

FARMER'S ADVOCATE

AND HOME MAGAZINE.

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THE FARMER'S ADVOCATE & HOME MAGAZINE

WILLIAM WELD, EDITOR AND PROPRIETOR.

THE LEADING AGRICULTURAL JOURNAL PUBLISHED IN THE DOMINION.

The FARMER'S ADVOCATE is published on or about the 1st of each month. It is impartial and independent of all cliques or parties, handsomely illustrated with original engravings, and furnishes the most profitable, practical and reliable information for farmers, dairymen, gardeners and stockmen, of any publication in Canada.

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Our Monthly Prize Essays.

CONDITIONS OF COMPETITION.

1.—No award will be made unless one essay at least comes up to the standard for publication.

2.—The essays will be judged by the ideas, arguments, conciseness and conformity with the subject, and not by the grammar, punctuation or spelling, our object being to encourage farmers who have enjoyed few educational advantages.

3.—Should one or more essays, in addition to the one receiving the first prize, present a different view of the question, a second prize will be awarded, but the payment will be in agricultural books. First prize essayists may choose books or money, or part of both. Selections of books from our advertised list must be sent in not later than the 15th of the month in which the essays appear. Second prize essayists may order books for any amount not exceeding \$3.00, but no balance will be remitted in cash. When first prize essayists mention nothing about books, we will remit the money.

Our prize of \$5.00 for the best original essay on *Soiling and Soiling Crops*, has been awarded to Mr. Thos. Macmillan, Constance, Ont. The essay appears in this issue.

A prize of \$5.00 will be given for the best original essay, on *Farm Accounts*. Essays to be handed in not later than Feb. 15.

A prize of \$5.00 will be given for the best original essay on *Spring Management of Cows*. Essays to be handed in not later than March 15.

Now is the time to subscribe for the *Farmer's Advocate*, the best agricultural paper in Canada.

Editorial.

Royal Commissions.

Amongst politicians the mania for Royal Commissions is becoming chronic. An abuse of some kind is forced upon the Government for redress, and the politicians, fearing a falling off in "vote and influence" from certain quarters, court the policy of delay, and meanwhile a Royal Commission is appointed to investigate the matter at the public expense.

It will be remembered that last summer the Dominion Farmers' Council invited the Royal Railway Commission to sit in this city. The invitation was accepted, the result being that scarcely a farmer was examined, and the evidence was chiefly taken from those who received special favors from the railroads, and were therefore not in a position to refer to any public grievances. The farmers are perfectly well aware that they are ground to dust by all sorts of soulless corporations, many of which they bonused out of their own pockets, and no Royal Commission is required to convince them of this fact. We blame the farmers for not giving their evidence when the commissions are once appointed, but we blame them still more for tolerating such nuisances, which aid so largely in burdening the country with taxes, and are too frequently established for the purpose of opening up jobs for worn out politicians, or other menials who are too proud, or too high up in the social scale, to make a living by honest toil.

There is now also a Royal Labor Commission, appointed by the Dominion Government, scouring the country to furnish employment for disappointed partizans, and to ascertain whether the workingman is able to live comfortably on the wages which he is receiving. We would not be the least surprised to see a Royal Commission appointed to investigate the condition of the farmer, and demonstrate to him that he is rapidly rolling up wealth under the paternal guidance of the Government. There is only one way in which a government can aid industrial pursuits, and that is to leave them alone.

Our Creamery Industry.

The Ontario Creamery Association, which is now receiving Government aid, is rapidly increasing in numbers, and it is well to inquire if this fact is compatible with usefulness in the interests it was organized to promote. The Association is intended to be to our butter what the Dairymen's Association is to our cheese. Both associations were organized on the same basis, are subject to the same influences, and the precedents of the older should prove useful to the younger organization.

Granting that our Dairymen's Associations have been largely instrumental in promoting our cheese interests, yet they have been productive of much folly and injury, and these failings our creamery men should make strenuous efforts to evade. We have not had the opportunity of attending all the meetings of the Creamery Association, organized about two years ago, but judging by what we have seen, the same old omnipotent and omnipresent demon is working just as assiduously and insidiously here as in all other organizations of the same breeding.

The first failing which engaged our attention was the participation of our salt boomers in the discussions of the Association, and a lot of energy has thus been wasted which should have been applied to questions of much greater urgency. A bystander would imagine that the life or death of our butter industry depended upon the man who manufactured the salt. The only gain is in the amount of free advertising obtained by the salt agents, which should certainly not have been accomplished at the public expense. The most valuable investigation we have ever seen on the salt question was conducted by Prof. James, lecturer on chemistry at the Ontario Agricultural College, who analyzed the leading brands of salt, and also pointed out the physical properties to be considered in the judging of this article for dairy purposes. On the contrary, Prof. Robertson, lecturer on dairying at the same institution, wasted a lot of public money and valuable time in his attempts to ascertain the relative values of the different brands of salt. His experiment has proved, as all such merely practical experiments must always prove, a failure. If the best practical butter experts cannot classify the butter on the basis of the salt used, the experiments have no practical value. The fineness and shape of the salt granules, with the percentage of impurities as ascertained by chemical analysis, should form the basis of judging, unless it can also be clearly proved that two samples of salt having the same chemical analysis, and the same size and shape of granule, may differ materially in solubility or in any other important quality. Our advice is, let the salt question drop meanwhile, give the persistent agents a cool reception and initiate work of more practical utility.

At the meeting of the Creamery Association recently held at Guelph, the salt agents and their allies, encouraged by previous encroachments, again participated in the discussions, but we desire here to illustrate how one evil leads to another. Taking advantage of the doors opened for all manner of agencies, the live stock boomers wended themselves thither, and met with a cordial reception. They may answer this soft in-

peachment by saying that they were invited by the Association to read papers, to which we reply:—No Government organization has a right to invite parties who are personally interested in any special breed of stock, and if they have been invited to read papers on creamery matters, they should confine themselves strictly to this subject. So long as it remains an unsettled question which is the most profitable dairy breed, the discussion of such questions should be confined to associations organized by the free impulses of the people. So much time has been wasted in extraneous issues that no time has been found for the free discussion of questions pertaining directly to the business for which the Association was organized.

One of the most important questions which is at present agitating the minds of the creamerymen is the obtaining of a simple, cheap and accurate system for testing the cream. A discussion on this question was commenced, but was peremptorily burked, probably on account of the oil-test having been introduced and boomed up by the Model Farm, which method of testing has recently been proved to be unreliable. The butter-maker at the Model Farm maintains that the system is satisfactory, and just because the machine gets through a lot of work in a short time, and the butter obtained, as measured by the oil-test, closely conforms with the results obtained by the churn. This may be all true, and yet great injustice may arise. Justice to the patrons depends upon the accuracy of the individual tests, which may vary materially from the aggregate results. What is our Model Farm for if not to investigate such problems? Probably the duty will fall upon us, as the milk tests have done. We will describe our methods of testing cream in another issue.

We shall not now further enlarge on the objectionable tendencies which are creeping into this Association in the hope that the authorities will take warning by these mild criticisms. We feel it our duty to add, however, that the offices are falling out of the hands of our butter-makers and farmers, and are being rapidly filled by butter and cheese speculators, newspaper writers, etc.

Independent Agricultural Editors in Demand.

We clip the following from the Paisley Advocate of January 12. The remarks are taken from the report of the Centre Bruce Farmers' Institute, and were uttered by Mr. J. Rowand, M. P., whose speech the editor of the Paisley Advocate winds up thus:—

At the close of his address, however, he went a little out of his way to boom a certain agricultural journal. Now we have several of these journals in Ontario, and the proprietors of them should be prepared to buy their own grease without being boomed by anybody before an audience such as that assembled in the hall on that particular evening.

