the broiler business. Have warm buildings, and let the natural heat do the rest. (d) See (b). (e) I have small ventilators in top of building to take off foul odors without creating a current of air. (f) A dust bath is good for health of hens, as it tends to cleanse the fowl from lice. (g) Watering should be attended to regularly. I have a galvanized iron fountain so only one fowl from each two pens (each side of partition) can place their heads in at a time. No dirt can be scratched in, and they are large enough for 50 or 60 hens to use for one day. (h) The nests will do any convenient place in pen, and should be so the hens may not foul them. Fowls should be let out in the yards whenever the weather allows it, too much confinement will conduce to disease.

8.—To free hens from lice allow them liberty to dust themselves. However, if bothered, rub or wash roosts with kerosene. Whitewash everything, adding a tablespoonful of carbolic acid to a pail of wash; if more drastic measures are required, dust the hens with insect powder. If a chicken gets sick and you have no room for a hospital, use the axe to prevent disease. If you have plenty of time, and a room to work in, most of chicken troubles can be cured.

9.—Foods for egg production should not contain as much fat as for flesh; food for eggs should be composed largely of oats, while for flesh all the corn the fowl will eat up clean, with fresh water, will answer the purpose. Feed twice a day, with a middle meal of vegetables. For egg production mix the grain about as follows: Oats, corn; barley, peas, wheat, with oats to predominate. If for flesh let the corn, peas and wheat predominate. Cook the feed for the laying hens, and have it ground as fine as possible. For fattening flock, grind the ration coarse or not at all, and supply plenty of grit.

10.—Sunflower seeds are fine to keep up the system, acting something like oil meal in the animal economy. Vegetables keep up the appetite and tone of the fowls. As to number of eggs birds should lay, the tests carried on by some poultrymen of the Western States lead us to the conclusion that they vary from 100 eggs to 280 each per year. Broilers should be sold like pigs, as soon as large enough to create a demand.

11.—Turkeys, geese, and ducks should not run with other poultry, because they are stronger, greedy and quarrelsome.

12.—I think there is money in turkeys and ducks, but geese need to be kept on land devoted entirely to them. Turkeys are tender while young, but they pay their way in the insects they consume while running at large for all the grain consumed, and leave the turkey clear profit. There is money in ducks if handled right. They are like hens in more ways than one: let them come to full maturity and they will eat their heads off. Keep them until they are fully feathered and sell; nothing grows like ducks in so short a time. We have a large flock of Pekins and like them.

Lastly, I would say that no man, woman or child should invest in poultry unless they have a real liking for them. CAPT. A. W. YOUNG.
Kent 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.]

Legal.

LIFE LEASE—DOWER—CREDITORS.

"A conveys his farm, free from all encumbrances, to his son B, and receives back from B a life lease of the property. B, as a part of the consideration for the conveyance of the farm to him, gave certain promissory notes to his brothers and sisters, payable in ten years, but the notes are not mentioned in either the deed or lease, and nothing was done to make them a charge upon the land. B afterwards died, leaving a widow and children, and A is also still alive. What legal rights has the widow of B now in the farm? What is the legal position of the holders of the promissory notes?"

[The widow is entitled to her estate of dower in the whole of the farm; that is, one-third of the proceeds for life; or in case she elects, as provided by statute, then one-third absolutely, but of course subject to the rights of A under his life lease. The holders of the notes are simply creditors of B, and when the notes become due they are entitled to payment out of the estate of B, but they are not secured claims, and the widow's right to dower and any secured claims would be prior charges.]

Veterinary.

ABORTION IN COW.

A SUBSCRIBER, Dundas Co., Ont.:—"I have a pure-bred Jersey cow (heifer) two years old, which had one calf, was bred again September 11th, and in December, about three months from date of service, my Jersey bull, tied in same stable, broke

loose during the night. She then aborted her calf, and on the third day after this she took service again, and has come in heat every three weeks since. She is a very valuable heifer, and I am anxious to have advice as to the best treatment for her."

[This heifer had evidently been put to breeding at too young an age, and should have had longer rest before being bred again. She may have been predisposed to abortion by her constitution being weakened by early maternity. The trouble may have been caused as our correspondent suggests, or the excitement and struggling to get free may have brought it on. In any case she should not be bred again for three months after the accident, in order to allow her to get into a perfectly healthy and natural condition. If this precaution is not taken the system will be weak and the trouble will be liable to recur. A disinfectant wash should be used on the hind parts of the cow and sprinkled in the stable.]

RINGWORM.

A. R., Wellington Co., Ont.:—"Please inform me through your paper the cause and cure of ringworm in cattle?"

[The name in this case is a misnomer, as the disease is not in any sense of the word a worm. It results from the action of a fungus, which does not penetrate beneath the surface skin. Its treatment and cure is simple and sure. Generally a thorough application of a mixture of lard and sulphur is sufficient. The scurf or scab should be first removed, the mixture well rubbed in and repeated two or three times. Carbolic acid mixed with four times its bulk of linseed oil, applied two or three times after scraping and washing well with soap and warm water, will probably make a more rapid cure, and is a useful mixture to keep in the stable for treatment of wounds or sores.]

CALF WITH COLIC.

JAS. G. DYCHIE, Algoma, Ont.:—"Will you please to tell me what is the matter with my calf? She acts as though she had the colic about once a week. She lies down and kicks, then jumps up and stands with her front feet out as far as she can get them and her hind feet back the same way. She will shake as though she was chilled through. I give her baking soda in warm water, and sometimes smoke her with a cotton rag. She is a pure Jersey, four months old the 10th of March. Is there any danger of inflammation? Her feed is one quart of boiled bran, one quart milk, and the washing of the milk cans, twice a day; one cap of oats twice a day, and all the good hay she can eat. Has a good warm place, dry and clean. Please tell me what is the best feed for her?"

[Your calf is evidently suffering from spells of colic, the result of indigestion; the diet does not appear faulty, yet we would substitute a small quantity of ground oil cake for half the quantity of bran. Give a liberal dose of castor oil, 8 to 12 ounces, or enough to purge it gently, and follow up with a half teaspoonful of the following three times a day in a drench with a little water, being careful not to choke it while drenching: Bicarbonate of soda, 3 ounces; pulv. gentian, pulv. ginger, pulv. aniseed, of each 1 ounce; powdered nux vomica, ½ ounce; and mix in the food 4 ounces lime water at each meal.]

SICK EWE.

JAMES GARVOCK, JR., Russell Co., Ont.:—"I have a valuable ewe that has taken sick very suddenly, and acts in a strange manner. She seems to want to hide herself in some dark corner; in fact, acts a good deal the same as when the sheep flies are plentiful in the summer time. She runs a good deal at the nose, and refuses to eat anything. What is the matter with her?"

[Sheep are inclined to give up and mope about when sick from any cause, and are often slow to respond to treatment. What the trouble is in this case is difficult to diagnose. The discharge from the nose would indicate catarrh or cold, and the desire to hide may be a symptom of abortion, which would very soon show itself. We would suggest that she be given a half pint of raw linseed oil, followed a few hours after with a gruel of linseed meal. Give her gruel regularly until her appetite returns. Keep her in comfortable quarters, with plenty of fresh air, but no drafts. The trouble may be due to hydatids in the brain, a disease common in England, which is almost incurable.]

CRIPPLED PIGS.

MR. T. MARTIN, Wellington Co., Ont., has "pigs six months old, Tamworth and Berkshire cross, kept in a box stall about fifteen feet square, with an earth floor; well lighted with a window on the north-west side, about ten feet from the floor. They are always clean and dry, and fed on pulped turnips mixed with chopped peas and oats. When they were about four months old they lost the use of their legs, and some of them are only able to crawl around on their knees. What was the cause and cure? They were never out where they could get in the sun or on the fresh earth."

[The last sentence doubtless explains the trouble—chiefly lack of exercise and sunlight.]

CANKER IN FOWLS.

J. B. WEBSTER, Middlesex Co., Ont.:—"My fowls are not doing well, and are dying fast. Any information you can give me on the following questions will greatly oblige: 1. Some get a yellow substance growing in the roof of mouth or on

tongue, small ve a few d color, an gather which g 13 in of Feed so meat, an [The to canke has app cept th badly d a slight hospital given o Epsom yellow a dull; careful feather water, tincture times a potash

Mr. me kno sugar c [Ear be exp ciently corn. Iowa, S grown pally fe with t evapora develop ripening Iowa F years fa hard a cattle, safe to success in Ont

J. R. if the strictly he was the ab apple fruit, y theref plantin get the most r you ca greatly light would know latest; box to legal n

(a) in the for bu and p asking of app ding o tained stocks suppli stocks to dis apple in l ing th stocks dwarf variet Form plums Prun State light heavy no ne stock that l Dams ards, plums soils. (b) light colore cultur as doi or H qualit Duch Crab (c) Nova the J

tongue, or just at the opening of windpipe, and smell very offensive. They go wheezing around for a few days, when comb and wattles turn a dark color, and then die. 2. Others get a frothy substance gather on eye, and this runs for a week or so, which generally results in losing the sight. I have 13 in one coop 8x10, and 14 in another 12x16. Feed soft feed mornings. Supply plenty of grit and meat, and clean houses twice a week."

[The symptoms of this fowl disease point directly to canker, which frequently accompanies roup. It has apparently become quite established, and, except the fowls are of especial value, those at all badly diseased should be destroyed. Those having a slight attack should at once be placed apart in a hospital free from draft, and a slight aperient given of from one-third to half a teaspoonful of Epsom salts. Open the beak and remove the yellow substance with a clean instrument, such as a dull knife-blade or flattened piece of wood, then carefully swab the throat with the end of a soft feather dipped in a solution of borax, two drams; water, six ounces; twice daily; and apply a weak tincture of iodine to the external swellings three times a week. Put one ounce of the chlorate of potash in half a gallon of drinking water.]

Miscellaneous.

SUGAR CANE.

MR. LYMAN KELLOGG, Gatineau Point:—"Let me know through the ADVOCATE if Early Amber sugar cane will mature in the vicinity of Ottawa?"

[Early Amber sugar cane (*sorghum*) can only be expected to mature where the season is sufficiently long to ripen the later varieties of dent corn. In the corn-producing States of Illinois, Iowa, Southern Nebraska, and Kansas, sorghum is grown by many farmers to a limited extent, principally for the purpose of supplying their families with the molasses made by expressing and then evaporating its juices. Efforts have been made to develop special strains by selecting seed from early ripening stalks particularly rich in sugar. The Iowa Experiment Station began this work eight years ago. I have not learned that the work has thus far given useful results. The canes are too hard and fibrous when mature to be relished by cattle, although rich in saccharine matter. It is safe to say that it probably could not be matured successfully outside of the peach-growing districts in Ontario, except in unusually favorable seasons.]

JOHN CRAIG, Dominion Horticulturist.]

APPLE STOCKS, PLUMS, ETC.

J. R., Picton Co., N. S.:—" (a) Please let us know if the firms of _____ and _____, Ont., are strictly reliable, for a certain person informed us he was told that nurserymen who sell as cheaply as the above do not graft their trees on the natural apple and plum stalks, but on that of some other fruit, which causes them to mature rapidly, and, therefore, are short-lived. As we are thinking of planting a number of trees this year, and want to get the best, by giving the names of several of the most reliable nurserymen and all other information you can on this subject as early as possible you will greatly oblige. (b) What apple succeeds best on light soil? (c) What varieties of Japan plums would stand our climate? (d) What is the largest known plum? (e) Which is the earliest, which the latest? (f) What would be the dimensions of a box to contain one peck of plums. (g) What is the legal measure of plums, level or heaped?"

(a) The leading nurserymen of Canada advertise in the leading agricultural journals. A good plan for buyers to adopt is to submit a list of the trees and plants desired to a number of nurserymen, asking for prices. With regard to the propagation of apples, they are multiplied uniformly by budding or grafting on stocks grown from seed (1) obtained from the pomace of cider mills or (2) on stocks imported directly from Europe. France supplies great quantities of apple and other fruit stocks. In France apple stocks are called crab stocks to distinguish them from cultivated fruits. The apple is natural to Europe, the wild fruit is collected in large quantities, and the seed used for growing these apple stocks. These are the cheapest stocks and therefore the only ones used, except for dwarfing purposes. Plums are propagated on a variety of stocks. Myrobalum is very largely used. Forms of the Damson are employed. The horse plums, a small-fruited variety of the European *Prunus domestica*, is much in favor in New York State. Peach stocks are useful, particularly for light soils. They should not be used in planting on heavy loams or clays. In buying apples there is no need to stipulate with regard to the kind of stock. In buying plums it should be remembered that Myrobalum stock has a dwarfing effect, that Damson and horse plum stocks are best for standards, and that peach stock is desirable if the plums are to be planted upon sandy or light loamy soils.

(b) Apples as a rule are not long-lived on light soil. The fruit becomes small and poorly colored unless the tree is well fed and receives good culture. The only variety that comes to mind now as doing particularly well on light soil is Fall Queen or Haas. This is an autumn apple of poor quality. Among others which do fairly well are Duchess, St. Lawrence, Fameuse, Ben Davis, and Cranberry Pippin.

(c) It will depend altogether upon what part of Nova Scotia J. R. resides in. It is not probable that the Japan plums will be successful outside of the

more favored fruit sections of Nova Scotia, viz., the Annapolis, Cornwallis, and Gaspereau Valleys. The hardiest of these plums is the Burbank.

(d) Among the largest are Pond's Seedling, Jefferson, Wickson, and Giant Prune. The latter two are varieties recently introduced from California.

(e) Red June, a Japanese variety, is probably the earliest plum of much value. October Purple and Archduke are two of the latest varieties.

(f) Plums are rarely sold by the bushel, half bushel or peck measure. It is better to dispose of them in specially constructed packages containing a certain number of pounds. An English bushel contains 2,218 cubic inches; a peck would therefore contain, approximately, 550 cubic inches. A package 10x10x5 1/2 inches would then contain one peck. These dimensions could be varied, of course, to suit the requirements of the market and the convenience and taste of the shipper.

(g) All fruits when disposed of by measure are sold by heaped rather than by stroked or level measure. This, so far as I am aware, is a matter of usage and custom rather than legal enactment.

J. C.]

RATION FOR MILKING COWS.

FARMER, Queen's Co., P. E. I.:—"What sort of feed for milking cows is the following: (1) Morning—Ensilage, with 2 1/2 pounds bran and 3/4 pounds oil cake (old process); (2) 10 o'clock—Thirty pounds turnips; (3) Midday—Feed of oat straw; (4) 2 o'clock—After dinner, warm feed composed of turnips, wheat chaff, and four pounds cracked oats (all steamed); (5) About five o'clock—Thirty pounds either carrots or mangels; (6) Last feed—Out hay mixed with about two pounds bran and half pound oil cake? If the above is not a good ration, what does it require? Up to the first of the month I was feeding hay morning and evening instead of ensilage in the morning."

[This ration looks like a very good one, though the advisability of feeding so often during the day may be questioned. Some good dairymen feed but twice a day. I should prefer to cut the hay and straw and mix with ensilage. If the roots are pulped and mixed with the ensilage and straw it will be found a very palatable mixture. If the results are satisfactory under the present system, probably it would not be advisable to change, though a little experimenting would do no harm. The meal ration is a moderate one. Some cows would take more and pay for it, but others would not take so much. If deemed advisable to increase the meal ration for any of the cows, do so by increasing the amount of bran. It is a pity that you do not state the results of present method of feeding.]

G. E. DAY,

Ontario Agricultural College. Agriculturist.]

BARN PLAN—SUGAR BEETS.

CHAS. WILLIAMS, Bruce Co., Ont.:—"Please find enclosed one dollar, a year's subscription to your paper. I accidentally came in contact with a copy, and enjoyed it very much. I consider every farmer should take it. 1. I am going to build a barn, and would like to hear from you as to the best kind of barn to build for general purpose. The farm is 200 acres level; that is to say, no rise in ground that would do for bank. 2. Does the sugar-beet industry pay the farmer? What is the average yield, price usually paid, etc., by the factory for roots?"

[1. In this issue is published plan and description of a convenient general purpose barn, which may be copied in principle and enlarged to suit. We have given a number of excellent plans within the last two years, and will continue to do likewise as we receive them. 2. With regard to the growing of sugar beets, we may say that so far as we are aware there is not at present a beet-sugar factory in Canada. Some time ago the enterprise was carried on in Quebec, but had to close up because it could not be profitably operated. The reason for this is the great cost of the factory and the short period of the year in which it could be operated. In Wisconsin, where the industry is being carried out on a large scale, the usual sized factory plant has capacity for 300 tons of beets per day. Such a plant costs from \$150,000 to \$200,000. The Wisconsin companies do not consider cheaper plants as economical. The growing of sugar beets for feed was referred to in February 15th issue by Prof. Day, in the Questions and Answers department. The growing of sugar beets and the beet-sugar industry were fully treated in June 15th issue (page 247), and July 1st issue (page 266), 1896 volume. The average yield on suitable, properly cultivated soil, of beets producing about 13 1/2 per cent. of sugar, is estimated at about 15 tons per acre, and sell for about \$5 per ton to factory. The ordinary cost of growing is from \$30 to \$40 per acre.]

ALFALFA GROWING.

R. CARSON, Cariboo Co., B. C.:—"Thanks for the many valuable hints your paper gives, and if you can let some of the B.C. farmers know how best to raise alfalfa, and where the seed of same can be bought in Canada, you will oblige an old subscriber? Is alfalfa good for fattening beef cattle? Is it good for dairy cows?"

[We have from time to time published information upon the growing of alfalfa (lucerne), pages 110, 134, and 190 of 1896 volume, and on page 4 of 1897 volume, in the report of the "Experimental Union." In this issue, in the letters upon cultivation and seeding, there are also references to it which should be read. With regard to its value

for fattening cattle we believe when it is pastured or made into well-cured hay cut just as coming into bloom it is one of the best fodders for fattening cattle we have access to. It is not only nutritious, but also very palatable.]