Please count us out of your list of cringing journalists, Mr. Editor. Our experience of Government organizations is that the booming you mention forms the exordium of the orations and not the peroration. It is a disgrace to the journalistic profession—and we feel ashamed of it—that there should be so many agricultural editors who base their prosperity on such servile methods of gaining popularity and influence. They are kindly invited to contribute papers, their expenses being paid out of the public chest; they usually hold some office in the organization,

and although they must be convinced of the wire-pooling that is going on, they are not in a position to criticize the meetings fearlessly and independently for the benefit of their readers.

It is true that we also attend a large number of Government meetings, but as the boomers you refer to are afraid of the truth, we are seldom called upon to deliver an address. Our object in attending is to take notes and watch the proceedings in the interest of our readers.

Again we ask you, Brother Editor, to be so kind as to count us out; we always buy our own "grease," and pay for it out of our own pocket.

Our Agricultural College.

Many of our critics still labor under the delusion that we entertain feelings of hostility against the Institution specifically known under the name, style, and title of "The Ontario Agricultural College and Experimental Farm." The College and Farm are practically two separate institutions, although it is sometimes difficult to draw a sharp line of demarcation between them, and when we criticise the Farm department, which we call the "Model Farm," we make no reference to the College.

Now, if we entertained hostile political feelings, which some of our enemies contend to be the case, it is plain that we would attack the College as well as the Farm, both being maintained by the same government, and controlled by the same source.

Professor Mills is a high authority on educational matters, is an indefatigable worker in the cause of agricultural education, is kind and courteous to all whom he meets, and nobody is keener than he in grasping the wants of our farmers, with whose cause he has the warmest and strongest sympathy. Having elevated the College to its present high state of efficiency, he has devoted his spare moments to the study of agricultural problems—indeed, for years he has been a zealous student of agricultural science, and his early experience as a practical farmer admirably fits him for success in his studies, and for grappling with our agricultural necessities. He craves criticism, but all failings have been due to influences over which he has no control. He is resolved that light shall shine, and that truth and justice shall prevail.

With these facts firmly fixed in our minds, we rejoice to learn that the Ontario government has acted so wisely as to increase his influence. He now exercises a controlling influence over the Farm department, and we are convinced that there will be no cringing in his methods of reformation and cleaning out of the Augean stable. Experimentation will continue to be a leading feature of the Institution, and Prof. Mills will undoubtedly have a good deal to say in the matter, because the Commissioner's Advisory Board, although honorable men and good practical farmers, are a costly ornament and a downright nuisance in experimental agriculture. We still apprehend many failures here, for it requires talent which our country has not yet produced to be a successful investigator. However, we hope for the best, and will rejoice when we shall truthfully pay such compliments to the Farm as we now do to the College.

A great deal is said about the condition of the farmer. What about the condition of the politicians who legislate for his asserted interests?

The Dominion Draft Horse.

The organization known as the Dominion Draft Horse Breeders' Society, incorporated April 12th, 1886, deserves every encouragement, and we are always ready to freely advertise and otherwise encourage, by all legitimate means, every independent organization which tends to the prosperity of our farmers. The management, whose names were advertised in our last issue, enjoys the confidence of our farmers, and we know of no obstacle to success.

The object of the Society is to furnish our farmers and breeders with a draft horse which, although not having a long pedigree, possesses the individual merit required for producing a sound, strong, healthy offspring. There is little or no risk in breeding from such animals, and the price of those registered in the stud-book have appreciably increased—those which in the absence of the Society would be classed as grades of a very ordinary character. We hope our cattle breeders will take a lesson from this Society and form an organization with similar objects in view. The standard of registration adopted by the Society is comprehended in the following sections:—

"Sec. 11. Every application for registry must show that the animal whose pedigree is submitted for registry is the offspring of an accepted sire, and of a dam the produce of an accepted sire."

"Sec. 12. Accepted sires are (1) imported stallions of the Clydesdales and Shire breeds that stood for service in the Dominion of Canada prior to 1886, but are now dead or removed from the country, having pedigrees satisfactory to the Council. These sires the Society agrees to register free of charge and accept, and their male produce in Canada with imported Clydesdale and Shire mares may be registered and will be accepted sires. (2.) Stallions registered in Shire Stud Book, or in the Clydesdale Stud Book of Great Britain, Canada, or the United States. All animals so registered of mixed breeding shall be named Dominion draft horses."

Where to Procure all the Manure Required.

It is the habit of many farmers to dilate upon the advantages of barnyard manure over other forms of fertilizers, maintaining that it produces surer and more profitable results, and if it is not made in sufficient quantities, why then, raise more stock, to be sure. Now that it is a plain, practical fact that the bigger the manure heap the greater is the exhaustion of soil fertility, provided the food consumed by the stock is produced on the farm, it is well to inquire how the fertility of our soil is to be maintained. Even granting that all the manure is saved from waste, which is certainly a most desirable aim, this economy will not solve the problem, as there will always be a loss of fertility so long as stock or dairy products are sold off the farm, and the more the stock the greater the loss. Some farmers exclaim: Why, buy food, of course! This is all very well so far as you are concerned, but what about the condition of your poor neighbor whose land is becoming impoverished owing to you purchasing his grain, his bran, or his hay? It would be more charitable for you to say to your neighbor: "Don't sell your food, friend, for you are robbing your soil." Every farmer can't thus rob his neighbor and still maintain the soil fertility. Try the experiment in your own family: Give Tom, Dick, and Harry each a penny; let each rob the other, and then count how much wealth has been produced.

Any farmer with half an eye can plainly see that we must, sooner or later, depend upon commercial fertilizers to maintain the fertility of our

soil—sooner if he keeps much stock, and later if he keeps only a few head; sooner also if he sells off much grain. If it is not absolutely necessary for you to purchase fertilizers now, it is time you were beginning to learn how to use them. At any rate, it is better for the boys to learn now than later, when the education becomes compulsory. By all means, get all the barnyard manure you can, so long as there is a profit in feeding stock, but don't for a moment entertain the idea that you can get enough without robbing your neighbor.

We have been constrained to make these observations from an incident which transpired at the recent meeting of the East Middlesex Farmers' Institute. A speaker advised the use of commercial fertilizers, when a farmer nudged us on the elbow and said: What a fool that speaker is; he ought to know that farmers could not save money to buy fertilizers. Herein lies a woeful

A Celebrated Coach Horse.

Our artist has produced a good representation of "Magdalen," imported Yorkshire Coach mare, the property of George E. Tuckett, Esq., Hamilton, Ont. She is one of the three fine and high priced Yorkshire Coach mares imported by Mr. Tuckett last season. This handsome mare was bred by Jackson Walker Harsley, Northallerton.

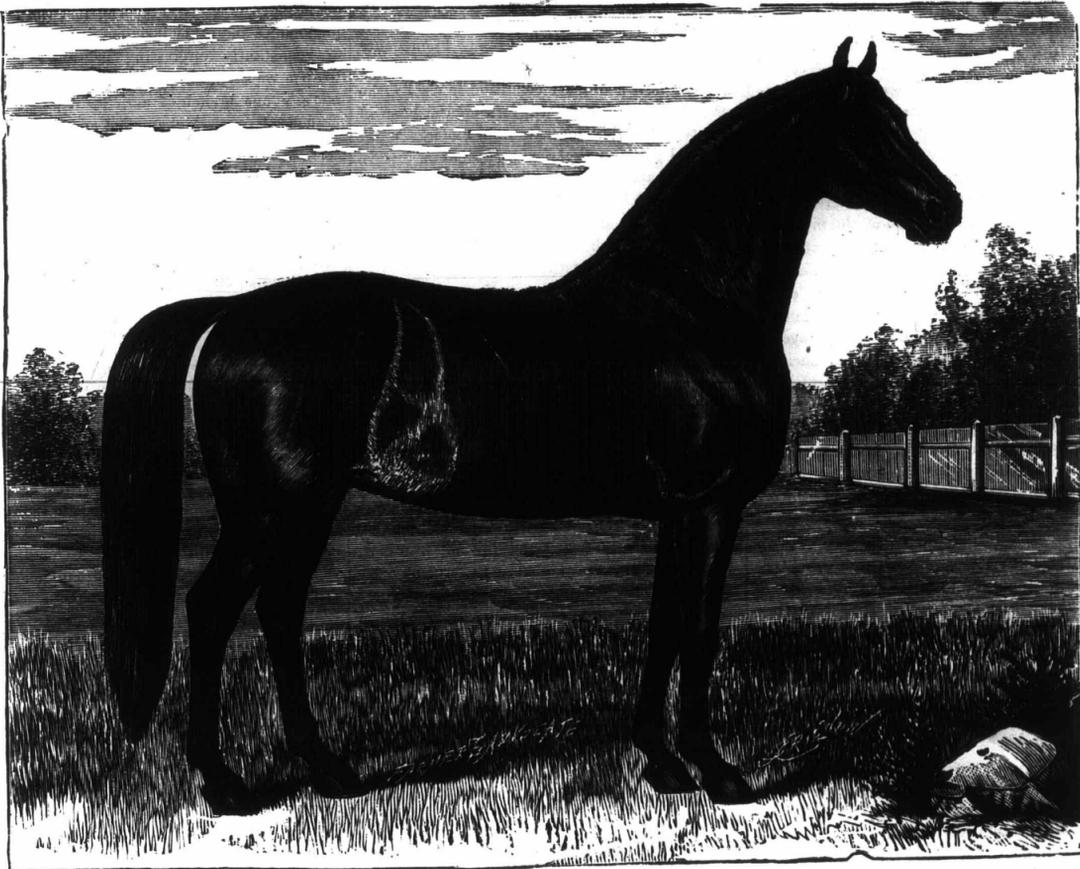
The Yorkshire Coach is a breed of comparative recent origin, having only been registered for about 20 years previous in a separate stud book. They originated by crossing the well known Cleveland Bay with Thoroughbred, which produced a breed somewhat lighter and finer than the Cleveland Bays, clearly showing the introduction of the Thoroughbred blood.

see Mr. Tuckett is determined to have good blood to start with.

Mr. Tuckett has also several Thoroughbreds. Adriel—this mare was bred by Joseph Wal-folk, Lexington, Ky.; she is standard bred and registered; sire Administrator; dam Fontine, by Alcalde, son of Mambrino Chief; 2nd dam Star Denmark. Adrion, No. 4899, sire Confederate Chief; dam Adriel. This is a fine, dark brown colt, good limbs and fine stepper. From present appearances he promises to be a very speedy animal. He is registered in Wallace's Trotting Register. Bee Hive, vol. xv., by Clifton; dam Bee Bird, by Buccanner, by Bonnie Bee, by Galanthus, by Bees Wing, by New Winter dam.

He has also a nice young herd of Ayrshires, as well as a number of half-bred Clydes.

Mr. Tuckett purchased this farm, Devon Lodge, about four years ago. It is situated



YORKSHIRE COACH MARE "MAGDALEN," THE PROPERTY OF GEO. E. TUCKETT, ESQ., HAMILTON, ONT.

tale, fraught with the deepest concern to posterity and to humanity. At the same time, Prof. Mills stated that farmers should look out for themselves, and let posterity look after itself. We cannot understand how any parent who lives in peace with his family can utter such cold-blooded philosophy. No such philosophers should be permitted to have a posterity. What, have children, and rob them of their birthright! All mankind must depend upon the soil for subsistence, and to rob it of its fertility is to bring poverty, wretchedness, and crime upon the human race.

Our plan for making farmers able to purchase fertilizers is to restore to them the birthright robbed from them by monopoly, and to bring about such conditions as will enable them to preserve their heritage.

Russian dairy products have made their appearance in the English market, and the prospects are favorable for a large and increasing trade.

Magdalen is a 4-year-old mare, good bay with black points; she has a large, open eye, broad feet, good action and an easy mover, full chest, and very large nostrils, giving her abundance of breathing power. Sired by General Benefit, series 180, by Harslonio, C. B. S. B., by Holly Fox, S. B. Fascination is also a good animal, and should make a valuable breeder; she is three years old, bay with black legs, mane and tail. Bred by George Dixon, Esq., Hawsker, Whitby, Yorkshire. Got by County King, series 110, by Brilliant, C. B. S. B., by Sir George 633, by Golden Forester 193, by Incog. 231. The third is Primrose, she is also three years old, and one which the owner is very proud of. She is also bay with black points. Bred by W. A. E. Pease, Esq., Pinchingthorpe House, Guisboro, Yorkshire. Got by Wonderful Lad, series 536, by Bay Splendour 38, by Nobleman 320. From the above pedigrees our readers will

about four miles east of Hamilton, bordering on Lake Ontario; it comprises 250 acres. At the time he purchased it there was not an underdrain on the place, and it was in a very rough state. He has now over 40 acres thoroughly underdrained. He uses the ditching machine manufactured by Wm. Rennie, of Toronto, and considers it would pay any farmer to purchase one if he has much underdraining to do and his land free from stones. In 1887 he drew 450 loads of manure from the city, also 80 loads of refuse from the slaughter house and mixed it with the manure.

Notice to Subscribers.

Be kind enough to examine the date on the label of this month's paper, and see if you are marked paid for 1888. If your label is marked Jan. 89 your subscription is paid up to 31st Dec., 1888. We hope this notice will be sufficient for all who are in arrears.

Farmers' Clubs.

Dominion Farmers' Council.

[The Dominion Farmers' Council meets in the city of London, Ont., on the third Thursday of every month, at 2 o'clock p. m. All communications should be addressed to the Secretary, W. A. MACDONALD, LONDON, ONT. This Council has now on hand pamphlets containing its Constitution and By-laws, with an account of its origin, objects, etc., also a form of Constitution and By-laws suitable for Farmers' Clubs, which will, on application to the Secretary, be distributed free to all parties having in contemplation the organization of clubs.]

The regular monthly meeting of the DOMINION FARMERS' COUNCIL was held on the 19th ult., Vice-President Anderson in the chair.

A resolution of condolence was passed expressing regret of the severe accident which had befallen President Leitch, and prevented him from attending the meetings of the Council; also of the illness of Mr. and Mrs. Weld, and Mr. John Wheaton.

COMMUNICATIONS.

Amongst the communications read was one from the Secretary of the Pittsburg Farmers' Club, stating that the Club had met with reverses, causing a great decrease of membership, owing partly to a lack of interest, but chiefly to the action which some of the members had taken in a recent election, but which was unjustly attributed to the Club.

Vice-President Anderson stated that party feelings were the ruination of farmers' organizations. When he first organized the Grange in this Province there was a fair chance of success, but he found that independence yielded to partyism when the elections came round.

A communication was read from the Secretary of the South Dawn Farmers' Club, giving a report of their doings for the past year. The membership increased from fifteen to thirty. They met every two weeks, with the exception of two months during the busy season. Two cows belonging to Vice-President Cook were tested by a committee with the object of getting them registered in the Council Herd-book, but owing to the continued drought the tests were postponed for another season. One of these milked 44 lbs. per day, the richness being 4 1/2 percent. of butter fat.