SMARTWEED SEED IN CLOVER.

HALLMAN & Co., Waterloo:—"I enclose herewith a sample of seed found in our clover seed. Would you kindly let us know, if you can, what it is, and if it is a dangerous weed?"

[The seeds received from you are those of the "smartweed," a species of the genus *Polygonum*. I am not aware of its having a very bad reputation as a weed.]

J. HOYES PANTON,

Ontario Agricultural College.]

RAPE—WHAT IS IT?

F. E. POLLARD, Leeds Co., Ont.:—"Permit me to ask a few questions about rape growing. Has it to be sown every year? Would it make good pasture for dairy cows? Is it easily killed by frost? Will it grow after it has been plowed up as a weed? Some tell me it is like wild peas. It has never been sown in this part of the country. Where could I get the seed and at what price per pound. Will you describe it in your next issue?"

[The rape plant bears a close resemblance to the Swede turnip in the early stages of its growth. It attains a greater height than the turnip, producing a much larger quantity or bulk of leaves. Its roots and stalk are almost identical with those of the cabbage. It grows from two and a half to three and even four feet high in rich soil when sown in drills and cultivated. It has to be sown every year the same as turnips or carrots when it is to be fed. Where the seed is grown it is left over like other biennials to the second year. It makes excellent pasture for sheep, and cattle that are not milking for the dairy, but it is condemned for milking cows on the ground that it produces an objectionable flavor in the milk, butter, and cheese. It will not readily withstand Canadian winters, but even heavy fall frosts do not injure its feeding value. At the Ontario Experimental Farm at Guelph it is cut in October and thrown into windrows and fed to fattening steers and sheep until Christmas. When frozen it is allowed to thaw in the stable before being fed. It will not grow after it has been plowed up. The man who likens rape to wild peas is deplorably ignorant of what he is speaking. The seed can be purchased from any Canadian seed-man advertising in the ADVOCATE, at from eight to ten cents per pound, according to the quantity desired. We advise Mr. Pollard and others to try a piece of rape this year. By referring to the many references to it in the 1896 and previous volumes of the ADVOCATE, the manner of growing it will be readily understood and easily followed. Three pounds of seed per acre sown along with oats or barley not seeded down to grass or clover will give a good pasture during the fall. Four pounds sown alone broadcast on clean, rich land, or two pounds in drills like turnips, not singled or thinned, but cultivated between the drills, will produce in a growing season a valuable soiling or pasture crop.]

FEEDING FOR MILK.

G. A. A., Wentworth Co., Ont.:—"Please inform me through your valuable paper what rations I should feed dairy cows to get the largest quantity of milk possible? I sell my milk wholesale in Hamilton. I have been feeding very heavy lately, and they scoured badly and went back on their milk. I can get the quality of milk, but not the quantity. I have as grain to feed, oats, peas, and barley chop; bran and shorts; fodder, hay and straw; roots, turnips and potatoes."

[Of the grain mentioned I should prefer peas. Equal parts by weight of peas and bran would be a good meal ration. If oats are plentiful and low in price, two parts peas, one part oats and one part bran by weight would make a very good mixture. I should prefer to feed barley to hogs or fattening stock. For bulky fodders use two parts straw to one part hay, with 30 or 40 pounds roots, 10 pounds of which may be potatoes. It would be well to cut the hay and straw mix, and feed meal on it. A very palatable mixture could be made by cutting hay and straw and mixing pulped roots with it. For quantity of meal, one pound of meal per day per every 100 pounds live weight of cows is a fairly heavy ration. Some cows will take more than this and others will not pay for this quantity. The feeder must find out this point for himself by carefully studying the animals. The shortage in the milk flow is probably due to the cows instead of the feed.]

FEEDING BEANS TO STOCK.

HENRY SELMAN, Elgin Co., Ont.:—"I desire to ask a question through your valuable paper in regard to feeding beans to fattening cattle and hogs, as I have a quantity of beans, the market price being low, 40c. to 50c. per bushel. Would you advise feeding them; if so, in what way?"

[I would recommend your correspondent to sell his beans if he can get 40 or 50 cents per bushel for them, and buy corn, peas and barley. At present market prices he will find it much more convenient to feed—better, safer, and more satisfactory. Our experience in feeding beans to hogs is that they have a tendency to make the meat soft, and the trouble to prepare them is considerable. They require to be boiled until soft, and the hogs have to be taught to eat them by mixing with barley, corn or pea meal. Would not in any case recommend them to be fed to young pigs or shoats; they are

too laxative. Same trouble in feeding to cattle, and you would require to mix oats, barley, corn or peas in about four to one of beans and grind fine, and then only feed on chaff or cut food. Careful feeding is then required to prevent cattle from scouring, especially in the winter time. I would only use beans when other foods are scarce and very dear. Sheep seem to do well on beans if carefully fed and mixed with oats. Would not recommend them to be fed to ewes in lamb, as they tend to fatten, and lambs are apt to come weak.

Kent Co., Ont. A. J. C. SHAW.

Good Food for Cattle, Hogs or Horses.—Beans, if mixed one-half or better with any other grain and chopped, make an excellent and very profitable feed for cattle, hogs or horses, but especially hogs. If you have other grain to mix with them it is better to do so, and feed moderately or only what they will relish thoroughly, and increase as you go on feeding to a proper ration. I have never fed them boiled, but it is claimed that they are excellent feed for swine that way, and I have no doubt they are. But I would strongly advise careful and judicious feeding for the first few days, and increase as the animal becomes accustomed to them. In this way I believe beans to be worth at least 60 cents per bushel as a flesh-producing ration.

Elgin Co., Ont. CHAS. C. FORD.

Excellent for Milk Cows.—Beans are excellent food for milk cows and growing or fattening pigs. We have not fattened any cattle with them, but believe that they would be all right. For milk cows they should be boiled soft, and commenced to be fed two or three quarts mixed with bran and increase the ration gradually to two-thirds of a patent pail, then fill the pail with bran; feed twice a day. Feed them to the hogs well boiled and a little sloppy. They may not take to them very readily, but by mixing a little of the beans with some bran or shorts for a few days, increasing the beans and decreasing the other stuff gradually, you soon will have them eating the clear beans all right and making good gain on them. Be careful, if they take readily to them, not to surfeit them on the start, as it is quite easily done. Raw beans make good winter feed for sheep, about a teacupful to each one, but should not be fed to ewes for a couple of weeks before lambing. I have known men to pay 50 cents per bushel for culls to feed hogs, and they considered it a good investment.

Kent Co., Ont. W. N. TAPE.

Beans Capital Stock Food.—Large numbers of farmers, ourselves included, are feeding beans with good results; in fact, we are enthusiastic over them as food for hogs, fed in conjunction with other coarse grains. Our method is to mix, in our cooking-pan, two bags beans, two of barley and two of small potatoes, and boil until the beans are thoroughly cooked. Oats or other coarse grain might be substituted for the barley, and roots or vegetables of some other kind for the potatoes; the idea is to reduce the strength and increase the bulk of the mixture. Our broodsows have been wintered on this, with an occasional feed of roots, and they are in the pink of breeding condition. We expand the young hogs we are wintering with a liberal feed of the mixture in the mornings; they have the run of the barnyard during the day, and at night are given a lighter feed of it, along with what corn they will eat up clean, and the way in which they thrive and grow is surprising.

We have fed boiled beans to our milk cows, and an increased flow of rich milk always followed. For some years past the grain rations fed by Chatham's principal dairymen have been largely composed of beans, although the cull beans then cost them more than first-class ones do now. It is essential that they be mixed with some bulky food such as bran. The average feed per cow is two or three quarts of beans (boiled) and three or four quarts of bran. Some cows will stand heavier feeding, and others not that much, consequently the capacity of each cow must be determined by the feeder.

We have had no experience in fattening cattle on them, but it is a fact we have often noted that a cow having a tendency to fat instead of milk will do so when fed a bran ration. Those who have fattened cattle on them claim that they make tender beef of superior quality.

Sheep are extremely fond of raw beans, preferring them to almost any other grain. By feeding at the rate of a peck per day to twenty head, we find it keeps them in a good healthy condition, and induces a splendid growth of wool. It is not advisable to feed them to ewes for two or three weeks before and for some time after the lambing season, as we have found them liable to cause diarrhoea in the young lambs.

Kent Co., Ont. W. A. McGEACHY.]

MARKETS.

Toronto Markets.

There was a good attendance of buyers; trade was fairly active. The wet weather had some effect on the market. Receipts for last week were: Cattle, 2,330; sheep and lambs, 683; hogs, 4,778. About four loads of cattle were sent to Montreal. Large shipments of cattle to the Old Country and Buffalo were made last Saturday; Mr. James Sennie sent 106 head, Mr. James Eakins 90 head, Messrs. Mullings and Dean 54 head, Mr. W. Lovack 20 head, via Boston. There were sent on to Buffalo by Mr. A. M. Banks 59 head, Mr. C. Zeagman 205 head, Mr. J. Rountree 57 head, M. C. Murby 56 head, Mr. J. W. Shields 29 head, Mr. J. S. Eakins 24 head, Mr. A. M. Buck 38 head. The total value of the shipments to Buffalo was about \$16,400; the total value of the shipments to the Old Country for the week amounted to \$13,320.

Export Cattle.—Prices steady; fairly active trade, but the demand will now slacken off for a week or two. Some good butchers' cattle were taken as exporters; the principal operators in this line were Messrs. Crawford, Hunslett, Eakins, Mullins, and Snell. Only best choice heaves reached 44c; ruling prices were 34c to 44c per lb. Prices are now steady at former quotations. Nothing but extra choice cattle are wanted for some time; general run of export sold from 34c to 36c per lb.

Butchers' Cattle.—Market quiet; in fact, common cattle hard to sell; all the good quality sold early; choice butchers' cattle wanted. Prices ruled for choice, 3c. to 3 1/2c. per lb.; medium to good, 2 1/2c. to 3c. per lb. One bunch of cattle, 1,100 lbs. average, sold for 2 1/2c. per lb. Common sold at 2 1/2c. per lb.

Bulls.—There is a fair demand for export bulls at 2 1/2c. to 3 1/2c. per lb. One fancy animal sold at 3 1/2c. per lb. Stock bulls not wanted; inferior hard to sell; 2 1/2c. to 2 3/4c. per lb. ruling price.

Feeders.—A brisk demand for feeders, 1,100 lbs., at 3c. to 3 1/2c. per lb., to fill vacancies in the byres; only a light demand.

Stockers.—The demand from Buffalo still continues. All on offer sold early, but prices over there have fallen. Some of the better class sold for 3 1/2c. per lb., in one or two cases a little more, \$2.90 was paid. Quotations rule from 2 1/2c. to 3c. per lb. A few went at \$2.00 to \$2.90 per cwt.

Sheep.—Market dull; prices nominal; ewes brought 3c. per lb., bucks at 2 1/2c. Butchers' sheep sell at 3c. per lb.

Lambs.—All offerings sold well; more could have been taken. Choice lambs weighing 90 lbs. to 110 lbs. are in demand. Prices ruled at 4 1/2c. to 5c. per lb.

Culves.—Offerings heavy; poor quality. Good veals wanted; prices firm and unchanged, from \$3 to \$7 per head.

Milk Cows.—The market for milk cows quiet; only good cows and early springers in demand. Prices ruled from \$16 to \$30 per head. One sold for \$36—a very choice animal.

Hogs.—Market active in spite of heavy offerings. Too many small hogs about 120 lbs. each coming. They want feeding two months longer. Prices firm, at \$4.50 to \$5. per cwt. for choice selections of bacon hogs; thick fat at 4c. to 4 1/2c. per lb., weighed off car.

Eggs.—Supplies ample and prices easier. Quotations are: Strictly new-laid, 14c. to 15c. per dozen. Lined and held fresh are hardly salable.

Butter.—The market continues firm; choice dairy rolls sell readily at 17c. to 18c. per lb.; small dairy, strictly choice, 13c. to 14c. per lb. Creamery tubs, 20c. to 21c. Creamery lbs., 21c. to 22c.

Cheese.—Market steady; small lots of summer make sell at 10c. to 11c., and fall make at 11 1/2c. to 12c.; nearly all cleared up from warehouses.

Dressed Hogs.—This market wants watching; the supply of dressed hogs is light; supplies only moderate, notwithstanding the advance. The tone of prices advancing; light lean in farmers' loads, \$5.75 to \$6.25.

Poultry.—There was more than the usual supply last Saturday, but demand sufficient to take up all choice stock. Turkeys 10c. to 11c. per lb. Geese 8c. to 9c. per lb. Chickens 30c. to 50c.; spring 75c. per pair.

Wheat.—On the "street market to-day 400 bushels of wheat sold at 74c. per bushel for red and goose 63c. per bushel.

Hay.—Twenty loads of hay sold at \$11.25 to \$13. Baled hay steady. Choice car lots No. 1 sell at \$10 to \$10.25 on track.

Chatty Stock Letter from Chicago.

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

CATTLE	Present		Two weeks ago		1896		1895	
	Range	Price	Range	Price	Range	Price	Range	Price
1500 lbs. up	\$ 15 to 6 60	\$ 5 35	\$ 5 35	\$ 7 75	\$ 5 90	\$ 5 90		
1250 to 1500	3 85 to 5 30	5 30	4 60	5 85	5 85			
1000 to 1250	3 60 to 5 20	5 20	4 55	5 55	5 55			
1050 to 1200	3 40 to 4 85	4 80	4 55	5 15	5 15			
900 to 1050	3 40 to 4 65	4 75	4 25	4 15	4 15			
Sellers	3 90 to 4 40	4 60						
Sigs. and F.	3 00 to 4 20	4 25	3 75	4 60	4 60			
Fat cows and heifers	3 30 to 4 25	4 20	3 75	5 15	5 15			
Canning cows	1 75 to 2 50	2 60	2 40	2 50	2 50			
Bulls	2 25 to 4 00	4 00	3 50	5 00	5 00			
Calves	2 65 to 6 40	6 30	6 25	6 00	6 00			
Texas steers	3 50 to 4 25	4 05	4 10	4 85	4 85			
Texas O. & H.	2 40 to 3 40	3 25	3 00	3 65	3 65			
HOGS.								
Mixed	3 65 to 3 90	3 60	4 20	4 30	4 30			
Heavy	3 50 to 3 85	3 60	4 17	4 45	4 45			
Light	3 75 to 3 90	3 62 1/2	4 25	4 20	4 20			
Pigs	3 50 to 3 90	3 62 1/2	4 10	4 05	4 05			
SHEEP.								
Natives	2 25 to 4 25	4 25	3 65	3 65	3 65			
Western	3 50 to 4 25	4 05	3 55	3 55	3 55			
Lambs	3 30 to 5 25	5 10	4 65	4 65	4 65			

The hide situation is very strong. Native steer hides are 20 per cent. higher than at this time last year and 68 per cent. higher than in 1894. Heavy native cow hides are 20 per cent. higher than at this time last year and 1 per cent. higher than in 1894.

The Kansas Legislature has passed a law greatly reducing the charges at stock yards in that State. The Kansas City yards are about half and half in Kansas and Missouri, and will doubtless now try to do most of their business in the Missouri portion.

Prices for breeding hogs promise to strike a crazy boom basis. In fact, it would appear they had already done so, when one animal sold for \$1,300, and another for the fabulous price of \$4,000. Of course, the offspring of these animals may be sold at figures that will justify the purchase, but, nevertheless, the prices are far above the intrinsic value of such stock.

The hog market seems again to be on the up grade, and prices are now the highest they have been in a year. Receipts are gaining on a year ago, but the demand seems to be improving.

The strongest supporters of the provision and hog markets lately have been the packing concerns that cater especially to the English markets for meats.

George Findlay, for the Capitol Syndicate, has sold 4,000 of their X. I. T. two-year-old steers at \$26, and 1,000 of their X. I. T. three-year-old steers at \$30, for delivery on board cars at their ranch in the Panhandle of Texas. The steers go to Missouri feeders. There is a very strong demand for feeding cattle. Some 4,500 well-bred Utah cattle were recently contracted for spring delivery on board cars in that State at \$18 to \$24 per head for yearlings and two-year-olds.

Chicago is getting a very large number of horses. Receipts the past week were nearly 1,000 horses, more being reported than for the first week in March, 1896. The aggregate receipts last week were 3,802. One man brought in one day 277 head of horses from Missouri, and they were of fair average quality. The horse market is very good indeed, there being a strong domestic and foreign demand.

James A. Murphy, Chicago, was the purchaser of the phenomenal pacer, Star Pointer, 2,024, at the New York sale for \$15,600.

The 161,833 hogs received here last week averaged 232 lbs., the highest average since the week ending Jan. 23, 1896. The average last week was 5 lbs. lighter than the previous week, and 3 pounds lighter than the corresponding week last year.

Sheep-men think present prices are pretty high, and exporters and other buyers are hoping for lower figures.

Montreal Markets.

The long looked-for and expected improvement has at last reached this market, and prices for cattle all-round have moved up from a 3c. to a 4c. per lb. since last writing, and on each of the last few markets has a clearance been effected. This in itself is sufficient to make a better feeling among buyers and sellers. Unfortunately, however, there are very few really good cattle being brought forward to fill an export demand which exists, and what may be called good butcher cattle are a little scarce. For export account there are exporters who say they would readily give from 4 1/2c. to 4c. per lb. for good shipping steers from 1,350 to 1,400 lbs., but the best that can be had are high enough at \$3.75 to \$4 per cwt. Best butchers' heaves sold readily at 3 1/2c. per lb., fair to good, from 3 1/2c. to 3 3/4c.; medium, 2 1/2c. to 3c. per lb.; common, 2c.

Sheep and Lambs.—The advance noted in our last report on the lamb market has been fully maintained, the receipts being light and the demand good, the range being from 4 1/2c. to 5c. per lb. live weight; mixed lots, about half and half, 3 1/2c. to 4 1/2c. per lb. Young spring lambs have been offered, ranging from \$3 to \$7 each, but the present figure is on the high side, it would not be surprising if lambs were to go still higher in the immediate future.

Calves.—There is a fair demand for good calves, and \$11 has been paid for something good—about 125 to 130 lbs.; others have ranged from \$7 to \$10 for good big calves, and \$3 to \$5 for common to fair lots.

Hides and Skins.—Quotations unchanged the movement from dealers to tanners free enough for a good healthy feeling, but not much prospect of any early change.

DRESSED MEATS.
Hogs.—The advance noted in our last report has been again duplicated, the light grade hog again moving up a trifle over the half dollar per cwt. This brings the price of nice light bacon hogs—in as large numbers as they can be got, say half car lots—to \$6.40 to \$6.50 per hundred pounds, \$6 being paid during the past week for 150 Winnipeg hogs, averaging 170 to 180 lbs. Another car lot from the same locality brought \$6.75; they were a little on the heavy side. During the week just closed the following sales were made in various sized lots: 180 to 200 lbs. average, \$6; 160 to 170 lbs. average, \$6.25; 14c. to 150 lbs. average, \$6.50; 125 to 130 lbs. average, \$6.60; 100 to 115 lbs. average, \$6.75. It will thus be seen that there is quite a difference in the values of the lighter from the heavier hog. Fresh killed have made, in a few cases, 7c. per lb. by the single hog. Beef and lambs are firmer, but not notably higher, than is for frozen carcasses; but 3c. to 3 1/2c. per lb. has been paid for nice light lambs, not too fat, fresh killed; frozen veal is also selling freely at 7 1/2c. per lb. for choice lots in small quantities.

Montreal Horse Market.

There has not been any material change in this trade since our last. Good horses are making top prices, and are going forward in large numbers—experience would say too large, but so far fair prices are being realized on the other side. A load of good busers and blocks brought \$85 each, another of trammers and busers at \$70 each, and a third, consisting of heavy blocks, 1,300 to 1,350 lbs. average, at \$92.50; these were loads. Single sales have ranged all the way from \$65 for a fair bus or tram horse to \$300 for a pair of choice drafts.

Mr. Macpherson's Suggestion re Experiments Endorsed.

To the Editor FARMER'S ADVOCATE:
SIR,—I read with much interest the very able (although perhaps beyond the conception of the average Manitoba farmer) article by D. M. Macpherson, M. P. P., on "How Can the Ordinary Farm be Made to Pay?" and considering the price Mr. Macpherson and others realize for their pork in Ontario, I think buyers ought to be able to pay a better price here. I think Mr. Macpherson comes pretty near the mark where he says ten acres is enough for experimental purposes. Ask any farmer if he has altered his method of farming since reading Experimental Farm reports and he will tell you that he just farms as he always has done—plow, seed (mostly Red Fyfe) and harrow, and summer-fallow to clean and give the land a rest. It might be edifying were the Government to place some of our experimentalists on some of the proposed 80-acre homesteads, with an equal capital and on an equal footing with the settler. If under such circumstances they could introduce scientific and improved methods of farming, and thereby secure a comfortable living, and at the same time a picturesque and happy home, it would be a grand object lesson that other settlers and less prosperous farmers could greatly profit by. R. SCOTT. Souris, Man.



THE HOUSE ON THE MARSH.

A Romance.

BY FLORENCE WARDEN.

(Continued from page 112.)

"Tom Parkes?" "Yes. He keeps the key of the tool-house. And they had found the door forced in, and a file and one of the ladders gone. Of course the alarm spread quickly all over the house; and then the other losses were discovered one by one. There is the mysterious part of it. Everything had been done so methodically and so neatly, even to locked doors being found still locked, that it was not until after careful examination that the stolen things were missed. Lady Mills and Mrs. Carew found their dressing-cases locked; but when they opened them, each found that the most valuable of the contents were gone. The butler and Sir Jones himself examined the plate-chest together. That was looked too, and, on first opening it, they congratulated themselves on its having escaped. But, on removing that part of it which is in constant use, they found that the gold plate, which is used only now and then, and some solid silver cups and candlesticks, had been taken. But the loss which has caused the greatest sensation is Mrs. Cunningham's. She came into the breakfast-room quite white and scarcely able to speak with some pebbles and a piece of cotton-wool in her hands. She declares that she carried about on her person, sewn up in wash-leather and cotton-wool, a very valuable set of diamonds and cat's-eyes; that it was not until long after she discovered her other losses that she cut open the leather, just to make sure that her greatest treasure was safe; that she found the jewels gone and the pebbles she produced in their place. She declares that she slept with them under her pillow, and that no one in the world knew where she kept them, for that she never mentioned the fact to any one—" "Oh, but that is not quite true, Mr. Carruthers! For she told me." "So she said," said he, looking at me steadily. "But you could never have repeated such a thing to any one who could make a wrong use of the knowledge?" "Oh, no! The only person I spoke of it to was Mr. Rayner." "Mr. Rayner!" said he, quickly. "You could not have chosen a worse person to intrust the secret to, I am afraid." "What do you mean?" "Why, he is the most talkative man I know." "Oh, but he would not repeat a thing like that!" said I earnestly. "He scolded me for telling him, and said such confidences should never be repeated, no matter to whom." "That's all right," said he, much relieved. "Then I shall tell Mrs. Cunningham you didn't mention it to any one. The poor woman is half out of her mind; it was she who sent me over here to-day, to find out whether you had spoken about it in the presence of any one who could use the knowledge. When the servant told me you were out, she said I could see Mrs. Rayner. I did not want to disturb her, knowing that she has the reputation of being an invalid. But she insisted." "Are you quite sure, Mr. Carruthers, that the robbery took place last night?" "Before I uttered the last words, his eyes suddenly left my face, and were fixed on some object behind me. I turned and saw in the doorway Mrs. Rayner, paler and more impressive than ever, and Sarah. All the doors at the Alders opened noiselessly, and they had overheard me. And, as I looked at Sarah's face, my heart beat faster with fear and with suspicion become certainty, for I knew that I was on the right track.

CHAPTER XXII.

In his astonishment at Mrs. Rayner's ghostlike entrance and appearance, Mr. Carruthers had not paid much attention to the end of my question. He expressed his sorrow to Mrs. Rayner at having caused her the trouble of receiving him when she was evidently suffering, and said that he had ventured to call to tell Miss Christie about a great robbery which had taken place in the house she had so recently visited, Denham Court. When he rose to go, Sarah followed close behind, and I had no chance of suggesting to him my own suspicions about the burglary. When he had gone, I reflected that it was better for me not to have said anything to a comparative stranger to implicate one of the servants in the house where I was living until I had consulted Mr. Rayner. To give vent to my excitement over the important secret I fancied myself on the track of, I wrote to Laurence. The postman called for the letter-bag at six every evening; so I waited until I saw him come up to the house; and then I ran out into the hall, as if I had only just finished my letter, and put it into the bag which he held. Sarah could not even see the direction as I put it in, and I congratulated myself upon my artful strategy, but I might have known that she was not to be baffled so. I watched him turn into the drive, and from the window I saw Sarah fit after him. I dashed out on to the lawn, just in time to see Sarah put a letter into her pocket; and I knew that it was mine. With my heart beating fast, I walked up boldly to her. "What did you take my letter out of the bag for, Sarah?" said I, half choking with anger. "It's not your letter, miss. What should I want with any letter of yours?" said she, looking down at me insolently. "It's a letter to my sister that I've forgotten to put the number of the street on." I knew quite well that this was a falsehood, but I could not prove it. I would tell Mr. Rayner all I had seen on Tuesday night, and about the cart Laurence had met outside—perhaps I would not mention it was Laurence who saw it—and about Parkes's wishing to go to my great disappointment, I got another letter, saying he should not be back until Monday afternoon. He said, as I mentioned that the weather was bad and the fogs had begun to be thick, it would be better for Mrs. Rayner to leave the ground-floor and sleep upstairs. "I expect you will have difficulty in persuading her to leave her own room," the letter went on, "but I am so anxious about her, for it seems to me she has looked paler than ever lately, and I feel so sure she would be better on a higher floor that I beg you, dear Miss Christie, to use all your powers of persuasion to induce her to move. Tell her that it is only for a time, that she shall go back to her old room as soon as the weather is warmer again; tell her I wish it, tell her anything you think likely to affect her. I have given Sarah orders by letter to prepare the big front spare-room." I went out after dinner and sat, in spite of the damp, on the seat at my "nest" for a little while, trying to invent plans for inveigling Mrs. Rayner into the drawing-room or the schoolroom for an uninterrupted *de-te-a-tete*. As I sat there I saw Sarah getting over the stile into the path which led to the high-road. I ran indoors, asked Jane where Sarah was, and learnt that she had gone to Beaconsburgh to get some groceries; I had noticed a black bag in her hand. Now was my time for seeing Mrs. Rayner. I was a little shy about going into the left wing without an invitation; she might be asleep, or she might not wish to be disturbed. So I went into the gar-

den with my knife and basket, as if to cut flowers, gathered a few China asters, and ventured round, past the drawing-room window, through the wet rank grass and the swampy earth, to the left wing. Just as one of the branches I had pulled down toward me swung back into its place, Mrs. Rayner's white face, looking astonished and alarmed, appeared at the window. I smiled good-morning to her, and made a show of offering her my flowers. I wanted her to open the window. This she seemed reluctant to do. But I stood my ground until at last she put the window just a few inches up. I said, opening upon a point where I knew we had sympathy—"Sarah has gone to Beaconsburgh. I saw her off. I hope she will be a very long time." She opened the window more confidently; and I saw that it was barred inside. "Haidee was asking to-day why you did not come up and see her, and I told her you were not well enough." "Give her my love," said Mrs. Rayner, with a faint smile. "I could not do her so much good as you have done." There was a plaintive expression of helplessness in these words which touched me. "Thank you, Miss Christie." "Wouldn't you be more comfortable in one of the rooms upstairs while the fogs last?" I insinuated shyly. "Did any one tell you to say that to me?" she asked, in a whisper. "I told Mr. Rayner, when I wrote, that we had a slight fog here on Tuesday night, and this morning I had a letter saying that he thought it was bad for you to sleep on the ground floor when the mists had begun to rise high, and that he had told Sarah to prepare the large front spare-room for you." "At last—at last! I have been here too long," she gasped. "Of course, Mr. Rayner would not wish you to go if you did not wish it." But she shook her head, and, putting her face between the bars to be closer to me, she said, in a low, broken voice—"Do you know what his wishes mean when Sarah carries them out?" I stood looking at her appalled. Her terror was so real that it infected me. "Miss Christie," she said at last, in a whisper, "you have influence in the house, and that night when Haidee was ill you made Sarah obey you. If I may trust you, give me this proof—get me one day's respite. Let me stay in my own room till—to-morrow." "I will try," said I softly. She shut down the window in a frightened way, and disappeared into the room. I could not see in, for the window-sill was some eight or ten inches above my head. I turned and splashed my way back, with my teeth chattering, to the house, and changed my wet shoes and stockings, half crying for pity for the poor, helpless, forlorn lady for whom I could do so little. At tea-time she came into the dining-room, and, as Sarah was there, I said that I had a letter from Mr. Rayner, that he thought that on Saturday she had better move into the spare-room. "Saturday!" interrupted Sarah, sharply. "Yes," said I, rather frightened at telling such a story. "Do you think you would like to go to-morrow, or would you rather go to-night, Mrs. Rayner?" I asked gently. "To-morrow," said she, with a steady look which I took as an acknowledgment; and I turned to Sarah, if there has been any mistake, I said. "Very well, miss," said Sarah, to my surprise. After tea, Mrs. Rayner came and stood by me at the fireplace, while Sarah was clearing the table, and once, while the latter was for a moment out of the room, breathed softly into my ear, without turning her head. "Take care, or you will be in danger." I nodded quickly; but Sarah was already back in the room, and Mrs. Rayner's face was as impassive as ever. I was so much used to living in fear of Sarah that the warning did not make any particular impression upon me, and I went to bed neither more nor less afraid of her machinations than usual. I woke up in the night without being conscious of any cause for doing so. Then, as I raised myself on my elbow, I thought I heard a sound, too faint to be called a noise, outside the door. I heard nothing for some time, then again a muffled noise as of something being shuffled softly from one stair to another, then again no sound. I got out of bed softly, lighted my candle by putting a match to the dying fire to avoid the noise of striking it, crept to the door, and peered my eye to the keyhole. And, after a few moments, I heard the same soft shuffling again. Whoever or whatever it was seemed to be making its way down by very slow degrees, until it seemed that it must be about six or seven stairs from the top. I screwed up my courage and resolved to give the intruder, human or otherwise, a fright. I turned the key without the least noise, then the handle, and swung open the door, stamping my foot and brandishing the candle. My plan succeeded only too well. A figure which had been crouching on the stairs sprang up. It was Sarah. Before I had time to do more than recognize the savage, frightened face, her foot slipped, and, with a piercing cry, she fell backward down the stairs. The staircase had one turn, I trembled at the door, saw her long, thin hands clutching and struggling to save herself at the corner; but she failed, and I heard a heavy thud, and then a groan. She had fallen head-long to the bottom. For one second I leaned against the wall, unable to move; then, trembling so that I could scarcely find the top stair, I stepped forward to go down. But on the second stair my foot suddenly slipped, and, if I had not been going very slowly because of my agitation, I must have fallen. On the next stair I slipped again; on the next to that, putting out my foot very cautiously, I found a string fastened across. With a sudden suspicion, I sat down without advancing further, and slid my hand along the stair. It was slippery; so were the others. The turret staircase was dark even by day; if I had been running down-stairs at my usual pace, nothing could have saved me. It was a trap set by Sarah, if not for getting rid of me altogether, at least for seriously injuring me. She was greasing the stairs one by one when I had heard her; in her alarm at my sudden appearance she had sprung up her foot had slipped on the greasy plate below, which she had been using, and she had fallen herself a victim to the trap she had laid for me. And, as the horrible truth broke upon me, I heard another groan and a murmur I could not distinguish. Sick at heart, and for the moment almost as helpless as she, I crawled down the stairs, wondering and fearing what spectacle would meet my eyes at the bottom.

CHAPTER XXIII.

All the stairs below where Sarah had slipped were safe and in their usual state. At the bottom, an almost senseless heap lay Sarah, with one arm twisted under her and her head in a pool of blood. The noise of her fall had by this time brought out Jane from the distant nursery; and she ran for the cook, who was an older and more experienced woman, and who, indeed, proved useful in this emergency. I was obliged to send Jane into the village for Sam, to tell him to ride as fast as he could to Beaconsburgh for the doctor. And then we sat in the cold, in the dim light of a candle, until the front-door bell sounded through the silent house. It was Dr. Lowe. He called first for more light. Jane brought a lamp, and he signed to her to hold it steady. After asking me whether I was hysterical, and hearing me answer "No," he told me to hold the lamp while he made his examination. He cut off her long black hair and strapped up her head, which had received a gash which might affect the brain, he said, and he set and bandaged the broken arm. Then we brought a mattress, and very carefully lifted her on it, carried her to her room, and put her on the bed. "Who is going to sit up with her?" asked he.