Several members of the Council congratulated Mr. Cook for his extraordinary cow, and stated that she would go much over the standard required for registration. She belongs to the common native stock of the country. An official test is also being made of a cow belonging to President Budd. The Club thought that the best way of disposing of the Council's funds was to expend them in some approved method of organizing more Clubs. They also suggested the advisability of having an annual convention of delegates from the various amalgamated Clubs.

NEW CLUBS.

Moved by John O'Brien, and seconded by John Kennedy, that the No. 1 West Zone Farmers' Club be amalgamated with this Council. Carried.

This Club was organized Nov. 23rd last, and comprises 22 members. President, Mr. Arch'd Bodkin; Secretary, Mr. W. G. Menhenick.

ELECTION OF OFFICERS.

The regular January meeting in each year being also the annual meeting of the Council, the election of officers for the coming year was proceeded with, and the following officers were

electd :— President, Henry Anderson; Vice-President, John O'Brien; Treasurer, John Kennedy; Secretary, W. A. Macdonald.

WINTER CARE OF MANURE.

The programme of the day being called, Mr. John O'Brien read the following paper, giving his experience of the winter care of manure :

"My method is to haul out the manure in the winter and pile it into large heaps on the field to be manured. I always keep the manure as much under cover as possible. When I have about fifteen or twenty loads I haul it out, putting 50 to 100 loads in one heap. I always mix the horse and other manures together, keeping the heap well squared up and flat on top to retain the rain falling on it. In cleaning out the stables I take out the urine with the manure, so that little or none of it is lost. I commence to turn the manure heap about the 15th of March, and it is in good condition to use by the last of April or before. In turning the heap of manure, turn the long manure in under. What manure I get after that I put gypsum on to save the ammonia, and use that manure for late manuring, such as turnips, fall wheat and top-dressing the meadows. I don't like the practice of spreading fresh manure on the land, as it creates weeds and thistles."

DISCUSSION.

In answer to several questions, Mr. O'Brien stated that he had a 24x28 shed for holding the manure before it is hauled out. He preferred large heaps to small ones. He had personal experience in knowing that a straw mulch produced thistles, which grow from the seed as well as from the roots. He once spread some half-rotten straw in a furrow and plowed it under, the result being that hundreds of young thistle plants sprung up in that furrow. When putting the manure into heaps, he did not tramp it, which gave it a good chance to ferment. He used about half a bushel of gypsum for twenty-five loads of manure, sprinkling it on the top of the heap. The heap fermented evenly except at the outside, but when turning the manure he pitched the straw portion into the centre.

W. A. Macdonald stated that the best practice was to put the gypsum in the stable gutters, but if it was applied to the heap in the field, it should be put on in layers, and not all on the top. It required about three percent of gypsum to save all the ammonia, or three pounds for every 100 pounds of manure, but one-third of this amount would do good service. A good rule to go by was to use one pound per day for each grown animal, although double this quantity had been profitably used. The gypsum had a high manurial value in itself, in addition to its value for saving the ammonia of the manure heap, and it also had the beneficial effect of retarding fermentation when it proceeded too vigorously. The quantity used by Mr. O'Brien could be multiplied by 25 with beneficial and profitable effects. When box-stalls were used, the manure might be left under the stock for several weeks, instead of being temporarily put into a shed according to Mr. O'Brien's practice.

Other members gave their experience in handling their manure in winter, but all praised Mr. O'Brien's system, although some did not follow it because it was too much trouble, especially the turning of the manure heap.

NEW SCHEME FOR PROMOTING OUR AGRICULTURAL INTERESTS.

Under the head of unfinished business, the discussion at the December meeting was continued, viz., How can the Council's funds be best utilized for promoting our agricultural interests? President Anderson led the discussion, and proceeded as follows: I have given considerable thought to all the schemes which have been proposed, and have come to the conclusion that we need a more vigorous policy, and our funds should be employed in agitating and carrying out our principles. We should consider all the grievances under which our farmers are laboring, manufacture them into planks for our platform, and then calculate how far our funds will go towards defraying the expenses of our civil war. Our only chance for success is to rebel against the gigantic monopolies and other insidious influences which are constantly oppressing us, and the first weapon we should handle is the ballot. Ours is not any one branch of agriculture; the special branches have their champions and their boomers who are doing mischief to our agricultural interests as a whole, and it is our part to counteract these ruinous tendencies. We can only gain strength by gaining the sympathy and co-operation of our amalgamated clubs. My proposal therefore is this: That we invite each of the amalgamated clubs to appoint a delegate to meet a committee of our Council in this city, each delegate being armed by one or more resolutions passed by his club to be presented to the delegation, and that our platform be composed of the resolutions passed by the various amalgamated clubs in conjunction with resolutions determined upon by this Council.

The following resolution was then moved by John O'Brien and seconded by John Kennedy: "That an invitation be extended to each amalgamated club to appoint a delegate to meet a committee appointed by this Council, which shall form a delegation for the discussion of questions pertaining to the interests of Canadian farmers, and for the purpose of erecting a platform for the more effectual furtherance of our objects; that the railway fares of such delegates be paid out of the special funds of this Council, and that no further expenditures be made by gifts to amalgamated clubs until we ascertain how many clubs have expressed by resolution their intention to accept this invitation."

After some discussion the resolution was carried.

In discussing the clause relating to the railway fares of the delegates, some members thought that the Council should pay all the expenses, while others thought it would be better to ask the clubs to defray all the expenses of their delegates, the latter contending that unless the clubs were willing to pay the expenses, they would have very little enthusiasm in the cause of our farmers. Those who favored and carried the resolution contended that a medium course was desirable, and by paying the railway fares, instead of the other expenses, the burden would fall equally on all the clubs. It was not considered desirable to hamper the clubs in any way in preparing instructions to their delegates; they might either prepare resolutions for them or prepare a paper to be read and discussed before the delegation. It is intended that the platform will be ratified by the clubs which send delegates before it takes effect, and the date of the meeting of the delegates, should it be found desirable to hold such a convention, is to be left for future consideration.

At the next meeting of the Council, President Anderson will read a paper on "Farmers and Railroads."

The Dairy.

Mistakes of Our Dairymen.

We have a standing invitation to all government organizations, viz: *Come let us reason together.* No matter how honorable, truthful, or independent our course may be, we have no hopes of our invitation being accepted. The motley crowds which control these associations forbid such prospects.

Last summer, after investigating the condition of the milk delivered at the cheese-factories, finding that we could not get time to accept all the invitations we received for making further tests, we expressed the opinion editorially that the cheese-makers should organize an association of their own where they could discuss matters pertaining to the manufacture of cheese and the handling and testing of milk, as the existing dairymen's associations were controlled by cheese-buyers, and neither cheese-makers nor farmers had an opportunity of deriving material benefit. We pointed out the iniquity of the existing law, and drew the attention of our leading dairymen to the necessity of changing the law in such a manner that inspection could be placed on a more rational and modern footing. Instead of heeding our advice, a committee, without authority from the association, engaged a lawyer to draft a bill to be passed at the coming session of the Ontario Legislature. This bill was read before the dairymen's convention recently held in Listowel, and in absurdity and iniquity it far outwits the old law. It passed the convention without a dissenting voice. No law should receive the assent of the Legislature which does not fix a standard, not only with reference to the quality of the milk, but also with reference to the methods for testing the quality. The standard in present use, and which is to be continued, is the cream gauge, and the convention did not even halt to ascertain that no country, either civilized or barbarous, adopts such an irrational standard. It may suit the cheese speculators all right, but it may be industrial death to the innocent farmer, and no upright judge can be found who will convict a farmer under such a system of testing. Even if the milk occasionally casts no cream, there is no evidence of adulteration, no matter how strong the suspicion may be. The lactometer, either by itself or in connection with the cream gauge, is also unreliable, and may be the means of bringing many an innocent farmer into poverty and disgrace.