"I will," said I. He asked after Haidee; but I could not let him see her, as the staircase was not yet ready; so, after giving me instructions about the treatment of Sarah, he left the house. Before long the patient began to grow restless, as the doctor had predicted; she turned her head from side to side, tried to raise her broken arm, which had been set and bandaged tightly down, muttering and moaning incoherently. I think I must have dozed myself for a few minutes, when I was startled into full wakefulness by a low, hoarse cry of "Jim!" Then she broke out passionately—"It's an ill thing you're going to do, James Woodfall. What do you want of a lady for a wife! Her money's none so much, and, as for her pretty face, it's the face of a fool. I'm twice the woman to look at that she is, and I'm only twenty-five; and I've stuck to you through thick and thin. Why don't you marry me, Jim?" After a pause, and then came a speech which chilled me with horror. "Dead men tell no tales, Jim," said she, in another fearful whisper. "It's easy done, and it's safer. What's an old man's life that you're so shy of touching him! You've done many a riskier thing. Why do you always turn coward at that?" I could scarcely sit and watch this woman-fend after that. I seemed to see murder in her fierce, fiery eyes; and I shuddered even as I moistened her dry lips and touched her burning forehead. She ran blind on in the same style, mentioning other names I had never heard, and not a word of me or Mr. and Mrs. Rayner, or even of Tom Parkes, until she broke out angrily—"Jim's mad about that little Christie girl, Tom, and he says he'll marry her in spite of everything, and I've got to bring it about," she hissed between her teeth. What a awful confusion in her mind was there to connect me with her criminal lover of years before! She was rambling again into the present, though, for the next speech that caught my attention was—"It's a good weight, Tom—Jim might have lent you a hand. The water's deep in the cellar; but it won't hurt the jewels, and the plate'll clean. Come on." Was it the Denham Court robbery that was on her mind now? I held my breath while she went on—"Tom, that sneaking Christie girl's got wind of it somehow. Jim's that gone on her he won't listen to me; and, if I don't prevent it, she'll be his ruin." Again that strange confusion of my name with that of the unknown Jim! My brain seemed to be getting as much confused as her own. I held tightly to the arms of my chair as I listened to her ravings, as if in a futile attempt to steady body and mind. I was mad to discover who this James Woodfall was, and I left my chair, and drew, as if fascinated, nearer to the bed, as she said—"Take care, Jim. You risk too much. There must be some thief-taker in the world clever enough to recognize the forger James Woodfall in the jewel-robber—" At that moment, while I listened with pulses beating high and eager for the name, the door opened, and the sick woman, distracted by the noise, cried, "What's that?" It was the cook come to take my place. But the reaction from the high-pressure tension of my nerves during the last few hours was too much for me. I fell fainting to the floor. The next morning I telegraphed to Mr. Rayner to inform him of the accident, without, of course, mentioning the cause. I received a telegram before dinner-time—"Am much distressed about accident. Give her every care. Have sent off an experienced nurse already. And by the afternoon train she arrived—a silent, middle-aged woman, the very sight of whom inspired respect, which in my case amounted to awe. The fright in the night had made Haidee rather feverish again, and I sat with her during the greater part of the day. Just before dinner we heard a light, unaccustomed step on the stairs, and Mrs. Rayner came in. Seeing her in the full light of my four windows, I was shocked by the change in her since I had first come to the Alders, little more than two months before. She made little reference to the previous night's adventure, only saying—"I hear Sarah is ill. I had to go in search of my breakfast myself this morning. I hope she is better." But the look on her worn face of relief from a hated burden belied her words. She had not dared even to visit her child while that harpy was about. When we were called to dinner, I went down first in order to leave her with her child for a few minutes. At the foot of the turret I found Miss Mona, as dirty as usual, playing with Sarah's housekeeping keys. I took them from her, not without a struggle and many tearful screams and howls on her part. I thought to myself how much annoyed Sarah would be if she knew her keys were in my possession; but I was glad I had found them when, after tea, Jane came to me and said the nurse wanted some bottled stout. "And cook says, 'What shall we do? Miss. She's making such a fuss about it.'" "Where is the bottled stout kept, Jane?" said I, thinking of my keys. "It's either in the cellar, miss—but Mr. Rayner keeps the key of that; or else in Sarah's store cupboard." "That is in the left wing, isn't it?" "Yes, miss." "Very well, Jane. I have found Sarah's keys; so I will look in there and see if I can find any," said I. "Oh, and, if you please, Miss Christie, could you get us out some candles and some moist sugar? They are in there, I know, for Sarah was very kind to buy them yesterday." I said I would; and, lighting a candle, I rather nervously pulled open the heavy door of the left wing and entered that mysterious part of the house sacred to Mrs. Rayner. The store-room was the first door on the right, I knew; and I tremblingly tried the keys until I came to the one which opened it. I searched on the open shelves, but could not find either of the things I wanted. At last I caught sight of the black bag Sarah had had in her hand when I saw her start for Beaconsburgh on the previous day. I took it up; but suddenly my attention was diverted by the fact that in one of the boards of the floor on the spot where it had lain there was a tiny ring. If I had not had my attention very much on the alert in this unaccustomed place, it would have escaped my notice. As it was, I put my finger through it, and found that it raised a trap-door. The rush of cold air when the trap-door was wide open seemed to take my breath away. I held my candle over the opening, and saw that some three feet below the ladder was green and slimy, and that a foot below that there was water. Was it a well? Suddenly there flashed through my mind Sarah's words in her delirium of the night before—"The water's deep in the cellar." I looked about me for something to try the depth of the water with, for go down I must. I found a rod that looked like those used for the bottom of window-blinds, and cautiously, candle in hand, ventured on the ladder. It was quite firm. I saw that I was in a large cellar, on one side of which were empty wine bins which looked rotten and green. I peered round the ladder and saw, on a big deal table the top of which had been raised to about eight or ten inches above the water's level, the little brown portmanteau I had seen Tom Parkes carry across the lawn, the same that I had afterwards discovered inside the back-door. And I remembered now where I had seen it before—stowed away at the bottom of a cupboard in the room I had occupied at Denham Court. I knew it by an old Italian luggage-label, "Torino," which I had noticed then. It was within arm's reach through the rungs of the ladder. With trembling fingers I opened it—for it was not even fastened—and, to my horror, drew out from a confusion of glittering things with which it was half filled a serpent bracelet I had seen Lady Mills wear. I put it back, closed the portmanteau with difficulty, and clung to the ladder, overwhelmed by my discovery. [TO BE CONTINUED.]

Queen Victoria.

The sounds of preparation for the Queen's diamond jubilee are now encircling the world. It is an ideal circumstance that the most beloved monarch that ever sat on the throne of England should have the longest reign recorded in its annals. It is no wonder that a fact so striking should stir the hearts and imaginations of the many millions over whom she rules. No sovereign, of any time or land, has been the object of such genuine and unvarying affection. From the day when, at the age of eighteen, a sweet, girlish figure, with fair hair and large blue eyes, she stood in the council chamber of Kensington Palace, receiving the homage of the statesmen of England, she attained a hold on the hearts of her people which has never at any time been shaken with the slightest breath of unpopularity or weakened by any shadow of misunderstanding. In the personal affection with which she is regarded, the high dignity of her position is scarcely realized. The ideal of the constitutional monarchy, no sceptre has a prouder sway than that of the Queen of England. The progress of the Empire during her reign has been unparalleled during any previous period of like duration; while under her predecessor, whose reign she now exceeds, the greatest possession of the British Crown was lost. Had her grandfather but possessed the wisdom, the self-restraint, the far-seeing beneficence that has characterized her action at every critical period of her reign, who does not feel assured that another vast dominion, loyal as this Canada of ours, might, from the unalienated affection of a kindred people, have doubled the pride and strength of England. Under Victoria there has been but one or two temporary and small reversions in the steady onward tide of progress. The gift of the seven Ionian Islands to Greece in 1864 was an act of national generosity of greater credit to England than any imperial pride in extended possessions; and the partial surrender of the Transvaal makes but a trifling deduction from the vast accessions of territory in Africa, where an empire has been founded excelling India in extent, an empire of which the greatness and potent future has as yet hardly dawned upon the mind of England. New Zealand, in the South Pacific, and kingdom after kingdom in Asia have been added to the sway of a rule that to-day extends over four hundred millions of the human race, or one fourth of the whole population of the world. Since the Queen's accession the total revenue of the Empire has more than doubled. The commerce of England, in exports and imports, has advanced by leaps and bounds from a hundred and fifty to five hundred millions of pounds, and the wealth of the country has had such a vast accession that a revenue of ninety millions a year is collected, with no sense of burden upon the people at large. In a general review of the place held by Queen Victoria in the regards of her people, one point never fails to strike every observer. Her position as a constitutional monarch has never been paralleled. Up to the commencement of her reign the personal interference of the monarch in the conduct of government had been frequent—the cause of many embarrassments and of some disasters. To manage or cajole the king, or occasionally to force his hand and combat his will, was at one time one of the most arduous of the tasks imposed upon the prime minister of the day. Perhaps the last act of direct personal government was that of William IV., when in 1834 he peremptorily dismissed the Melbourne ministry and called on the Duke of Wellington to assume the reins of office. No monarch of the house of Brunswick, previous to the accession of Victoria, clearly understood or accepted the true principle of constitutional government. It requires some recollective and close review of the history of the Georges to realize the peaceable revolution achieved during the present reign, and it has been well said of our beloved Queen: "No one before her has fulfilled the duties of the exalted and difficult post to which she was called with the same devotion, with so much self-denial, and so little self-assertion. She has made the machine of state to work easily, and is the first English sovereign who has never been identified with any political party. She has suppressed her own prepossessions and dislikes in a manner that has been little less than heroic." There has been sufficient indication of force of character in her career to prove that it is to no want of spirit or natural will that this fine decorum is to be attributed. Her influence on the course of government, and especially on the conduct of foreign affairs, has been great, and we do not doubt, from no obscure intimations from time to time as to how that influence has been exerted, that when the secret actions of our time are laid open to the next generation there will be little indeed which will not tend to exalt her in the records of history

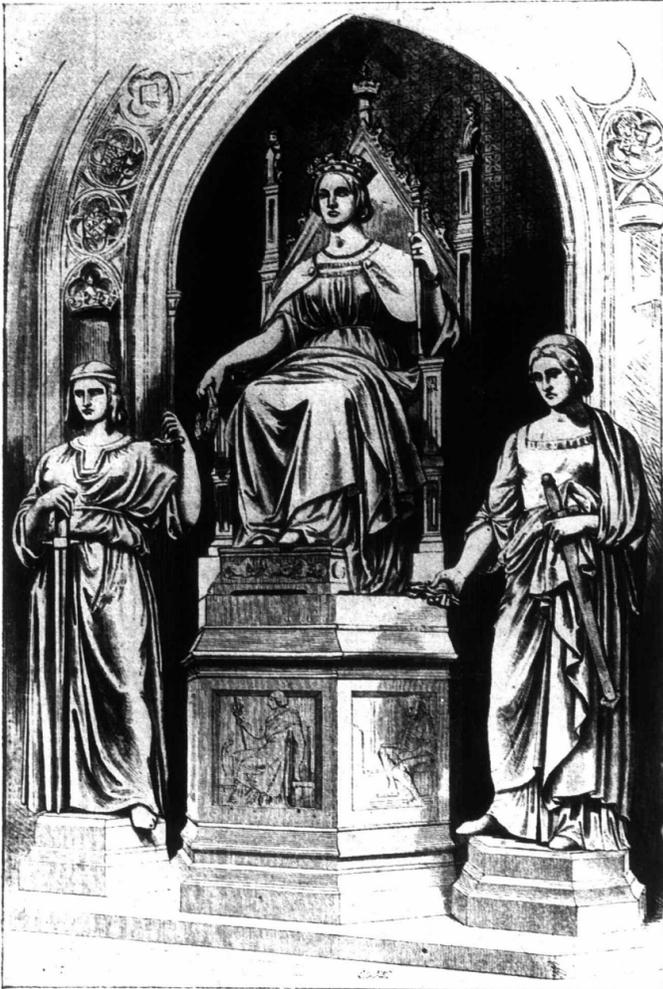
as the most worthy to have been loved and trusted of any sovereign that has ruled the destinies of England.

THE CHILDREN'S CORNER.

Old Freda's Garments.

She was an old woman now, was Freda. Husband and children had all gone before her to the better land, and now she dwelt peacefully alone in the old cottage, awaiting her summons to join them. Besides the cottage, she owned two large fields and an orchard, so she was considered fairly well off and envied not a little accordingly. Now, one evening two or three of the women of the little village met together to take a cup of tea—that "gossip broth" as it has been called. After sitting in judgment over most of their acquaintances, the four cronies all fell tooth-and-nail on poor Dame Freda.

"Did you see her cloak, last Sunday?" said Truda, the miller's smart spouse, who had the reputation of scolding so as to drown the sound of the miller's wheel. "Such a rag of a thing, I would not put it on the cat."



THE QUEEN SUPPORTED BY JUSTICE AND BENEFICENCE.
BY JOHN GIBSON, R. A., SCULPTOR.

"Nay, it was a mass of darns, not rags," corrected fat Liska, the butcher's wife.

"Her gown must have been made after the fashion of great-grandmother Flote's," remarked spiteful little Bette, the needlewoman of the village. "I never remember such big sleeves and scanty skirts."

"She don't keep her inside better than her out," chuckled Molla, the baker's daughter: "for I think all she lives on is dry bread."

"And she so well off as she is, with her garden, fields and orchard," cried they all.

"Shame, shame on her patched cloak!" exclaimed Liska, thinking of her own comfortably lined camelot.

"Fie on her old-fashioned gown!" echoed Bette, who resented not being employed.

"Out upon her coarse stockings, which she knits everlastingly, from dawn till sunset!" growled the lazy baker's daughter.

"Out upon all her rags and patches, say I," screamed the shrewish miller's wife: "they ought to be all torn off her skinny back, and she dipped in the mill-pond to refresh her wizened old body!"

And now a curious sensation was felt by each of the four women at once. Each one felt herself getting heavy and powerless; the big, lazy hands fell nerveless by their sides; the stout legs were too numbed to move from the place, and the sharp tongues that had wagged so busily were paralyzed for awhile! And while they sat glaring at each

other in helpless terror, the scene changed before them. Everything whirled round before their eyes, then they found themselves gazing on the inside of poor old Freda's cottage. Freda herself was deep in that quiet sleep that is sent only to the peaceful and innocent; and her poor traducers felt a little ashamed as they looked on her calm face and thin gray hair. Suddenly a shrill voice called out, "Who has been talking about our good dame's attire?" and the four malicious gossips shrank and shivered, because the voice pierced them through like a spear.

"Some one has been making sport of her garments," added a second voice.

"Who dares to say she is not dressed becomingly?" cried a third.

"Fetch out her clothes, and let us see if they are so very bad," said the first speaker.

Then there was such a turning over of old Freda's garments that it was lucky she was asleep. The eyes of the lookers-on could dimly make out little goblin figures trotting about and putting out the clothes for inspection. Presently one of them leaped to the lamp, and blew it into a flame, and then the four watchers could see countless hosts of pigmies all busy at once. Some were smoothing old Freda's gray hair, some fanning her with their wings. Meanwhile the chiefs were busy over her garments, and the tallest took her cloak and spread it over a chair, when the bewildered eyes of the gossips beheld it changed into the richest velvet, with lace and fringe.

"Who had the care of this article, and for what reason?" asked the Chief.

"I," replied a deft little figure; "I am the guardian of the cloak, and I took the charge when Freda gave the money she had saved for a new one to poor widow Jeans, who lost her cow in the cattle sickness. So I have turned her old cloak into velvet, only mortal eyes are too coarse to see it."

"What is this?" inquired the Chief, and the next goblin answered: "This is her gown; three several times has she given the cost of a new one away. First to poor lame Bertha, next to blind Harry, and last to old David when his horse was drowned."

"And what have you done to commemorate these things?"

"I have embroidered it all over with gold till it shines like the hearts she has made happy!" replied the sprite, holding up the gown which glittered like the sunlight.

"I," said the next, "have the charge of her jacket. She was going to buy a new one last fair-day with the price of her hard year's spinning; but Joan Bird died and left an orphan girl, so Freda gave the money to fit her out for service. This jacket is now of shining satin and costly needlework." And so the gossips saw to their huge dismay and discomfort.

"Here are her stockings," cried another sprite. "Silken are they, and the Emperor has none finer. She has earned them by the many bare feet she has covered. The beggars who wear stockings of Freda's knitting would make a tidy little troop to serve the King."

"I don't think there is much amiss with her clothes," said the Chief Goblin; "they are in very good order; but where are the bats and owls that made such a clamor about them, and were too blind to see their usefulness and beauty. Hunt them out, my merry mates, and pay them fitly for their mean stories; and when you have pinched and pricked them enough, turn them over to the Toad for safe-keeping till dawn."

What the four wretched women endured that night was never fully discovered, for they were unable to reveal it thoroughly. But that the goblins did their work well and heartily, there can be no manner of doubt. Next morning the miller found his wife perched on the mill wheel, cold, drenched, and disconsolate, from the ducking she had prescribed for Freda and undergone herself. The miller did not make any complaints, however, for from that time the shrew's tongue was tied, so that she could never say more than one word at a breath. As for the butcher's wife, she was hung neck and heels in her husband's shambles, and her fat arms and legs were covered with bruises. To the end of her days she stammered so that she could hardly be understood at all. The baker's daughter was stuffed into her father's oven, and it was just a chance that she was discovered at all. And, indeed, when Jan, the boy, dragged her out, she lisped so that he could not believe it was Molla herself, till she cuffed him spitefully, which quite convinced him. Bette was found rolled and tangled in her own cotton, till she was like a chrysalis in a cocoon, and one of her own needles was stuck through her tongue. Old Doctor Blystir extracted it, but speak again she never did.

And curious to relate, all the village rejoiced secretly, and declared there had never been so little mischief brewed since it was built. And poor old Freda put on her worn and threadbare garments,

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quite unconscious of how they had been glorified in the eyes of her spiteful neighbors, going about as usual, doing good each day to somebody. Possibly she, and others like her, may remain in ignorance until the time comes to lay aside the worn-out earthly vesture and put on the new white robes of the better land.

MINNIE MAY'S DEPARTMENT.

MY DEAR NIECKS,— Social life between young people of different sexes is perplexing in proportion to the amount of old or new ideas infused into their up-bringing.

Formerly, when a young man made two or three calls upon a young woman, with a short interval between the visits, his attentions were looked upon as significant, and of course the more frequent the visits and the shorter the intervals the more serious were his attentions considered. When a man went thus far he was compelled to go on or be looked upon as fickle if not dishonorable in character.

Nowadays a young man must make more than two or three calls upon a girl before she can, without an excess of vanity, even suspect him of matrimonial intentions.

In all instances a young girl's manner should be characterized by a gentle dignity and a reserved graciousness that avoids individual topics of conversation.

Many girls, thoughtlessly or designedly, take pleasure in apparently expressing intentions by their manner, acting a deceptive part for their own amusement, or because they would really like to receive a proposal of marriage. Very few men are proof against such subtle flattery, and are almost sure to admire her who has thus discovered, or appeared to discover, his attractiveness.

Ere long he throws himself at the fair damsel's feet, with an assurance born of the hope with which her kindly manner has inspired him, only to find himself rejected, and too late awakens to the fact that he has been used but as a means of amusement.

I should be loth, however, to consider that this is the general rule. It would be a libel on woman's goodness and gentleness of heart.

It must be said of the men of to-day that very many are too inconsiderate in their attentions to girls, while the girls are too indifferent to the consequences of their intentional fascinations.

Oftentimes has it happened that a man has remained single all his life because some foolish or heartless girl has attracted him only at last to reject him; and frequently, too, a woman never weds because her heart's affections were won by a man without matrimonial intentions and she was never after able to transfer them to a more worthy object, or else had lost all faith in the sincerity of men.

My dear girls, do not imagine you are showing your smartness by "flirting." No well-bred girl will indulge in anything so indelicate, and would be, I assure you, only proclaiming to the world her lack of common sense.

Flirting is equally culpable whether indulged in from motives of vanity or as an inadvertent use of personal charms, and she who bestows a little affection on this one and that one, and then on another and another, will some time find her heart depleted and at last discover she has no more to give.

How great is the need, then, of preserving the heart's first freshness for one's own fireside!

Young men and women may enjoy each other's society both profitably and agreeably if their minds are well stored and their time fully occupied with employment and a reasonable proportion of amusement. Those who meet frequently on account of some common interest in books, music or art, will discover each other's qualities and abilities much quicker than those who meet merely for the discussion of things purely personal.

A girl is afforded admirable opportunities of noting a man's peculiarities of thought or manner when his visit is to the family in general. This is the sort of social intercourse that parents should encourage. A sensible girl will not permit herself to regard as seriously significant any attention which is not definitely expressed in words.