It is a very significant fact that, despite the acceptance of the above mentioned bill by the convention, a resolution was also passed accepting Prof. Robertson's scheme. That is to say, the convention adopted both the right and the wrong method of procedure, and which is to prevail we shall not undertake to predict. We accept Prof. Robertson's scheme; in fact it was our own proposition several months ago. Under this plan, when the cheese-makers begin to understand the correct methods of testing milk, they will see the absurdity of the draft bill read before and passed by the convention, and our farmers will see the extravagance uselessly incurred in lawyers' fees and worse than useless legislation.

We hope our dairy authorities will recover their senses before the Legislature meets, and assume the authority to rescind the action they have taken. There is no need for hasty legislation, and next season should be spent in investigating details for the purpose of establishing standards.

Ontario Creamery Association.

The annual meeting of the above association was held in Guelph, on the 17th and 18th ult. There was a fairly good attendance—a considerable increase compared with previous meetings.

Prof. Robertson delivered an address on "The Outlook for Creameries." One of the failures, he stated, was the lack of enthusiasm. The cause was worthy of more enthusiasm. Farmers should not be satisfied with less than 125 lbs. of butter per cow per season. Creamery butter brought an average of 6c. per pound more than dairy butter, which made a great difference in the income for each farmer, each creamery, and for the whole Province. In Ontario there were 900 million pounds of milk made into butter, of which only 50 million pounds were manufactured at the creameries. Another failure was when only half of the farmers in a given locality sent their cream to the creamery; twice as much butter should be made from the same number of cows, and twice as many cows should be raised per acre. The value of land would then be rapidly enhanced. Good breeding could be put into cows by good feed, and good blood could be taken out by bad feeding. The feed made the blood. Better prices could be obtained by developing our home market. Amongst the dangers in obstructing the progress of the creameries, was the lack of care by the patrons, the quality as well as the quantity of butter thus being reduced. These dangers could be avoided by agitation and education. Too much butter was made just to pass inspection by the buyer, not to tickle the palate of the consumer. Another danger was the lack of preparation against drought. Amongst the difficulties to contend with was the difficulty in getting farmers to take an interest in themselves, the raising of beef stock from dairy animals, a fear that profits would not be permanent, and a suspicion that some had axes to grind to the injury of the farmers. The creamery, he maintained, was here to stay. Amongst the remedies, he mentioned rigid inspection and ample instruction. Meetings of makers and patrons should be held, at which authoritative information should be disseminated, and the meetings should be reported. Home markets should be opened out, and winter dairying should be more extensively engaged in. The milk should be produced in such seasons as will give the greatest profit to the farmer.

A paper on the "Proper time to Sell Butter," was read by Mr. Thos. Johnson, a butter dealer in Toronto. The best time to sell, he said, was as soon as the butter was ready for the market and still retained its pure, rosy flavor, which quality was so much in demand, and the customers should be supplied with what they want. It should be sold from the factory at the best obtainable price as soon as a sufficient quantity was made to put on the market. These remarks applied specially to June, July and August makes, when the quality was so liable to deteriorate. There was less risk in butter made at other seasons. There was too much risk in holding back in order to speculate for higher prices, as no ordinary rise in price compensated for the deterioration in quality. His early purchases gave splendid satisfaction, after being shipped straight through to the British markets.

Prof. Robertson remarked that there were great losses entailed by all parties concerned when butter was held back from consumption. Farmer, maker, dealer, and consumer all suffered in many

ways. If there was absolutely no market, the next best thing was a cool place for storing the butter. Immediate consumption or cold storage were necessary to maintain our reputation, for the best article was in demand and we must be able to supply it. Our summer butter was not consumed in England until after November, so that we should cultivate a home market for our earliest outputs. Keeping butter at 55° Fahr. did not give satisfactory results; the temperature should be as low as 45°. He was not afraid that the temperature would be reduced too low, and the butter would afterwards keep well when exposed to higher temperatures in a warm climate.

Mr. Geo. Browning, butter instructor appointed by the Association, gave accounts of his doings, which were very meagre. His conduct as instructor was severely criticised by some of the butter-makers, and the flying visits which he paid to many of the factories were said to be productive of no results. Some makers boldly criticised his ability as an instructor, and he had few defenders. Out of the 40 factories in the Province, only three, he said, used the oil-test. This remark gave rise to a lively discussion on the systems of testing the cream, some contending that the oil-test was absolutely accurate and just to all the patrons—also that it could accomplish more work in a shorter time than the Chery Churn, while others denounced the oil-test as inaccurate, although in other respects proving satisfactory.

Mr. R. J. Graham read an instructive paper on "The centrifugal system compared with setting milk for cream." He said he used the centrifugal separator, and operated it with a two horse power instead of an engine. He mentioned the following advantages compared with the ordinary system of raising the cream: There was a saving of time, labor, ice, building, utensils, etc.; there was more cream, nearly all the fat being extracted from the milk, and the quality was better, being free from foul odors; the cream was sooner fit for the churn, and the skim-milk was sweet, fresh, and in splendid condition for feeding calves or for making skim-cheese. The disadvantages were: extra capital required at the start, and the system was not adapted to dairies keeping less than 20 cows. Milk, however, could be gathered from surrounding farms to the same extent as gathering for cheese-making. The milk was drawn once a day; it was not tested, but he had cream gauges which guided him as to adulterations. He manufactured the skim-milk into cheese, which he shipped to the old country, and it netted him 5c. per lb. It required 16 lbs. of milk to make a pound of skim-cheese. It did not pay at this price, the cost of furnishings being 40c. per 100 lbs.; although the labor was not much, it would pay better to feed the skim-milk to calves. He obtained 4 lbs. of butter per 100 lbs. of milk.

Mr. Derbyshire stated that more skim-cheese sold in England for 2c. than for 5c.

Mr. Graham answered that he had netted as much as 9c. per lb. in the English market for his skim-cheese.

Mr. John Sprague, who also runs a centrifugal separator, highly praised the centrifugal system of butter-making, and contended that the machine would last 100 years with slight repairs; in fact there was hardly any wear-out to the machinery. He preferred butter made from sweet cream, it being of better quality, and

brought 2-3 cents per pound more than butter made from sour cream, although the sweet cream did not make quite as much butter as the sour cream. The sweet cream, direct from the machine, was immediately cooled to 56° or 58°, and then churned as soon as possible. He drew the milk from a circuit of seven miles. He charged the patrons 4c. per lb. for making the butter, and the milk realized them 70 to 120 cents per 100 lbs.

Western Dairymen's Association.

The annual meeting of the above association was held in Listowel on the 11th, 12th and 13th ult. There was a large attendance of dairymen and farmers; the programme contained the names of more local authorities than on previous occasions, and the foreign element was less. There was very little of anything new in the papers, and the time for discussion was very limited. Mr. W. D. Hoard, from Wisconsin, delivered a number of interesting and instructive addresses, and his remarks were listened to with rapt attention.

Mr. F. Malcolm read an instructive paper on practical dairying, dealing chiefly with dairy stock. He remarked that the Canadian cow was a milker and not a beofer, and she was better than she received credit for. The best cow he had ever seen was bought by his father for \$25, fifty-three years ago, whose blood he yet had and was the best he had ever procured. A cow like "Old Pinkey" would be worth at least \$500 as a basis for a dairy herd. Grade Shorthorns made the best use of their food, and changed it either into milk or beef. The best dairy calves should be dropped about the first of March, so that they could be fed on milk before the factory opened. He dwelt upon the desirability of liberal feeding for profitable results in the dairy.