Undoubtedly woman is happiest as a wife and mother—when happily married. But what a fate when she has chosen unwisely! How much better a life of loneliness than one of ill-mated misery!

Women have become successful bread-winners, and marriage is no longer considered the only goal for which all must blindly rush, with a reckless disregard of consequences. To-day the best women are so absorbed in one way or another that they are no longer so alert for men's attentions.

Marriage is a matter of such vital importance that it should not be entered upon lightly, nor can too much careful thought be given to the proper selection of a life-partner.

To insure domestic happiness, mutual affection, with loftiness of thought and nobility of character, should ever have precedence over all worldly considerations.

The happiness of life is made up of minute fractions—the little, soon-forgotten charities of a kiss or a smile, a kind look or a heartfelt compliment.

The Dairy School from a Woman's Standpoint.

BY LAURA ROSE, WELLINGTON CO., ONT.

There are few things I enjoy more than a visit to the dairy at the O. A. C., especially at the time of the year when the winter dairy school is in full swing. I experience the same thrill of pleasure as he who treads again those halls of learning where he passed many years in fitting himself to fight life's battles.

Saturday last I spent the morning at the dairy. Being an ex-pupil, I felt privileged, so instead of going up into the visitors' gallery, I wandered amongst the busy workers, peered into the churns at the countless golden grains of butter—a beautiful sight, listened with interest as I learned of the new method of pasteurizing the cream to destroy bad flavors, and could not help noticing how each year some improvement is made in every department of this well-equipped establishment.

Many farmers' sons have taken advantage of this branch of education which our Government furnishes so freely, but the farmers' daughters—the very ones who most need and would most materially profit by such a course of training—have yet to learn what an advantage a few weeks' practical instruction in such a place would be to them.

It is a fact that the more we adhere to the good (old) ways of our mothers, the more conceited we become. It is only when we break away from the long-established methods and search for new light that we grow broad and generous in our views, and then we find what we have hitherto thought the only proper way to be both laborious and crude. As a rule women are quicker than men to grasp and adopt new methods of work; all they want is the chance, and for this very reason I advise letting them occasionally take a trip. Depend upon it, they will come home with some fresh ideas, and probably will not rest till they have the coveted improvement.

That reminds me of a farmer and his wife who visited the College dairy one day. The latter was greatly interested in all she saw, and said to her husband he must buy her a complete dairy outfit. Before leaving for home she had the desired articles, and I know, on good authority, the same woman now gets two or three cents above the market price for her butter, and has all the private customers she can supply. Besides the higher price, better quality, and greater quantity of her butter, she finds the work in connection with it vastly easier. This was the result of one day's visit.

Many farmers say, "My wife or my daughters make as good butter as I want to eat." Granted; but do they make it bring the highest profit, for there are many ways by which, through ignorance, a loss may be incurred. A thorough knowledge as to what each cow is producing in weight of milk and butter-fat, the percentage of butter-fat lost in the skim and butter milk, the proper temperature to ripen and churn the cream, and dozens of other little things equally worth knowing cannot but add to the weight and quality of butter.

This is a day of specialists, and any woman who wants to become famous must make herself eminently proficient in one thing. So I say, if you desire to gain a reputation for excellent butter, and sustain it, you must get all the knowledge you can on the subject. Nowhere else are there such advantages offered as at the dairy schools established in different parts of our country, and if our farmers' wives and daughters would make the effort to attend, even for a very short period, there would be a most wonderful change found in the butter put on the market in the future.

Puzzles.

All matter for this department should be addressed to Ada Armand, Pakenham, Ont.

1.—DIAMOND.

"In Constantinople" my first you'll see, While my last is part of the tower of Dundee; While my sixth is but "a name" alone, My fourth by the smith is very well known, And my third is a vessel of clay or stone, Tho' my second of lava is but a kind, Yet my fifth was much prized by the ancients, you'll find. CLARA ROBINSON.

2.—TRANSPPOSITION.

Allms icevres si teur svreice whelli ti lsast; Fo rdsnei revihow blehum nsore ton noe; Het ysidia, yb teh swohad halt ti cssta. Prottecs eth ggerinnal dderowp firo eht uns. ETHEL MCCREA.

3.—HIDDEN RIVERS.

1. Donald went to London. 2. Is Ethel better? 3. Look at my fishing rod, Ernest. 4. That is better honey than you can buy. 5. We had it rented for a year. 6. Who rang Evan's bell? 7. The gang escaped to a bush. 8. The steamer Seymour was lost. J. S. CRERAR.

4.—CHARADE.

My first means entire, My second a portion, And my whole means healthful. HATTIE MACDONALD.

5.—LOGOGRIPH.

(Behaving and Transposition.) In many distant One, we are told The Phoenician Two were shown; For a race so bold in search for gold And the fragrant spices grown In far off Ind, must needs be known.

Transpose, alas, the Three has set Beneath which, such good luck they met; For now, another rules the waves, That to Phoenicia once were slaves.

And in their place, o'er the world are seen Brave Four, subject to a British Queen. CLARA ROBINSON.

6.—ARITHMETICAL.

A lady once went to her grocer's for a gallon of oil with a vessel which held 1 1/2 gallons, but the grocer had only a 3/4 quart measure. How did he measure it? WM. S. BANKS.

Answers to February 15th Puzzles.

- 1. In—and—out. 2. A pistol—a pistol. 3. Uncle Tom's Cabin— 4. Maas, Emba, Tweed, Nith, Forth. 5. Age—an. 6. MADE ATOLT DISARM ELATION TRIFLE MOLES NEST

3. UNCLE TOM'S CABIN— H E N A E O C U R M U D G E O N O U H A W N F D R A E Y E T E R E I N S T A T E D R A S F I N A I D E D T I N E R E D M A N I I E E R R E D M A N I T R V V G O T L A D U I R A O I U O E U O O D I N E B W I N O N A R R A T O R E L E N T L E S S

SOLVERS TO FEBRUARY 15TH PUZZLES.

J. S. Crerar, Addison M. Snider, Clara Robinson. The winners of prizes for original puzzles during the past three months are as follows: 1st prize, 75 cents, Miss Clara Robinson, Markham, Ont.; 2nd prize, 50 cents, Miss Ethel McCrea, Springtown, Ont.; 3rd prize, 25 cents, Mr. John S. Crerar, Brussels, Ont.

THE QUIET HOUR.

Judge Not.

Judge not; the workings of his brain And of his heart thou canst not see; What looks to thy dim eyes a stain, In God's pure light may only be A scar, brought from some well-won field, Where thou wouldst only faint and yield. The look, the air, that frosts thy sight, May be a token that below The soul has closed in deadly fight With some infernal fiery foe, Whose glance would scorch thy smiling grace, And cast thee shuddering on thy face. The fall thou darest to despise— May be the slackened angel's hand Has suffered it, that he may rise And take a firmer, surer stand; Or, trusting less to earthly things, May henceforth learn to use his wings, And judge none lost, but wait and see, With hopeful pity, not disdain; The depth of the abyss may be The measure of the height of pain And love and glory, that may raise This soul to God in after days. —A. A. Procter.

Our Neighbor's Faults.

We may, if we choose, make the worst of one another. Every one has his weak points; every one has his faults. We may make the worst of these; we may fix our attention constantly on them. But we may also make the best of one another. We may forgive, even as we hope to be forgiven. We may put ourselves in the place of others, and think of them as we should wish to be regarded ourselves. By loving whatever is lovable in those around us, love will flow back from them to us, earth will become like heaven, and we shall be not unworthy followers of Him whose name is love.

"How can we tell what hearts have vilest sin? How can we tell? Many, like sepulchres, are foul within, Whose outward garb is spotless as the snow, And many may be pure we think not so, How near to God the souls of such have been, What mercies secret penitence may win, How can we tell?"

Who can weigh circumstances, passions, temptations, that go to our good and evil account, save One, before whose awful wisdom we kneel, and at whose mercy we ask absolution?

"How do we know who sinneth more than we? How do we know? We think our brother walketh guiltily— Judging him in self-righteousness as well! Perhaps, had we been driven through the hell Of his untold temptations, we might be Less upright in our daily walks than he— How do we know?"

Nothing is easier than fault-finding. No talent, no self-denial, no brains, no character are required to set up in the grumbling business. Don't be on the lookout to find where people are wrong; try to find out where they are right. Cultivate the habit of seeking the best in every person; crush down that cynical contempt which finds in everybody something to be despised and criticised. Seek good everywhere, and it will most surely be found.

"Dare we condemn the ills that others do? Dare we condemn? Their strength is small, their trials not a few; The tide of wrong is difficult to stem, And if to us more clearly than to them Is given knowledge of the good and true, More do they need our help, and pity too. Dare we condemn?"

It is wise to keep clear of personalities in conversation, as far as possible, and no one should ever needlessly report ill of others. But do not fall into the opposite error of weakly praising everybody, sacrificing truth and honesty, and giving hearty approval to evident wickedness. Sometimes stern,

open disapproval, and even rebuke and condemnation are required of us. But be sure that such severity is a duty before using it. There is evil enough in the world, God knows. But it is not the mission of every young man and woman to detail and report it all. Keep the atmosphere as pure as possible, and fragrant with gentleness and the charity which "thinketh no evil," remembering always that "ten thousand of the greatest faults in our neighbors are of less consequence to us than one of the smallest in ourselves."

"God help us all, and lead us day by day!
God help us all!
We cannot walk alone the narrow way:
Evil allures us, tempts us, and we fall.
We are but human and our strength is small.
Not one of us may boast, and not a day
Rolls o'er our heads but each hath need to say,
'God help us all!'"

**"Judge Not According to the Appearance,
but Judge Righteous Judgment."**

No kinder precept ever came
To dwell with men, so kind it is
We feel at once 'tis from the same
Warm heart that taught so plain to this
Deep-troubled world that God doth love,
And Truth shall ne'er remove above.

We stop not for the facts, but think
A beauteous rose hath canker none,
And mother's heart close on the brink
Of breaking for her wayward son,
We look not at, but judge it shares
The smile her face so often wears.

Such judgment is not mere unsound,
By it the judged do suffer sore,
For many fallen to the ground
Had by our aid arisen once more,
But that we acted from a heart
That only knew the facts in part.

'Tis by the ling'ring for each fact
Of all, thou wilt judge righteously,
And can e'er give men what is lack'd?
To make their heart throb joyously.
Oh! life will be more as 'twas meant
If men but wait before judgment.

-F. D. J.

Earth Linked to Heaven.

When engineers would bridge a stream, they often carry over at first but a single cord; with that, next, they stretch a wire across. Then strand is added to strand until a foundation is laid for planks, and now the bold engineer finds safe foot-way and walks from side to side. So God takes from us some golden-threaded pleasure and stretches it hence into Heaven. Then He takes a child or a friend. Thus he bridges death, and teaches the thoughts of the most timid to find their way hither and thither between the shores.

-H. W. Beecher.

NOTICES.

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

There is little or no profit in late hatched chickens, and unless early ones are raised in a brooder there is a great risk of losing numbers of them by cold, lice, skunks, etc. When the modern brooder is used, such as the "Economic," advertised in this issue by G. J. Lovell, 130 Richmond St., Toronto, the poultry man or woman, boy or girl, has the whole matter within easy control. The "Economic" is a 50-chicken brooder, and is sold cheap.

The Hon. G. E. Foster, on returning from the British Columbia gold fields, made the following statement to a leading Montreal newspaper:—"It cannot be too strongly urged upon the people of Eastern Canada to weigh their chances carefully before leaving certainties in the East. There is little to do except for miners, and they must be experienced men. The only other persons who can go there with impunity are men who have some connection or persons who have capital."

We direct the attention of our readers to the advertisement of the world-renowned "Little's Sheep Dip and Cattle Wash" (the original Liquid Sheep Dip), which appears in our columns. This preparation possesses a reputation of 25 years' standing throughout the world, and has held the foremost position among sheep dips during that entire period. In addition to its unexcelled curative properties it has the peculiar merit of invigorating the growth of the wool by its healthy action on the skin. The testimony of so high an authority as our Minister of Agriculture and other large breeders is conclusive on this point. It is done up in large tins at 75c., each in making from 25 to 40 gallons of wash, according to the strength required. No farmer, let alone stock breeder, can afford to be without a dip of this sort.

HOW TO GET GOOD HARNESSES CHEAP.
At the premises of Jas. Smith, Sons & Co., wholesale harness manufacturers, Brantford, Ont., whose advertisement appears in this issue of the Advocate, will be found an up-to-date establishment, managed by an enterprising firm who are in a position to supply the harness-consuming public a really good article at a very moderate cost. Their factory is well situated in the flourishing City of Brantford, and buyers having occasion to do business with these gentlemen will find them ready to supply their wants in a businesslike manner.

BINDER TWINE.

T. S. Hobbs, M. P. P., London, Ont., writes:—"Farmers may expect, during the coming season, to reap the full benefit of Government competition in this commodity. The Dominion Government have thrown on the market 1,000 tons, which represents the total output of their mills for 1896 and 1897. Last year the Combine practically locked up both the Central Prison output at Toronto and the Kingston Penitentiary product. The both stocks of binder twine are now on the market, and some interesting developments are expected in the course of a few weeks, when the demand for twine increases." See advertisement.

A GOOD LAND ROLLER.

To The Estate of T. T. Coleman, Seaforth, Ont.

"My agent called on me and requested me to give my opinion as to the land roller you manufacture. The land roller is an implement that no farmer can well afford to be without. In light, loose soils the roller is the best means of making them compact and solid. In working heavy soils to make a fine seed-bed in dry weather the roller will pulverize better than the harrow. All land seeded with grass ought to be rolled in dry weather, as soon as possible after sowing, as it brings the moisture in the soil to the surface, thus enabling the seed to germinate. Spring grains are all better to be rolled. It makes reaping and harvesting much easier, and in summer assists to keep the soil moist. The best roller I have seen in my experience is what is called the Dale Pivoted Land Roller, manufactured by The Estate of T. T. Coleman, Seaforth. There are two drums, each working in its own frame, allowing them to adjust themselves to the irregularities of the surface of the land. The roller is light of draft and easily turned. I can recommend it to any farmer requiring to purchase a roller.

Yours truly,
"JOHN McMILLAN, M. P."

Do not forget

The Public Sale of Shorthorns at Maple Lodge Stock Farm on Thursday, 25th March, 1897.

JAS. S. SMITH, Ont.

H. & W. SMITH, Hay P. O., Ont.

GRAND DISPERSION SALE

The entire herd of

High-Class Shorthorns

To be sold at Auction

Tuesday, April 6th, 1897,

At MOSBORO STATION, G. T. R. (5 miles west of Guelph).

I will close out to the highest bidder, without reserve, my entire herd, some

50 HEAD of blocky, thick-fleshed Cattle in fine condition.

Also a number of exceptionally fine CLYDESDALE MARES.

TERMS: Eight months, on approved notes. Five per cent. per annum off for cash.

SALE TO COMMENCE AT 1 P. M. Catalogues ready early in March. Send for one.

John Smith, M. P. P.,
Auctioneer, BRAMPTON, ONT.

John I. Hobson,
Mosboro P. O., Ont.

DISPERSION SALE OF Ayrshires BY AUCTION,

belonging to

D McLACHLAN, at PETITE COTE, QUE. (near Montreal) on

Wednesday, April 7th, 1897.

This Herd has had a most successful show-yard career, having taken either first or second herd prize at all the principal exhibitions in Canada. The young stock are principally by imported "SILVER KING," the acknowledged champion Ayrshire bull of Canada, and who has sired more winners than any bull in the country. Write for descriptive catalogue of stock to W. M. EWING & CO., Montreal; H. J. ASHMAN, Auctioneer, Montreal;

om **DUNCAN McLACHLAN, Petite Cote** (near Montreal).

Important Auction Sale of the entire BELMONT JERSEY HERD

AT BELMONT FARM
Monday, March 29, 1897
AT 11 A. M.

Comprising 24 head of reg. and grade Jerseys, a grand lot and in fine condition (see FARMER'S ADVOCATE, Jan. 15th), together with stock, implements, etc., without reserve. As the farm is to be rented, special inducements to tenant who will take over and continue Bottled Cream and Milk business. Possession by April 1st. Terms of Sale—7 months' credit. The farm is at Burford, near Brantford; 150 acres good land, buildings, water, school, etc., etc. Write for particulars. JAS. FELL, Mgr., BRANTFORD, ONT.

PUBLIC SALE OF Jerseys

In the second week in April.



I will sell my entire herd of high-class Jersey cattle, some 35 head, of young cows, heifers in calf, heifer calves and young bulls. Date and further particulars later. Send for Catalogue.

J. C. Snell, SNELGROVE, ONT. 8y-om

Farm to Rent or For Sale

100 acres, lot 20, 7th concession of Westminster, Middlesex County, half way between St. Thomas and London. Possession April 1st. Fall wheat sown. **Hunt Bros., LONDON, ONT.**

Wanted—Position with stock farm, country place, sale, racing, or private stable. Young man, single; understands horses, cattle, sheep, poultry and garden; ten years' experience with horses of all classes; good rider and driver. References. Address: ACTIVE, Box 828, MONTREAL, QUE.

Binder Twine

HOBBS HARDWARE CO., London.

2,000 Tons—HIGH GRADES—2,000 Tons

In car lots and less at low prices.

Plymouth Gold Medal, Blue Tag,
Pure Manila, Red Tag,
Beaver, Sisal.

If interested write us.

Important and **AUCTION SALE** of Unreserved

THOROUGHbred HOLSTEIN-FRIESIAN CATTLE

To be sold WEDNESDAY, 21st MARCH, 1897, at the Waldrons Stock Farm, Lot 14, Con. 3, London Tp., four miles north of London.

R. Howes Crump, Masonville P. O.

AUCTION SALE!