Mr. D. Derbyshire (Brockville), went into statistics to show the enormous increase of our cheese industry. It was not desirable to build any more opposition factories, but larger and better ones should be the order of the day. In new localities, where there were no cheese factories, creameries should be established. He spoke of the desirability of cleanliness in handling the milk, and of strict attention to all the details from the stabling or pasturing of the cows to the placing of the milk into the factory can. From the standpoint of profit, the aim should be to produce more milk from the same capital invested.

Prof. Robertson, professor of dairying at the Ontario Agricultural College, delivered a lecture on the education of our dairymen. He was not in favor of a so-called high education for farmers' sons, but believed that they should be more thoroughly educated in their calling. His scheme was the organization of conventions of cheese-makers for the discussion of questions pertaining to the manufacture of cheese, and the handling and testing of milk. There should also be meetings of the patrons of every factory where questions should be discussed relating to the economical production and skilful handling of milk. Authorities on all these subjects should be invited to attend these meetings, aiding in the discussions, and each factory should be asked to subscribe \$10 to defray the expenses.

Mr. E. Casswell (Ingersoll), remarked that the high prices of cheese, accompanied by a falling off in consumption, fooled the buyers, and produced worse results than the drought. American

cans, on the contrary, sold their cheese regularly every week, thus supplying the demand, while the Canadian cheese was kept back from consumption. The prices of butter and meat were so low that cheese was consumed in small proportions.

Mr. W. D. Hoard (Wisconsin), delivered a lecture on the dairy cow, and presented diagrams to illustrate his points. He spoke of the dairy cow of to-day as an artificial product. He dwelt on the moulding influence of heredity, transmitting its effects to the offspring, and drew a comparison, so far as temperament is concerned, between the dairy cow and the race-horse. The part of the dairy cow was maternity—the giving faculty—while the part of the beef cow was miserhood—the retaining functions. The former therefore possessed those mysterious physiological combinations which tended to produce milk for the support of the offspring, while the latter, possessing the selfish combinations, tended to beefiness. If we enlarged these functions in the one direction, we reduced them in the other. Under the severe pressure under which dairymen at present labored, the keen competition in our home and foreign markets, the specific cow must be worked to her full capacity, and the general purpose cow must be abandoned. In other language, we must have better machinery devoted to special lines of industry. The special dairy cow was recognized by the following points: The nervous temperament predominated; she was a great eater and drinker, consuming 80 to 100 lbs. of June grass per day and 60 to 120 lbs. of water; large nostrils, indicating the inhaling of large quantities of air to oxidize the food consumed; a wide muzzle, the signal of heavy consumer; jaws strong, full, muscular, and heavy; a lean, handsome, bony head; ears thin, light and clear; eye mild and prominent; capacious brain room, indicating docility and intelligence; jointure of spine to brain must be strong; sharp shoulder; strong back bone; ribs springing out more like the rafters from the ridge of a roof than barrel-fashion, as in the beofer; straight back not required; pelvic arch should rise high; udder large, full, projecting well forward, and high in rear; constitution hardy; milk-veins should be large, but large ones were sometimes so depressed that they appeared small from an outside view; escutcheon had little or no significance; umbilical development should be strong; yellow color of skin, ear and tip of tail had nothing to do with quantity of milk, but might have something to do with quality and color of butter. In answer to some questions about milk fever, Mr. Hoard stated that the changing to grass had a great deal to do with the complaint, which could be largely avoided by letting the cows calve in September. The cow should not be milked completely dry for four or five days after calving; doing so produced a chill and resulted in milk fever. The calf should have access to its dam for the first four or five days. The bowels should be kept lax, the animal should be well housed, and light feed and warm drink should be given.

At the election of officers quite a sensation ensued through an attempt made to elect Mr. R. Cleland, Listowel, as president over the head of Mr. E. Casswell, the vice-president. We were pleased to see, however, that good counsel prevailed through stirring and sympathetic appeals made by Rev. W. F. Clarke and D. Derbyshire, and Mr. Casswell was elected president, almost unanimously. Mr. Cleland was elected 1st vice-president and Mr. J. B. Lane 2nd vice-president.

After the election of officers, the following resolution, moved by Mr. J. B. Lane and seconded by Mr. W. Symington, was carried unanimously: "That the scheme for the further education of dairymen, as outlined in Prof. Robertson's address, be accepted as worthy of our endorsement, and that the directors of this Association be instructed to take steps to secure the services of competent cheese-instructors and milk inspectors; and resolved that we invite the co-operation of the dairy department of the Ontario Agricultural College, and recommend that the patrons of each factory be urged to contribute \$10 each to a fund to be administered for the foregoing purpose."

W. A. Macdonald, of the FARMER'S ADVOCATE, gave an address on the various methods of testing milk, pointing out those which would be most suitable for cheese-factories. He gave the cost and expeditiousness of the most suitable methods, calculated from his own experience, and concluded that accuracy could be attained with little loss of time or money, but the tests should be under the control of experienced and competent inspectors, otherwise the farmers would suffer a great deal from injustice and annoyance. He related his experience with fifteen factories where he had tested the milk, and expressed the opinion that action should be taken to establish standards and check the tendency to skimming and watering the milk.

Mr. Robert Ferguson, Listowel, delivered an address on cheese fairs. He objected to the system of conducting cheese fairs as adopted in Western Ontario, and advocated the system by auction, in which the buyers made public bids for the cheese offered for sale.

Raising Calves without Milk.

The calf is taken from its mother at two days old, taught to drink, and fed two weeks on fresh milk from its own mother. Skim milk is then added until, at the end of four weeks, the fresh milk is all taken away, and a little flax-seed jelly is added to the skim milk. The calf at four weeks is thus taking about two gallons of skim milk with two tablespoonfuls of jelly added, and is kept in a box stall with other calves (which are tied), and is also tied after three or four weeks, by which time it has learned to eat dry food with others. When it is tied, feed regular bran and oats, what it will eat, before feeding milk. Always keep clover hay in rack before it. When it will eat well, which is at the age of about eight weeks, milk is entirely taken away; bran, oats, and oil meal are fed dry three times a day, with plenty of clover hay in summer. They must have water always before them in winter. Twice a day they are let out to exercise and drink; the smaller ones will follow the larger ones to the water trough. A little salt is added once a day to the feed.—[Wm. Fisher in Country Gentleman.]

The Department of Agriculture in its December report makes the following comparisons of average prices of various commodities now and a year ago: Corn, 43.8 cents per bushel, against 36.6 cents in 1886; wheat, 69c., against 68.7; oats, 30.7c., against 29.8c; barley, 52.2c., against 53c.; buckwheat, 56.1c., against 54.4; potatoes, 68.5c., against 45c.; hay, \$9.34 per ton, against \$7.36.

Keep your mind and implements bright for the spring work.

The Farm.

Grasses and Clovers.

The family of grasses is very numerous and much varied in its characteristics. Some species will thrive and flourish where others will perish or drag out a lingering existence; some have an early growth, others a late one; some are annuals, while others retain their life for a large number of years; some are very nutritious, while others are comparatively worthless. All these differences and many others have to be considered in the study of these plants, and as they, together with the clovers, furnish us with a great part of the winter's food and almost all the summer's food for our stock, and may aid in the preservation of soil fertility, they form a very important part of our farm crops, especially on a dairy farm.

The varieties sown together for hay should be ready for cutting at the same time. Those sown for pasture should have their periods of most luxuriant growth following each other, and when cropped should quickly recuperate, so that the stock grazing on them may find food from early spring to late fall. Soiling crops should possess similar characteristics to the varieties sown for pasture. For all purposes the varieties should be nutritious, productive, and adapted to the climate and the soil—its composition, texture and aspect.