I have decided to sell by public auction my entire herd of Shorthorns (about 25 head) on the 14th of April next. Further particulars in later issue of Catalogues will be ready by March 15th, 1897, and will be mailed to all applying for same. Address:

om **H. R. SANOSTER, LANCASTER, ONT.**

ADVERTISE IN ADVOCATE

GOSSIP.

H. Bennett & Son, St. Williams, Ont., writes, with change of ad., under date of March 3rd:—"We must thank the ADVOCATE for the many orders we have received for our choice Berks and B. P. Rock eggs. We have sold the young boar flying Gib. Our length, useful brood sows are looking fine."

Mac Campbell, Northwood, Ont., in writing us instructions to change his advertisement, says:—"I have sold all my bulls but one, at remunerative prices. I have two good Berkshire boars left, out of Duchess of Kent (3691), and sired by Crown Lad (3705), bred by Geo. Green, Fairview, and a few sows of like breeding."

A. J. Watson, Castledix, Ont., writes:—"Shorthorns at Ashton Frontview Farm are now in excellent form—never before looking so well at the same time of year. The four-year-old show cow that won a name for herself last fall is now looking exceedingly well. I am fitting some of both sexes for the showing next September. The Shorthorn trade is looking better. Inquiries almost by every mail. I have still on hand three choice young bulls, from fifteen to eighteen months old, which I will sell at exceedingly low prices."

W. F. & J. A. Stephen, "Brook Hill Farm," Trout River, P. Q., write under date of March 9th, 97:—"Our stock are coming through the winter in excellent condition, and we are confident we have the best lot of Ayrshires we ever owned; they now number 50 head. Our stock bull, Uncle Sam 6974, has developed into a fine, large, handsome animal, and is proving an excellent stock-getter, his stock being vigorous and well-developed. The heifers from our old stock bull, Allan Gordon 3211, are proving excellent milkers, with typical udders. During the past year we have sold 2 cows, 4 heifers, 6 young bulls fit for service, 8 heifer calves, and 7 bull calves; of course, at prices somewhat lower than a few years ago, and we have only one young bull fit for service on hand, and several orders have already been received for bull and heifer calves dropped this season."

THE HURON HERDS OF HIGH-CLASS
Reg. Poland-China, Tamworth, and Duroc-Jersey Swine, and Shropshire Sheep.

I have an excellent lot of pigs of almost any age and of the above breeds for sale; also a few Shropshire sheep of all ages. Stock imported and bred from imported and prize-winning stock. Write for what you want and prices thereof. All correspondence cheerfully answered. **WESLEY W. FISHER,** Ben Miller, Ont. Yards seven miles from Goderich.

THE SAFETY INCUBATOR

Won **FIRST PRIZE** at Toronto Industrial, hatching 84 per cent. after carrying the partly hatched eggs over fifty miles, while our competitors, whose machines were built and run right in Toronto, hatched only 53 per cent. and 40 per cent. These facts should tell you exactly what machine to buy. Our machines for 1897 are surpassed by none. Consult your own interests by writing us for further particulars. A fine lot of **SILVER WYANDOTTES** for sale. Eggs for Hatching—Silver, White and Golden Wyandottes, B. P. Rocks and Pekin Ducks, at \$1.50 per setting, \$2.50 per two settings. My stock of these varieties is second to none. Satisfaction guaranteed.

J. E. MEYER, KOSSUTH, ONT.

Guelph Express and Money Order Office.

Built for Use!

THE ECONOMIC INCUBATOR.

A well-built self-regulating machine, warranted to do good work or money refunded. Prices—Thirty-egg size, \$6.00; fifty-five egg size, \$9.00.

THE ECONOMIC BROODER

was awarded diploma of merit at Ontario Poultry Association show, Guelph, 1897. Raises better chicks and larger percentage, with less trouble and expense than is possible with hens. Price, complete, \$1.00.

THE COMET SPRAY PUMP.

A well-made all-brass machine, good either for whitewashing or spraying, only \$3.00.

Drinking Fountains, Poultry Markers, Crushed Oyster Shells, Grit, Insecticides, and all poultry supplies. Send for catalogue.

G. J. LOVELL,

130 Richmond St. West, Toronto.

THE IMPROVED VICTOR Incubator
Hatches Chickens by Steam. Absolutely self-regulating. The simplest, most reliable, and cheapest first-class Hatcher in the market. Circulars FREE. Address GEO. ERTZEL & CO., LONDON, ONT. or QUINCY, ILL.

NOW IS YOUR CHANCE

To get Black Minorcas (Rev. W. E. Scott's strain), White Wyandottes, Silver-Gray Dorkings, White and Brown Leghorns. Eggs, \$1.00 per fifteen. All winning strains. Also Berkshire Boars and Sows, all ages; Shorthorn Cattle and Leicester Sheep.

MAC. CAMPBELL, Northwood P. O., Ont. Lewisville Station, G. T. R. 24-2-y-o

G. BENNETT & PARDO, CHARING CROSS, ONT.

Breeders and Importers of Chester Swine and Poultry—P. Cochins and L. Brahmas, B. P. Rocks, Golden, Silver and White Wyandottes, W. & B. Leghorns, Silver-Gray Dorkings, and Cornish Indian Game. Eggs, \$1.00 per 13 the remainder of the season. Safe shipment and a fair hatch guaranteed. 10-2-y-om

MAMMOTH BRONZE TURKEYS, SILVER-GRAY DORKINGS, BLACK MINORCAS, BROWN LEGHORNS,

Eggs of all, except Turkeys, \$1.00 per 13. All winning strains. Pairs mated not akin. T. & H. SHORE, White Oak, Ont. 3-b-o

EGGS FOR HATCHING.

TERMS AS FOLLOWS:—Bronze Turkeys, per setting, \$1; Toulouse Geese, per setting, \$3; Cayuga Ducks, per setting, \$2; Light Brahms, per setting, \$1.25; Barred and White Plymouth Rocks, per setting, \$1.25; Red Caps, per setting, \$1.25. 3c. stamp for reply. WM. HODGSON, Box 12, Brooklin P. O., Ont.

J. G. CLARK, Woodroffe Stock Farm, Ottawa, Ontario, HAS FOR SALE

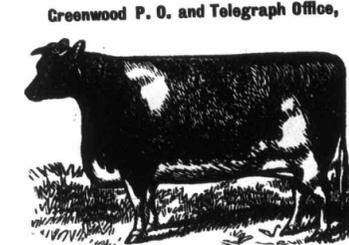
Three Clydesdale Mares

Weighing from 1,650 to 1,800 pounds, and their colts from 1 to 3 years old. Choice young Ayrshires of both sexes. For sale cheap.

1864. HILLHURST FARM. 1894. HACKNEY HORSES.

Shorthorn and Aberdeen-Angus cattle, Shropshire and Dorset-Horn sheep. M. H. COCHRANE, Hillhurst Station, P. Q. 16-2-y-om

Arthur Johnston, Greenwood P. O. and Telegraph Office,



HAS FOR SALE AT EXCEEDINGLY LOW PRICES

17 EXTRA GOOD SHORTHORN BULLS

fit for service; also an equally good lot of Cows and Heifers, the best we ever offered.

Send for Catalogue and prices. Enquiries answered promptly. Clarendon Stn. C.P.R. or Pickering Stn., G.T.R. Our motto: "No business, no harm." 5-1-y-om

THE GRAND VALLEY STOCK FARM

G. & W. GIER, Props., Grand Valley, Ont., Breeders of Short-horns and Imp. Yorkshires. We offer for sale young bulls, cows and heifers of choice breeding and good quality at very low prices; also choice young Yorkshires of both sex. 13-y-o

HAWTHORN HERD of DEEP MILKING SHORTHORNS.

FOR SALE—Four young Bulls, three reds and one roan; also Heifers, all got by Golden Nugget = 17548, and from AI dairy cows. WILLIAM GRAINGER & SON, Lonsdaleboro, Ont. 13-y-om

FOR SALE! 10 SHORTHORN BULLS

and a few heifers, nearly all from imported cows and got by an imported bull. 22-2-f-om JOHN ISAAC, Kinellar Lodge, Markham, Ont.

RIVER BOW STOCK FARM.

B. SNARY & SONS, Croton, Ont., Breeders of Short-horn Cattle, Poland-China, Duroc-Jersey, and Chester White Swine, and Leicester Sheep. We now offer for sale five good young bulls, and also heifers of choice quality and breeding, sired by Chief Captain, a son of Indian Chief. Young pigs of both sexes & all ages at exceedingly low prices.

1833—WILLIAM LINTON—1897

Aurora P. O., Telegraph and Telephone Offices,



Has for sale four exceptionally good Short-horn Bulls, fit for service, at the very lowest living prices.

CARGILL HERD OF SHORTHORNS.

We still have 3 extra good young bulls for sale, and a beautiful lot of 13 heifers, all last season's crop. We will be glad to answer any inquiries regarding them, or to show them to any one who wishes to purchase anything of their kind, and can guarantee them good enough to suit. 11-y-om H. CARGILL & SON, Station on the farm, Cargill Stn. & P. O., Ont.

SHORTHORNS FOR SALE

18 Young bulls (12 red and 6 roan), also 20 red heifers, bred from the best Booth, Campbell, and Cruickshank cattle. Awarded first for best herd of Shorthorns at Toronto, Ottawa, and Montreal, 1896. In Chicago, 1896, three first herds out of five; also sweepstakes for bull, heifer and herd, under two years old, all best breeds competing; winning more money and first prizes than any herd shown in Chicago. Price from \$50 to \$125 each. An electric car on the Yonge Street Road, from Toronto, passes the farm three times a day. J. & W. RUSSELL, RICHMOND HILL, ONT. 1-c-om

F. BONNYCASTLE & SONS, CAMPBELLFORD, ONT., Breeders of

Shorthorn Cattle, Cotswold Sheep and Berkshire pigs. Heifers, heifer calves and bull calves for sale at prices to suit the times.

W. G. PETTIT, FREEMAN, ONTARIO, BREEDER

Shorthorns, Shropshires, and Berkshires Offers for sale eight young Shorthorn bulls from 12 to 18 months old (4 reds and 4 roans), of very choice quality and breeding. Price, \$50 to \$75 each. Four heifers and two young cows in calf, twenty ewe lambs, and a choice lot of young Berkshire sows and boars.

FOR SALE The Scotch Shorthorn Bull, British Statesman (Imp.) (63729), is a first-class show bull and a grand stock getter. Also one two-year-old Scotch bull, bred from imported sire and dam. Come and see us, or write for particulars. S. J. PEARSON & SON, Meadowdale Ont.

A Snap!

A Roan Yearling Shorthorn Bull for \$50.00; Yorkshire and Berkshire Sows and Boars, ready to breed, for \$10.00; all of first-class breeding. Offer open for 30 days. Mar. 15, 97. 13-1-y-om W. R. BOWMAN, Mt. Forest, Ont.

For Sale—A yearling SHORTHORN BULL, sired by British Statesman (imported). Also three young BERKSHIRE BOARS, eligible for registration. Hard-times prices. Correspondence solicited. F. A. GARDNER, Peel Co., Britannia, Ont. 22-2-y-o

H. K. Fairbairn, Thedford, Ont.,

Breeder of pure-bred Shorthorns. I now have for sale two good young bulls, 11 and 13 months old, of choice breeding. Will sell cheap, considering quality. 22-2-y-o

A. J. WATSON, CASTLEBERG, ONT.,

(ASHTON FRONTVIEW FARM), breeder of choice SCOTCH SHORTHORNS. Young stock of either sex, and choicest breeding, for sale at reasonable prices. Correspondence solicited. Bolton Station, C. P. R. 22-2-y-o

4 Scotch Shorthorn Bulls for Sale

Ten to thirteen months old, from Duchess of Gloster, Lovely, and Nonpareil dams, and sired by imported King James. Also a few Partridge Cochon Cockerels for sale, \$1.50. 15-1-y-o H. I. ELLIOTT, Danville, P. Q.

100 BEST EVERGREEN SEEDLINGS

delivered free by mail, only \$1. 100 best evergreens 2 to 5 ft. delivered east of Rocky Mts., only \$10. Write for free catalogue and price list & 50 big bargains, selections from complete nursery stock. Cash paid for getting up clubs or to salesmen with or without experience. Address D. HILL, EVERGREEN SPECIALIST, DUNDEE, ILL.

THOS. ALLIN & BROS. LAKE VIEW FARM, OSHTAWA, ONT.,

Breeders of SHORT-HORN Cattle and SHROPSHIRE Sheep. 2 choice young bulls now for sale, also a few choicely-bred cows and heifers. Hard-times prices. Correspondence solicited. 4-2-y-om

Shorthorns!

TWO bulls, 20 months; two bulls, 15 months; one bull, 12 months; one bull, 10 months; six in all; colors, red and roan; good animals, in good working shape, and reasonable price. D. Alexander, BRIGDEN, ONT.

James Cottingham, RIVERSIDE FARM, ORMSTOWN, QUE.,

Breeder of Ayrshire cattle. Herd is headed by the prize-winning bull, White Prince of St. Anne's—6408—Choicely bred stock for sale at all times, including some very choice young bulls and heifers. 4-2-y-o

OAK POINT STOCK FARM Ayrshires FOR SALE.

I have now for sale a choice lot of young bulls and heifers of fine quality, and bred from best milking strains. Particulars on application. J. B. CARRUTHERS, Kingston, Ont. 17-y-o

THE GLEN STOCK FARM

Our stock comprises Clydesdales, Ayrshires, and Shropshires. High-class Ayrshires a specialty. We are making a special offering of ten very promising young bulls, and a number of very choice cows and heifers of the heaviest and richest milking strains, any of which will be sold at very moderate prices. We also have Rough-coated Scotch Collies for sale, eligible for registry. 7-y-om WHITESIDE BROS., INNERKIP, ONT.

BROOK HILL AYRSHIRES....

are still to the front. One young bull 18 months old for sale. Orders taken for young stock. Specialty in bull calves. Correspondence solicited. W. F. & J. A. STEPHEN, Trout River, Que.

Prize-Winning AYRSHIRES FOR SALE.

I have at present one of the largest and best herds in Ontario, which has been very successful in the prize ring. They are deep milkers and of a large size. Bulls, cows and heifers for sale always on hand. JAS. McCORMICK & SON, ROCKTON, ONT. 20-2-y-o

Choice Ayrshires of deepest milking strains. Largest and oldest herd in Ontario. We have choice young stock of both sexes sired by Leonard Meadowdale, a weop-stakes bull at Ottawa. Also choice Shropshires, and a fine lot of Berkshire pigs for sale. Visitors met at Queen's Hotel. Give us a call. J. YUILL & SONS, CARLETON PLACE, ONT.

JNO. SANDILANDS, Williamstown, ONTARIO, BREEDER OF CHOICE Ayrshire Cattle.

Young stock of both sexes now for sale at farmers' prices. 0

ADVERTISE IN ADVOCATE

BOOK TABLE.

We must congratulate our enterprising contemporary, The Farmer and Stock Breeder of London, Eng., upon its enlarged size and the important practical improvements made of late in that journal.

The Phrenological Journal and Science of Health, of New York, and Phrenological Magazine, of London, Eng., have combined, forming a magazine which has only to be seen and read to be highly appreciated. It is not only extremely interesting but highly valuable to the business man or student of the science upon which it so ably treats. It is published by Fowler & Wells, 27 East 21st Street, New York. It is issued monthly at 10 cents per copy or \$1 per year.

Peter Henderson & Co., 35 and 37 Cortlandt St., New York, having been in the seed business for fifty years, are issuing a gorgeous "Jubilee" catalogue, which they mail for ten cents, to cover postage and mailing. In it is offered and described everything for the garden and much for the farm. This reliable firm, having had fifty years' experience in their business, are prepared to do their patrons, old and new, excellent service. Their catalogue should be sent for.

Volume XIX. of the Clydesdale Stud Book of Great Britain, although a trifle smaller than that issued last year, is a good number, containing the pedigrees of mares having produce previous to Sept. 30th, 1896 (Nos. 12696-12777), and stallions foaled before January, 1896 (Nos. 10148-10301), with four appendices, and a list of members of the Clydesdale Horse Society as at 1st January, 1897. Opposite the preface page is a good illustration of Prince Sturdy (10112), bred by Robt. Hallowsay, Alexis, Ills. A good portrait of Montrave Maud (11786), winner of the Cawdor cup in 1896, also graces one of the foremost pages. The Secretary of the Society is Arch'd McNeillage, Glasgow.

Volume XIV. of the English Hackney Stud Book, recently issued, shows the Society to be receiving liberal patronage, as it contains the pedigrees of stallions, Nos. 5373 to 6247; mares, Nos. 9681 to 10635; and inspected, Nos. 1107 to 1206. Facing the title page is a portrait of Hedon Squire 4306, champion stallion 1896, and facing the preface page is a portrait of 7431 Stella, champion mare 1896. The volume is complete and well bound, edited and compiled by Mr. John Rowell is chairman. The President of the Society is Earl of Harewood, Goldboro' Hall, Knaresborough, and Secretary, Henry F. Euren, 12 Hanover Square, London W.

We have received the first number of The Canadian Teacher (March 1st), which takes the place of The Educational Journal, which has for many years been the leading educational paper of Canada. It is edited by Mr. G. R. Henderson and a staff of specialists, and, if we are to judge by the initial number, we would say that the editorial work is in competent hands. Among the departments of the new journal we notice the following: Editorial, Biographical Sketches, Special Papers, Current Events, Fifth Class, Fourth Class, Third Class, and Primary. In all of these departments there is much that is helpful. Published semi-monthly by The Educational Publishing Co., 114 Richmond Street West, Toronto. Subscription \$1 per year.

We have on several occasions spoken in commendable terms of various works prepared by F. W. Wool, Assistant Professor of Agricultural Chemistry, University of Wisconsin, notably, "Modern Dairy Practice," "A Book on Silage," Dairy Calendar 1895-96, and Agricultural Calendar 1895-96. The Professor has recently issued a Handbook for Farmers and Dairymen, having for its foundation the Dairy and Agricultural Calendars of 1895-96; in fact, it may be termed a third edition of these calendars. Its contents comprise much new material, both original and compiled, also a number of special articles, tables, statistics, etc., making the book an up-to-date work of considerable value. A number of able writers and specialists have contributed to its well edited and compiled pages. It is published by John Wiley & Sons, New York, and retailed at \$1.50.

GOSSIP.

Mr. R. Howes Crump has decided to retire from dairying and will sell his entire herd of Holsteins on Wednesday, 31st of March, 1897, without reserve, by public auction. See advertisement.

A qualified stockman, such as "Active" claims to be in the "Wanted" advertisement in this issue, is worth a great deal more to a stock breeder who needs an overseeing foreman than one of little or no experience.

James McCormack, Rockton P. O., Ontario, under date of March 8th writes:—Our cattle are wintering very well, and the demand has been good; have made the following sales since New Year's: To Thos. L. Pearce, Wallace town, Ont., the sweepstake bull, Bright Star. This young bull has improved wonderfully, and is an extra fine animal. To Mr. W. D. Scott, Toronto, for the Hon. Thos. Greenwood, the young bull, Leo of Rockton; two young cows and four heifers. We lost the dam of this young bull (Primrose 6th) at Toronto, with milk fever. To J. R. Alexander, Brantford, the bull Sir Laughlin 2. d. and to Mackie Bros., Eburne, B.C., the fine young cow, Rose Campbell. This is a large cow, possessing fine head and horns, long neck, long, deep body, and fine, soft skin. As a two-year-old in 1892, at Toronto, she was 3rd, and at London, 1st; and at Toronto in the aged cow class in 1894 she was 3rd; and along with her dam, Primrose 4th, and her half-sister, Primrose 6th, they were 1st for cow and two of her progeny. She was always successful at the local shows, and last fall, at different times, beat Sprightly 3rd, the 1st prize cow at Toronto. Rose Campbell has proved a regular breeder; she is just six years old, has five calves to her credit, and is again due to calve the last days of August. Mackie Bros. write us that Sir Laughlin is doing well and that he is giving the best of satisfaction, and that their yearling heifer, Winona, is a beauty, and her equal is not in B.C. She is sired by Jock Morton, and her dam, Phyllis of Rockton 2nd, is by Sir Laughlin. We have a few young bulls left that we will sell at prices to suit the times. We attribute our sales largely to our advertisement in the ADVOCATE, and as an advertising medium it has no superior.

GOSSIP.

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

Sidney Clark, Colchester Co., N. S.:—"The ADVOCATE is a better paper now than it ever was before. We have had it in the family since it started."

Our readers will bear in mind the public sale of Shorthorn bulls, cows, and heifers at Maple Lodge, Ont., on March 25th. If you have not received a catalogue, send for one to J. S. Smith, Maple Lodge P. O., Ont.

We call attention to the sweepstakes Bronze turkeys offered for sale in the Breeders' Directory card of A. Elliott, Pond Mills. The Collie dogs, various breeds of pigs and Oxford Down sheep should also interest readers.

Mr. D. Alexander, of Bridgen, Ont., advertises six thrifty young Shorthorn bulls, just ready for service. In this issue. We advise persons needing such animals to speak quick, as there is every indication of a shortage of good ones this spring.

Mr. T. D. Lowes, the well-known horseman, of Brampton, Ont., recently moved his stock of horses across the lines to Buffalo, N. Y., taking with him his invaluable stableman, but in a few hours the latter was compelled to return to Canada by the officer who deports persons entering the U. S. under contract.

"The FARMER'S ADVOCATE, published by The Wm. Weld Co., London, Ont., is one of the foremost agricultural journals, and well deserves its wide circulation among Canadian farmers, dealing with their interests, without political bias. It is now published twice a month, for only \$1 per annum."—*Canadian Horticulturist.*

If we can read the signs of the times aright, the Ayrshire breed of cattle is constantly growing in popularity. The large quantity of good milk given by them, together with their aptitude to fatten when dry, render them the strictly general-purpose breed. Good ones of this sort can be had at one's own price at the dispersion sale of D. McLachlan, Petite Cote, near Montreal. See advertisement in this issue, and send for a catalogue describing the stock.

W. R. Bowman, Mt. Forest, Ont., writes:—"During the past few months we have disposed of 9 Shorthorn bulls and 1 Polled Angus; also 2 Shorthorn females and a goodly number of Yorkshire and Berkshire hogs at fair prices. Advertising in the ADVOCATE gives us a first-class market. Any one requiring stock of above breeds should not fail to look up our special offer for next 30 days; first to order gets choice, if any." Will be pleased to book orders for young hogs to come in April, weighing 30 lbs., for \$5, with registered pedigrees."

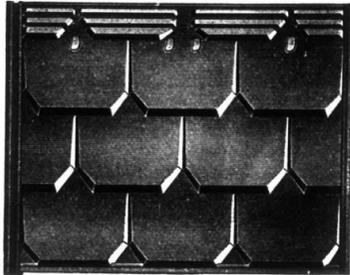
WHITESIDE BROS., INNERKIP, ONT., BREEDERS OF AYRSHIRES AND CLYDESDALES.

At the head of this noted herd of Ayrshires is the stock bull Goldfinder, coming three years, a smooth, strong animal, having good quarters and plenty of bone, with a choice head and horn. Mr. Whiteside says:—"We are using Goldfinder to all cows of our own not related. He was sired by Breamar Lad, dam Alert, one of Miss Leper strain." Sunrise, one year, is a big, strong, promising stock bull, having good dairy form and growing rapidly. Also four other young bulls rising one year old, all bred along fashionable lines and in excellent condition for future service, one of which is of Royal Chief stock, and a Breamar-bred fellow, two years old, out of Merry Maid, she being a grand daughter of the Imported Duchess 95, a cow which was never beaten in the showing of America or Europe. One yearling, a half-brother to Goldfinder, by a Royal Chief bull, promises well. Among the cows, which are all choice, is Myrtle, four years old, out of Maid of Athol 5th. Sunrise, nine years old, has been a most successful breeder and a good milker, having a fine udder. Merry Maid, dam of two-year-old bull, is five years old. Beside her, in show condition, stands Merry Lass, five years old, both cows having strong bones with handsome heads, and possessing desirable dairy form. Lady Ethel, six years old, due to calve in April to Goldfinder, produces 60 lbs. milk daily on grass. Maid of Athol 4th is a choice animal of good size, capable of giving 60 lbs. on grass, due to calve in April to a Royal Chief bull, while beside her stands her daughter rising three years, which promises well. Alert, the mother of Goldfinder, is a dark red cow with some white; she bears out the strong characteristics of her breed; she is due to calve in April, is a grand milker, one of the kind that keeps up her milk flow right through the season. Duchess 3rd, the dam of Merry Maid, is a eleven-year-old cow of deep red color having a little white. Maid of Athol 5th calves in April to Goldfinder; she has an extraordinarily well shaped udder. Seven young heifers, one and two years old, were also shown us, one of which is out of Lady Ethel, by Breamar Lad; she is a very sweet, smooth animal. Taking them all in all, they are a credit to their owners and the community in which they are owned.

Clydesdales.—The stallion Self Esteem No. 37 (5344), by Lord Erskine, is a handsome dark brown horse weighing 1,900 in his present form, imported by Messrs. Beith & Co. as a two-year-old. He is a grand mover, has his share of bone, with a good set of feet, and has proven himself a worthy stock horse, as his progeny show. He is a very sure foal-getter. Among the females are five mares eligible to register, two of which are safely in foal; three are by Self Esteem, and are very promising brood mares. The team of mares, five and seven, an exceptionally good pair, were sired by Self Esteem. One is beautiful dark brown, the image of her sire; the other a bright bay, and the kind from which to expect to breed right. A yearling by Self Esteem, and out of Queen, is a powerfully built, strong-boned filly of the same rich dark color; also a gray four-year-old mare by Self Esteem which does not disgrace her sire, having an extra good back and quarter, with plenty of bone and nice quality of hair. Self Esteem will stand for mares this season as usual; he served over 100 in '96, nearly all of which are proving in foal.

PUBLIC SALE OF JERSEYS.
Mr. J. C. Snell, Snelgrove, Ont., announces in our advertising columns the intention to dispose of his entire herd of registered Jersey cattle by auction in the second week in April. The date and fuller particulars will be given in our next issue.

EASTLAKE Steel Shingles!



SHOWS ONE SHINGLE.

These Shingles have been on the Canadian market twelve years, and have never failed to give satisfaction.

They are absolutely FIRE, LIGHTNING and STORM PROOF, besides being very ornamental and easily applied.

Our Catalogue will tell you all about them. Drop us a line saying you saw our advertisement in the "Advocate" and we shall be pleased to quote you close prices.

METALLIC ROOFING CO. (LTD.),
Sole Makers, TORONTO.

HAVE YOU SEEN OUR STEEL BRICK?

USE Queenston Cement

FOR BUILDING...
STABLE, SILO, AND OTHER
WALLS, CISTERNS,
STABLE FLOORS, HOG
TROUGH, ETC.

Farmers and others who contemplate building next season, make your plans early; get your supply of gravel and field stone on the ground during the winter, thus saving both time and money, and making your next season's outlay very small indeed.

SEND FOR OUR NEW PAMPHLET OF 1897, CONTAINING FULL INSTRUCTIONS, FREE.

For prices of Cement and other particulars, apply,

ISAAC USHER & SON, Queenston, Ont.

15-v-o

Six Hired Men

couldn't begin to take the place of one "PLANET JR." Double-Wheel Hoe. Saves more than it costs every year. Straddles plants 18 inches high—finishes rows from 16 to 18 inches apart at a single passage. Has cultivator, rake and plow attachments. Wheels adjustable to regulate depth. A score of perfect machines for cultivating every kind of crop are pictured and described in the "Planet Jr." Book for '97. Write for it—free. S. L. ALLEN & CO., 1107 Market St., Philadelphia.

Maple Cliff HERD OF Ayrshires

Are noted for their successful show-yard career. Choice quality and heavy milking families. A few exceptionally choice young animals of both sex now for sale. Prices in keeping with the times. For particulars address

ROBERT ROBERTSON, Prop.,
16 2-y-om COMPTON, QUE.

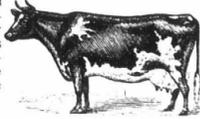
GLENGARY STOCK FARM.

My herd comprises the best strains procurable. Am now offering young bulls and heifers descended from the importation of the late Thos. Brown. PRICES RIGHT.

JNO. A. McDONALD, JR., Williamstown, Ont.
4 2-y-o

Ayrshires for Sale.

Several good yearling bulls by Earl of Percy and Prince Leopold, also cows and heifers. My spring calves will be by the noted bulls White Prince, Sir Colin, and Earl of Percy. Prices right. F. W. TAYLOR, Wellman's Corners, Hoard's Station.
4 2-y-o



Maple Cliff Dairy and Stock Farm

Ayrshire Cattle, Berkshire and Tamworth Pigs.

We have for sale three young bulls, including Labor Day 1st at Ottawa last fall, as yearling, and one four months old, from 1st prize diploma cow.

R. REID & CO., Hintonburg, Ont.
20 1-y-o One mile from Ottawa

JOHN PULFER, B. AND TON, ONT.

Breeder of choice reg. and high grade Jerseys of fine quality. Also TAMWORTH SWINE. Young stock always for sale at prices that should sell them. 12 2-y-o

GLEN ROUGE JERSEYS.

WILLIAM HALLMAN, Markham, Ont., offers twelve 2-y-o Bulls and Heifers pure St. Lambert's, and 12 cows. Grand individual. Prices right. 22-v-om

Another BULL CALF FOR SALE

at a very low price. This calf is of good quality, and is a grand individual. Write for particulars. F. BIBLE, 1107 Market St., Philadelphia.

LEE FARM REGISTERED JERSEYS.

Bulls fit for service, \$50 each
Heifers in calf, 50 "
Young cows in calf, 75 "
Heifer calves, 30 "
Solid colors. None better bred in Canada for dairy purposes. Come and personally select or write for description and pedigrees.
E. PHELPS BALL,
Lee Farm, Rock Island, P. Q.
17-y-o

FOR SALE!
2 FINE YOUNG REGISTERED JERSEY BULLS,
about 17 months old; heifer and bull calves, and a choice lot of young Berkshire pigs. Prices right.
D. H. Ketcheson, MENIE P. O.

FOR SALE...
Ten Cows in calf, - \$400.
Four Bulls, - \$100.
All solid color, and all except two are St. Lambert strain. Address—
JONATHAN CARPENTER,
12 2-y-om WINONA, ONT.

WILLOW GROVE HERD OF JERSEYS.
Sweepsakes herd of 1893, 1894, 1895 and 1896.
J. H. Smith & Son, Highfield, 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), grand dam 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. -om

Ingleside Herefords.
UP-TO-DATE HERD OF CANADA!
Bull Calves
OF THE RIGHT SORT
For Sale.
Address—
FRED NORTON
(HERDSMAN),
17-y-om Compton, Que.

GUERNSEYS

This is the Dairy breed for ordinary farmers. Large, vigorous and hardy, giving plenty of rich milk. Several fine young bulls for sale at very reasonable prices. A few heifers can be spared.
Address: SYDNEY FISHER,
17-y-o Alva Farm, Knowlton, P. Q.

A. HOOVER & SON,

EMERY, ONT., BREEDERS OF Holstein-Friesians of the choicest blood and most fashionable type; selections from our herd won the prize at Toronto Industrial and Montreal in 1895. Herd now headed by the two-year-old Baron Witzde, who has never yet been beaten in the show rings of Canada. Stock for sale. Prices right. 10 2-y-om

MAPLE Hill Holstein-Friesians. For rich breed, production and uniformity of type, the Maple Hill Herd is not excelled by any in America. My cattle have won over \$1,000 in prizes in the last three years, and I never had as many crack show animals as at present. Many are closely related to Netherland Hengerveld, De Kol 2nd, and DeKol 2nd's Pauline, whose official butter records have never been equalled. Write or visit—
11-y-om G. W. CLEMENS, St. George, Ont.

HOLSTEINS!

WE now offer young stock that have won prizes, and calves from our show herd, from one month to one year old, whose dams have large records—any age or sex—FOR SALE, at very low prices to quick buyers. Also some Poland-China Pigs, 1 and 6 months old; same quality (the best).

A. & G. RICE,
Brookbank Stock Farms, CURRIE'S CROSS-ING, Oxford Co., Ont. 18-y-om

HOLSTEINS

None but the best are kept at BROCKHOLME FARM, ANCASTER, ONT. Write me for prices if you want first-class stock at moderate figures. Holsteins in the advanced registry. Yorkshires all recorded.
12-y-om R. S. STEVENSON, Prop.

Springbrook Stock Farm.—HOLSTEIN-CATTLE and TAMWORTH SWINE. Four extra choice, high bred bulls ready for service. Write for catalogue. Other stock for sale of best quality. A heavy stock of Tamworths on hand, bred from imported stock. 7-1-j-om
W. HALLMAN, New Dundee, Ont.

ADVERTISE IN THE ADVOCATE.



Paint Up!

Have things looking bright and shining around the farm. Paint improves everything—the house, the barn, the wagon, the buggy, the implements, etc. It don't cost much either. You'll get more than the cost back in the value added to what is painted.

Its important—very important, that you use the right paints, there's a brand you can be sure of, its

THE SHERWIN-WILLIAMS PAINTS

They're ready to use. They're easy to apply. They're good—better than you can mix yourself or have mixed for you. Better because they cover more, wear longer, look better and are more economical. There's nothing else just as good. We've printed a booklet about them called, "Paint Points." Send for it, its free. Its full of useful information about paints.

We make paint for all purposes, not one for every purpose, but a special paint for each. The best paint dealers through the country handle THE SHERWIN-WILLIAMS PAINTS. For booklet address, 20 St. Antoine Street, Montreal.

THE SHERWIN-WILLIAMS CO.

CLEVELAND
CHICAGO
NEW YORK
MONTREAL

GOSSIP.

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

Sugar-beet factories are to be established in Munro Co., N. Y.

Among recent sales of Clydesdales by A. & W. Montgomery to Mr. Thos. Smith, Blacou Point, Chester, Eng., was the three-year old, Prince Pleasing, bred by Col. Holloway, and shipped to Scotland from the Western States last year.

In addition to the 50 head of high-class Short-horns to be sold by Mr. John I. Hobson, at Mosboc, Ont., on April 6th, he will also sell an exceptionally fine lot of young Clydesdale mares and geldings, sired by Messrs. Sorby's imported Bold Boy, which is a pretty good guarantee that they are considerably above the average of good ones, for Bold Boy made fewer misfits than most of the best.

We regret to record the death of an old and appreciative reader of the FARMER'S ADVOCATE, Mr. Robt. Facey, of Harrowsville, Ont., one of the pioneers of the cheese industry in Western Ontario. For years he had carried on most successfully one of if not the largest factory in the world, and this season had enlarged the scope of its operations by putting in a buttermaking plant. His death occurred on Monday, March 8th, in London. On the Saturday afternoon previous he called at the ADVOCATE office, when he complained of ill-health. He had been ailing for some time. He consulted his physician that afternoon, but, becoming worse, was forced to take to his bed at the hotel, where he succumbed on Monday evening. His loss will be greatly deplored. He left a widow, two daughters, and a son, who continues in the business established by his father.

In the death, at the age of 62 years, of Mr. Luther H. Tucker, senior editor and proprietor of the County Gentleman, at his home, Albany, N. Y., on February 23, from Bright's disease and lung trouble, United States agricultural journalism has lost one of its most distinguished ornaments. The excellence of his editorial work and his public service in various capacities will long be remembered. Although out of health for the past ten years, Mr. Tucker kept in the editorial harness, and his death was unexpected. From 1858 to 1873 he was treasurer and active managing officer of the New York State Agricultural Society. He is survived by two brothers, Mr. Gilbert M. Tucker, his associate in the conduct of the County Gentleman, and Dr. Willis G. Tucker; a sister, and a wife and four children, one of which, Luther H. Jr., is a member of the firm. Deceased was a gentleman of scholarly attainments, the soul of honor and generosity.