Timothy, or Catstail (*Phleum pratense*), is an extensively grown and widely spread variety. It is nutritious, productive, hardy, and loses little weight when handled in the form of hay. These qualifications are well worthy the popularity they have received. It is, however, only adapted for a hay crop in a proper course of rotation, for it, being a surface feeder, is very exhaustive on the soil, and although yielding a magnificent crop for the first season or two, it will soon so diminish its yield, owing to the impoverished surface soil, that it will be found advisable to plow it under the third or fourth season of its growth. Close cropping is especially injurious to this grass, for as the stem possesses very few leaves, especially at its base, nothing will be left to shade the roots, which, as before stated, are very near the surface. The growth of this grass, if once cut, especially when near mature, is very slow, and unless some quickly growing plant, such as clover, is grown with it, the exposure will continue for a long time, and will injure both the roots and the soil, for soils, unless shaded by a crop, lose considerable nitrogen. By close cropping, especially pasturing, the bulbs of the plant are often injured, which reduces its vitality. Timothy, contrary to most other grasses, will increase in value for feeding purposes even after the seeds have commenced to be formed. Its straw is by some considered to be as valuable as its hay. It flowers about two weeks later than the common red clover with which it is usually sown, and as the latter deteriorates very materially in value after the flowering period, it is evident that these plants, although very valuable in themselves, are not suitable to be sown together for hay. Alsike (*Trifolium hybridum*), and Perennial Red Clover (*Trifolium pratense perenne*), flower both at about the same time as Timothy, and are therefore more suitable in this respect to be sown together with this grass. The soils on which Timothy thrives especially well are

a rich, moist loam, or a peaty soil. A light sandy soil, unless highly fertilized, is objectionable for its cultivation.

Orchard Grass, or Cocksfoot (*Dactylis glomerata*), is a very fast growing, early variety, of about the same nutritive and productive qualities as Timothy, but apart from these it is almost directly the reverse of its characteristics. It commences growth early in spring, and continues growing until late in fall, quickly springing up again if cropped down. These characteristics, together with its marked ability to withstand drought, its high nutritive and productive qualities, and its characteristic to live in the shade, make it a very valuable pasture grass. It has a large number of ramifying roots descending considerably below the surface soil, which enable it to withstand the drought better than a shallow-rooted grass, and as these roots gather their food from a much larger area, the plant is much less exhaustive on the surface soil than the shallow rooters. The soil best adapted for its cultivation is a drained, fertile loam, but it has been successfully grown on soils of a very varied character. It retains its full vigorous growth six or seven years, but has been known to grow successfully for a much longer period of time. It flowers at about the same time as the common red clover, and like it loses very materially in its nutritive properties if not cut at that time; in fact, if allowed to nearly mature its seeds, it is comparatively worthless. Unless it is sown very thick, or in combination with some other grasses or clovers, it forms tufts or clusters with intervening bare spaces. The similarity in the rapidity of growth and time of blooming that this grass and Red Clover present, allow them to be grown together with great success. This success is still further apparent when we observe that the gap or spaces the grass leaves are occupied by the clover, and that the former assists the latter in retaining its upright position. They both grow the same year, for the grass, getting as early a start as the clover, is not "crowded out" by it.

[TO BE CONTINUED.]

Stock-Raising and Grain-Growing in Relation to Soil Fertility and Exhaustion.

No. VI.

The secondary issue advocated by the manure theorists now remains to be considered, viz., charging the food consumed by the stock at the cost of production instead of at market prices. We intended to go fully into the book-keeping of this question, but as we are now collecting material from our farmers for the purpose of investigating their condition and entering into complete details, we shall here confine our observations to the principles that underlie the question, and point the fallacies of the professional theorists who pride themselves in being practical. It is our part to inquire whether a statement is true, not whether it comes from a practical or a scientific source, which is of no consequence.

In keeping accounts, the system of book-keeping depends upon what facts you wish to ascertain about your business. If you merely wish to know the total profits derived from your farm as a whole, without ascertaining the profits in each branch, the system of book-keeping in the former case will be different from that in the latter.

Finding the total profits may be quite simple, but the knowledge thus ascertained is of little practical value. Indeed, properly kept farm accounts are probably the most complicated of all systems, and all attempts made to simplify them have usually resulted in being able to prove, at the will or prejudice of the accountant, that the farmer is becoming wealthy or impoverished. This fact is amply proved by the recent revelations in the press on the condition of the farmer. All classes of authorities—practical farmers, agricultural professors, scientific agriculturists, and professional accountants—have stumbled here, and few of them even approach the proper methods of investigation. We have always taken the stand that it is the best policy to go straight for the truth at once, and not theorize in such a manner as will please the people because the theories are more easily comprehended than the truth.

We take it for granted that the main object in keeping farm accounts is to ascertain the profits or losses in each branch of the business. A separate account must therefore be kept with each branch; otherwise the farmer cannot ascertain which department should be abandoned on account of the losses sustained, or which should be prosecuted most vigorously on account of the profits derived. The profits from all sources may be quite satisfactory, but they would be more so if the unprofitable branches were weeded out.

Now our indictment against Prof. Brown, his disciples, and all the other live-stock theorists is, first of all, this, that they sum up the total profits from all the branches of farming and credit them to the live-stock account. This system of book-keeping makes stock-raising appear profitable, whereas the total profits may have been derived from other sources, and the stock may have been produced at a loss. Prof. Brown (see Model Farm report for 1881, page 168) calculates the cost of production as being 50 percent less than the market prices of the food consumed—in other words, there is a profit of 100 percent in producing the food consumed by the stock—and he posts this profit to the credit of his stock account. Every farmer will at once see the absurdity not only of this system of keeping accounts, but also of making such high profits in growing grain and other farm produce—even in the year 1881. He is not even contented with this partiality shown to stock, but he also actually credits the stock with the fertility in the manure produced (valued at \$2.55 per ton), without debiting the same fertility to the crop which extracted it from the soil. For example (see same report and same page), he takes a 2½ year-old steer, feeds him for 220 days, during which time he consumes food valued at \$31.26 for the cost of production, and \$63.08 for the market price, and then he values the manure from the same food at \$32.06, thus attempting to prove that it pays to feed cattle for manure production only. Now it is plain to be seen that this \$32.06 worth of fertility came from the soil—and even more, for the fertility removed in the increase of beef would be at least \$4, making a total loss in fertility of \$33.06, which sum alone is 15 percent greater than the entire cost of the food consumed; in other words, he not only lost the whole labor employed in producing the food, but he is also poorer by about 15 percent of soil fertility removed by the crop.

In order, therefore, to ascertain whence the actual profits are derived, we must keep a separate account with the farm produce and the stock. One thing is simple and certain, viz.,

that unless there is a profit in feeding stock by charging the food consumed at market prices, it does not pay to feed stock at all, because the food can be sold at market prices, and any alleged profits derived from feeding stock must be drawn from the farm produce account. The food must therefore be charged at market prices, and not at the cost of production.

Come now, Mr. Shaw, you who have doubled the fertility of your soil in eight years by 'home-made manure alone—you who have challenged us to meet you on any platform, this is our platform: we have made our speech; we pause for a reply.

(Concluded.)

The Condition of the Farmer.

Editor Farmer's Advocate:

SIR,—In reading your January issue, I see that you have awarded two first prizes for essays on the condition of the Canadian farmer. Well, I would ask what are the two first prizes for. Is one for the most truthful and the other for the most untruthful report of the Canadian farmer's condition? If such be the conditions for which the prizes were given, I must congratulate your essayists on their very near approach to perfection. I would like to ask my brother farmers through the ADVOCATE to read the essay of Mr. Thomas Elmes over again till they commit it to memory, so that they will not forget that they are farmers about election times; for if ever those grievances are removed, you will have to do the great part of the moving, and I think the sooner we get ready to do it the better for ourselves.