H. J. DAVIS, WOODSTOCK, ONT., BREEDER OF YORKSHIRES, BERKSHIRES, SHORTHORNS, AND SHEPHERDS.

Sovereign, coming 2 years, stands at the head of the Yorkshires; dam by Sultan. He was never shown, but is a strong, promising stock animal. Two young boars by Sultan, dam Snowflake, sired by King David, a pair of good hogs, are all that were remaining from a litter of sixteen, thirteen of which were raised. Foremost among the brood sows stands Snowflake, a female of strong bone and good, smooth quality. We noted also five sows out of Snowflake, and a very fine sow (5 months) out of imported Mistress 4th, full sister to the sow that won first at Toronto last fall. Snowflake 2nd has a fine litter of seven by King David, and are all choice in quality—five boars and two sows. Imported Mistress 4th, bred by Walker Jones, of Little Maltingale, England, has just farrowed six fine sows to Diamond, and sold to F. Staudeaven, Motherwell, Ont., near St. Mary's. This sow is in fine shape, is eight years old, and has been a wonderfully successful breeder, raising two litters a year.

At the head of the Berkshires is the stock boar, Royal Lad 327, winner of third prize at Toronto last fall, and a very choice animal; bred by Mr. Teasdale; in show condition he weighs 700 pounds. Another to take the eye was a young boar by Major Graham, out of Garbutt's Bell, and pair of sows by Royal Lad, out of Lady Garnet, due to farrow in May to a young boar of imported Violet strain, a very plenty, straight, smooth hog, well marked, and was a winner of several firsts at local fairs—never shown at the larger exhibitions. Snell's Highclere is a very fine, smooth sow of three years; won second with litter and third in aged class last fall; has great substance of bone, yet Walker Jones, of Little Maltingale, England, has just farrowed six fine sows to Diamond, and sold to F. Staudeaven, Motherwell, Ont., near St. Mary's. This sow is in fine shape, is eight years old, and has been a wonderfully successful breeder, raising two litters a year.

Mr. Davis's success as a hog breeder evidently is largely due to the fact of his being firm in feeding his stock upon a mixed diet, and giving plenty of outdoor exercise, as he turns his stock out daily in fine weather.

Among the Shorthorns is Verbena Gem, by Royal Prince (Imp.), a large dark red cow rising nine years. She has raised five bulls in succession, and all sold under one year. Beside her stands Rosebud, seven years old, by Roan Prince, out of Violet Eclipse. Rosebud is one of those Shorthorns having extraordinary milking qualities and stamps this quality strongly on her progeny. Two fine growthy yearling heifers: one out of Rosebud, by Strathallen Chief, a sweet, good heifer of beautiful dark red color; the other out of a daughter of Rosebud, and much the same type as her mate; also a large yearling roan heifer, by Strathallen Chief, and out of Verbena, attracted our special attention. A bull calf out of Rosebud, by Strathallen Chief, is rich roan in color, very straight and strong. A young heifer, by Invincible 7th, and out of Verbena Gem, is also a red roan.

Mr. Davis has been a very successful seller of Shropshire sheep, having but three lambs left, one year old this spring. One pair purchased from Mr. Cooper, Kippen, Ont. His stock of lambs to come this spring are all from an imported ram. The flock were in thrifty condition.

ELECTRICAL ENGINEERING
Steam Engineering
(Stat., Locs. & Mar.)
Mechanical Drawing
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Plumbing & Heating
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and others who cannot afford to lose time from work. Send for Free Circular and References Stating the Subject you wish to Study, to
The International Correspondence Schools, Box 390, Scranton, Pa.



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

Leicestershire Tick and Vermin Destroyer

It effectually destroys Ticks, Lice, Worms or Grub, to which sheep, horses and cattle are subject, and enables the animals to thrive. It will be found far superior to other preparations used for the similar purpose. The proprietors will guarantee perfect success when used according to directions, as will be found on each box. It prevents scurf and scab, and renders the wool bright and clear. It is put up in tin boxes, price 30 cents each. One box is sufficient for twenty ordinary sized sheep. It only requires to be tried to prove itself all that is claimed for it. Sold by druggists and grocers. Manufactured by G. C. BRIGGS & SONS, 31 King St. West, Hamilton, Ont. -o-c

LITTLE'S PATENT FLUID
NON-POISONOUS
SHEEP DIP AND CATTLE WASH

THE ORIGINAL Non-Poisonous Fluid Dip.

Still the favorite dip, as proved by the testimony of our Minister of Agriculture and other large stockmen.

FOR SHEEP:
Kills ticks, maggots; cures scab, heals old sores, wounds, etc.; and greatly increases and improves growth of wool.

CATTLE, HORSES, PIGS, ETC.:
Cleanses the skin from all insects, and makes the coat beautifully soft and glossy. PREVENTS the attack of warble fly.

HEALS saddle galls, sore shoulders, ulcers, etc. Keeps animals free from infection.

NO DANGER; SAFE, CHEAP, and EFFECTIVE.

BEWARE OF IMITATIONS.

Sold in large 75c. Sufficient in each to make five to 40 gallons of wash, according to strength required. Special terms to breeders, ranchmen, and others requiring large quantities.

Sold by all druggists. Send for pamphlet.
Robt. Wightman,
DRUGGIST, OWEN SOUND, ONT.
Sole agent for the Dominion. —om

C. & E. WOOD,
FREEMAN, ONT., BURLINGTON ST.,
BREEDERS OF

HIGH-CLASS Leicesters.
Choice ewes and ewe lambs for sale at very low prices, considering quality. Write for prices and particulars. 18-y-o

"FARNHAM FARM" OXFORD DOWNS.

I HAVE a few choice young ewes in lamb to imported ram, also some ewe lambs, for sale. Fitting show sheep a specialty.

7-y-om **HENRY ARKELL, Arkell, Ont.**

SMITH EVANS, Gourock, Ont.

Breeder and importer of registered Oxford-Down Sheep. Selections from some of the best flocks in England. Stock for sale at reasonable prices. Inspection invited. 6-1-y-o

Oak Lodge Yorkshires —A specialty of this breed.



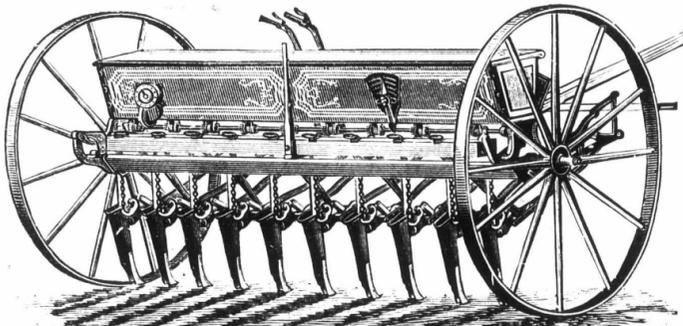
Carefully selected young sows in pig to prize-winning boars. Young sows and boars from fall litters. Orders now booked for spring pigs. Prices right. **J. E. Brethour,**

3-y-om **BURFORD, ONT.**



This picture shows the Page Ornamental Lawn Fence, made of all metal, including iron posts. If you would like further information in regard to this, or the Page Coiled Spring Fence, address the Page Wire Fence Co., Walkerville, Ont., and they will gladly send you their illustrated advertising matter.

Steel Hoosier Drill



When you have a Hoosier you know you have the best. Give your orders now for a Hoosier for spring seeding.

Noxon Bros. Mfg. Co., Ltd., INGERSOLL, ONTARIO.

"Gem Holstein Herd."

STOCK FOR SALE!

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

ELLIS BROTHERS,
BEDFORD PARK P.O., ONT.
Shipping Station, Toronto. 7-y-om

ADVERTISE IN THE ADVOCATE

Hill Home Shropshires.

200 to select from. Foundation stock personally selected from the leading flocks of England. Flock especially noted for combined quality and size, and extra covering on face and legs. Now is the time to invest, as the prospects for sheep in the near future are encouraging. We now have for sale over one hundred choice breeding ewes from one year up, also ram and ewe lambs, at very moderate prices. Address—D. G. HANMER & SONS, 14-L-0 Mt. Vernon, Ont.

COTCHMAN (28) married, wishes the management of a small farm; a thoroughly practical man; one year's experience in Canada. Address, Box 557, London, Ontario.

GOSSIP.

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

The English Royal Show will be held at Manchester this year, from June 23rd to 29th, inclusive.

The Argentine Shropshire Sheep Breeders' Association was organized at Buenos Ayres in January, with a Mr. Brown, of Campana, President, and Mr. W. T. Cripps, Secretary. This is the first sheep breeders' organization in South America.

Owing to the prevalence of swine plague and sheep scab in the Western States, the Breeders' Gazette strongly advises its readers to quarantine purchased hogs on some remote corner of the farm where the premises can be destroyed and the ground disinfected in the event of an outbreak, and in the case of sheep "dip, dip, dip," not only to prevent scab but to combat ticks.

A. BRIGG, P. M., Rossisle, Man., writes:—"We cannot afford to be without the ADVOCATE. It is steadily improving every year. As one of your first subscribers, I may say that I am more than pleased with the appearance of it in its new colored cover, especially the Christmas number, which is certainly a credit to any publisher. The FARMER'S ADVOCATE is clearly printed on paper of good quality and filled with both useful and valuable information that we farmers cannot afford to do without."

Mr. F. S. Peer, of New York State, an occasional contributor to the FARMER'S ADVOCATE, writes as follows regarding a grand yearling Ayrshire bull, Chieftain of Parkhill 8240, which he selected from Mr. Jas. Drummond's herd:—"He was the last calf of one of the most famous prize-winning Ayrshire cows in Canada, Viola 3rd 3222. His sire is Nelson of Parkhill, who as a three-year-old has also a good score card at prize winning. It must be remembered that if a cow or bull gets any recognition at all in an Ayrshire show-ring in Canada (where five prizes are awarded) it must be a high-class animal. In 1885, for instance, 17 herds competed for herd prizes, and in all 245 entries, and not that alone—the Ayrshires of Canada are the best bred and the most perfect in conformation and the highest type of dairy cattle in America."

H. GEORGE & SON'S TAMWORTHS AND CHESTER WHITES.

A representative of the ADVOCATE called upon the firm of H. George & Son, Crampton P.O., Ont., and found their stock in excellent shape, as might be expected at this old and successful swine breeding establishment. Among the Tamworths and at the head of the herd is Duke of Avon 395, an animal whose record in the show-ring speaks for his quality, for he was a prize winner wherever shown, coming ahead of all competitors at Toronto, Ottawa, and Montreal. Mr. George says: "We have also bred some of the best sows to Shortnose 88." Among the females of especial note is: Daisy No. 147, due to farrow about April 15th to Duke of Avon. This sow is an extra fine specimen of the Tamworth breed and was a winner at Toronto, Ottawa, and Montreal, which speaks in loud terms for her quality, and she is, moreover, strong and healthy—a characteristic feature of all of Messrs. George's herd, as they are believers in allowing plenty of exercise. Countess 2nd (imported), 4 years old, farrows about March 10th to Shortnose. This sow is also in extraordinary strong condition, yet not burdened with fat. Annie 508 is also due to farrow in the early part of May to Shortnose. She was winner of the first premium at the Guelph Fat Stock Show.

Among the Chester Whites, are Dominion King 764, an imported hog 13 months old, the winner of first at Toronto, Montreal, and Ottawa; and U. S. King 619 (imported), which won 2nd place at the above shows. Both animals are fine specimens of this popular breed. Among their sows is Bell Calton No. 613, another red ticket winner at Toronto and Ottawa and 2nd at Montreal. This sow tipped the scales nicely at 700 lbs. at fair time. Crampton Queen 810 (imported) was not exhibited last fall, due to farrow about March 15th to U. S. King.

NOTICE.

We have just received from Oslar, Hammond & Nanton, Winnipeg, Manitoba, lists of farms which they have for sale in Manitoba and the Northwest Territories. In these lists is given the returns from farmers in several districts, showing most conclusively the marvellous fertility of the soil and the possibilities within the reach of any industrious farmer to procure a comfortable home for himself and family in a very short period of time. The figures explain themselves more clearly than words can. We quote as below:

TABLE SHOWING PRICE OF FARM AND PROCEEDS REALIZED FROM 1896 CROP.

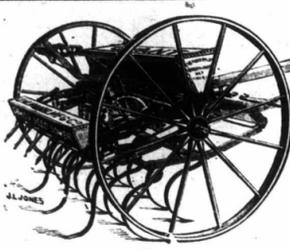
District.	Sale No.	Acres.	Sale Price 1896.	Crop Realized.	Terms.
Alexander.....	139	160	\$1,300	\$1,050	1 crop
.....	1110	160	1,150	762	1 crop
Douglas.....	126	160	1,200	619	1 crop
Hartney.....	148	160	500	359	1 crop
Melita.....	106	320	2,200	2,064	1 crop

The following are from farmers who bought their lands a few years earlier, and have their soil in a better state of cultivation.

TABLE SHOWING THE ORIGINAL SALE PRICE OF THE LAND AND RETURNS FROM THE 1896 CROP OF GRAIN ALONE.

Sale No.	Acres.	Date of Purchase.	Price of Land.	Value of 1896 Crop.	Acres in Crop.
169	320	1891	\$1,920	\$4,092	200
170	320	1891	1,920	3,300	250
39-149-157	640	1889-90	2,180	3,591	288
168	160	1891	960	1,298	124
165-195	320	1891-2	2,000	5,124	340
145	320	1889	1,600	2,920	165
166	1891	960	5,630	350	
207	160	1893	960	1,157	100
194	160	1892	960	3,510	230
O. 140	320	1889	1,200	3,780	340

*And Homestead.



"GIANT" SECTIONAL SEEDER.

WITHOUT EXCEPTION, THE BEST CULTIVATOR AND SEEDER IN THE MARKET.

GIANT STEEL DISC HARROW.

STEEL BEAM, ALL BALL BEARINGS, CHILLED BOXES, LIGHT DRAFT, NO MORTISE IN POLE, BEST TEMPERED ROLLED EDGE DISCS.

ALL SOLID STEEL



DIAMOND HARROW.

ALL MACHINES WARRANTED.

WRITE FOR ILLUSTRATED CATALOGUE.

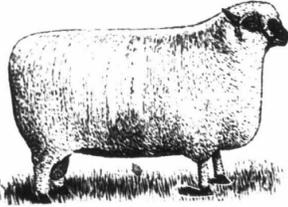
F. G. BOWLEY, LOCAL AGENT FOR LONDON DISTRICT, 101 King Street, LONDON, ONT.

EXAMINE OUR LINE OF MACHINES BEFORE PURCHASING. WE GIVE BEST VALUE IN SEEDING AND CULTIVATING MACHINERY.

HUGH McINTOSH, GENERAL AGENT FOR WESTERN ONT., 99 BRUCE STREET, LONDON.

THE MANN MFG. CO., LTD., BROCKVILLE, ONT.

MILLER'S Tick Destroyer



Effectually Destroys Ticks, Scab, and Vermin

Makes the skin clean and healthy, and imparts a silky softness and luster to the wool.

HUGH MILLER & CO., TORONTO, CANADA.

R. HONEY, Warkworth, Ont., Northumberland Co., BREEDER OF—

Reg. Holsteins, Large White Yorkshires, and Cotswold Sheep.

Choice young Yorkshires for sale, at prices to suit the times. Orders booked for choice Cotswold ram lambs. 12-2-y-o

IMP. LARGE WHITE YORKSHIRES FOR SALE.—I am now prepared to supply young pigs of this noted breed at hard-times prices. Orders booked for young pigs due Oct. 1st. Write me for prices and particulars. Mention "Advocate." 18-2-y-o WM. TEASDALE, Dollar, Ont.

Large White Yorkshires

OF CHOICEST BREEDING. Both sexes, and different ages. A few promising young sows, in pig, for sale at all times. Prices moderate. One mile from Hartington Station and Post-office. 18-2-y-o E. DOOL, Hartington, Ont.

H. GREGG & SONS, SALFORD, ONTARIO.

Breeders of Berkshires and Chester White Swine. We have for sale young stock of either sex, and any age, at prices to suit the times. Correspondence solicited. 8-2-y-o

Keep Milch Cows In Good Health



IT PAYS.—It is useless to expect a lean, run-down cow to have a good flow of milk, though she will eat more than an animal in good flesh. The difficulty is the nutriment is not all extracted from the food because her digestion is out of order.

Dick's Blood Purifier

will strengthen the digestion and make the food produce milk. It will cost but fifty cents to try it on the poorest cow you have and you will get back your money with interest in a few weeks.

For sale by Druggists, at general stores or sent post paid on receipt of 50 cts. Dick & Co., P. O. Box 482, Montreal.

. FOR SALE .

25 CLYDESDALE STALLIONS AND MARES 25



Nearly all prize-winners at Toronto, Montreal, Ottawa, and Chicago World's Fair. Most of our young stock are sired by the Columbian champion, PRINCE PATRICK, and GRANDEUR is sweepstakes four times at Toronto. Two of our fillies are daughters of Lillie Macgregor, the champion World's Fair mare. Among the mares for sale are several of our best imported dams now in foal to Grandeur, also a number of fillies sired by Grandeur and out of the above dams. Also a number of HACKNEYS. Also AYRSHIRE BULL and HEIFER CALVES, and SHROPSHIRE SHEEP.

D. & O. SORBY, Guelph, 62-y-on Ontario.

ROSE HILL FARM, LARGE ENGLISH BERKSHIRES.

JAMES DORRANCE, SEAFORTH, ONT.

BREEDER OF— REGISTERED BERKSHIRES

Of the improved type. Choice young stock always on hand. Write at once and secure a Large 12-2-y-o

FARMERS' Agents, and the only ones in Ontario. om R. S. B. & Co., 100-2-y-o

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