I think I hear some old party man say that our manufacturers would suffer. Well, I would say to you—Friends, I think the manufacturers can look after their own business just as well as you can yours. One thing is certain, they have done it better so far. I would say—Think and study for yourself, and not be led away by catch-penny words such as "the farmers are hungry and naked," or "they are rich and clothed in fine raiment," or "it is disloyal to Britain." I would simply ask of you friends to be loyal to yourselves and your brother farmers. I would say—Friends, read again the essay of Mr. Thomas Beall. Don't get frightened at the figures, for you can probably learn something, or in other words, you may see where the untruths come in. In his figures from the Bureau of Industries as to the value of all crops grown, he adds the price of wool, eggs, cheese, creamery butter, horses, fat cattle and sheep. This is too thin. Any five-year-old boy can tell that you cannot sell a thing and have it too. If he cannot he will not do for a farmer, for if he were a farmer and a farm given to him, he would be cheated out of it in a short time. Then after adding an imaginary natural rise, he stretches his imagination to make another hundred dollars, so he gets a total of \$833, or over 18 percent. Too thin, again. Friend, would you not want a man's wages all the year, and a man to help for six months in the summer? If we count \$1.25 per day for labor, we have \$585 to deduct, leaving \$248, which will change the percent considerably, even counting things twice; but \$1.25 per day will not keep up such style as he says can be seen so often in travelling. I am sorry to say that he is correct in regard to style, but if there is any more taken off the above sum, there will not be any more percentage left than the advocates of Commercial Union claim for the best

farmers after his double figuring. Please, friends, read attentively, and I think you can see the truth through the curtain in a great many places. It is not any thicker than mosquito netting. But I must say that Mr. Beall did extra well considering the material he had to work with.

Very likely some of my brother farmers would like to know something about who I am and how I am getting along. I am a born Canadian, of English parents; they were brought up at farming in Devonshire. At three months old I was brought into the wild woods of the township of Downie, county of Perth, not far from where I now live. But few of the original settlers are the farmers of to-day; a great many sleep that sleep that knows no waking. Some of their families are on the old farms and doing well; others have spent their fathers' hard earnings in fine rigs, houses, fixtures and high living, and are gone to the towns to get a living, as they say they can live easier than by farming; and a great many more will soon have to leave the farms they are on if they don't change their mode of farming and living. But the great trouble is that those people leave the farms in such a bad condition that it takes years of careful handling and hard work to get it into such a state that anything like a good crop can be raised, except in the most favorable seasons.

But I did not tell you yet how I have got along myself. Well, I have managed to get a living and lay past a little. Some may ask, How much? Well, no doubt a great many of you got a circular asking you quite a few questions about your condition as a farmer. I know that some of these questions are very hard to answer, there are so many points to be considered. I will give you my answer short. I have always been on the farm; I started on my own account 15 years ago, on a farm of 200 acres, 100 being my own, the other not. I farmed the two for six years, but now I work only 100 acres. The average capital employed in farming would be between \$11,000 and \$12,000. The amount of profit derived, after keeping things in repair, is about \$7,500, a great part of which I spent in permanent improvements, such as buildings, fences and draining, which have deteriorated since built say to the amount of \$500. I think you will see that my profits have not been large, but I have not exhausted my land to put money in the bank. If I had, my profits might have looked larger, but I don't think I would have been any richer than now, with more risk of being cheated in a commercial bank than in a bank of soil, to say nothing of the pleasure of looking at a nice crop on my farm.

Yours respectfully,

W.M. WORDEN.

St. Paul's Station P. O., Ont.

[We thank Mr. Worden for his candid letter. He speaks plainly and fearlessly, which every farmer ought to do, and his style convinces us that he is not afraid to think or act independently. With reference to his remarks about our prize essays, our defence is that we never ask prize essayists to agree with our views. We do not take such a bright view of the farmers' condition as Mr. Beall has pictured, but his essay was ably written, and he used the best available figures to show the position he had taken. If these figures are ridiculed by practical farmers, a grand point is gained, viz., the folly of spending public money in attempting to prove that our farmers are rolling in wealth.—ED.]

It is well understood that when in a liquid form, manure is more easily appropriated and effectual in its work than when used in any other way. The trouble with it is that farmers are apt to apply it too strong. It needs to be diluted with water, the proportion of dilution depending on circumstances, and governed by the judgment and experience of the farmer.

Selection of Seed Grain to Secure Best Results with Least Exhaustion of the Soil.

BY THOS. ELMES, PRINCETON, ONT.

Grain is the foundation of all agriculture, and agriculture is that on which this world hangs for its sustenance. Although grain occupies this very important position, still we find there is next to nothing done to improve it in this country by hybridizing, importation and selection. True there has been much money spent by our Government in support of model and experimental farms, but we find nothing of much moment has yet been accomplished by them in improvement and introduction of sterling varieties of grain. A few years ago all eyes were turned to our own Model Farm at Guelph, expecting wonders to be done in this direction, but we find this branch in particular has been a failure, until the management themselves seem to be disgusted with it. The principal causes of this failure were the unfortunate situation of the experimental grounds, and too much of the Government funds expended in commercial fertilizers until the land became so rich that it was impossible to raise anything but leaves, straw and rust on the grain experimental grounds.

Now this country is gazing intently at our Ottawa Experimental Farm in hope that something substantial is now to be accomplished, with Professor Saunders at the head. Much has been done by them in collecting varieties of grain from different countries and testing them, but I fear they will fall into the same error as our Guelph Farm, and nurse the grain to death with fertilizers and Government pay. But perhaps the officers can by their skill bring something through that will be a benefit for us in the near future. We hope for the best.

I find in testing new varieties of grain (of which I have tested several hundred), it is always best to put them on rather poor soil without manure or fertilizers, and the best is sure to survive; but if nursed, the best is ruined by overgrowth, and the poorest and weakest survive, and we are sure to be misled by our experiment. Much has been done to improve the seed grain of this country by seedsmen and private individuals, but we find they have met with very little encouragement, for if they ask a reasonable remuneration for their trouble and expense, they are frowned upon and discountenanced. But let a horde of swindlers loose upon the country with Bohemian oats, double-headed Egyptian spring wheat, Red-lion fall wheat, or beardless barley, and they are received with open arms, even if they demand ten times the amount for their worthless, untried varieties that would be asked by reliable seedsmen or others who are striving to benefit the country by studious experiment and selling those that prove the best at a reasonable price. This must work its own cure; perhaps bought wit will prove to be the best.

It is granted on all hands we must continually change our seed grain, as our changeable climate soon takes out the vitality of our best grains if sown on the same soil with same surroundings. Change is the spice of life, alike to the animal and vegetable kingdoms. From experience I place very little value on changing seed from different soils, say from heavy clay to sand, or otherwise. It always requires distance and change of surroundings for the best results. Also grain for seed should never be selected from too level or low lying grounds, as these, although

they may produce good yielding crops, always produce weak, diseased grain, and good results will never follow from such selection.

The cause of this is: If a man inhabit a low lying swampy district, disease is sure to follow by chills, fevers and other malarious diseases, and the same holds good in grain, which lives largely from the atmosphere. But if the grain is raised on hills or elevated ground, where pure air is continually surrounding it, and where it is continually kept in motion by every passing breeze, it is sure to produce a grain free from disease. In support of this theory let us climb the mountain steep; first we meet the sturdy mountaineer, then the mountain maid with the bloom of health upon her cheek, and a happy song upon her lips; we see the rich color of the flowers, the deep purple of the heather, the ruby pink of the mountain laurel, the golden hue of the gorse, and crimson masses of wild rhododendron; in short, health is stamped on everything.

They are firm believers in this theory in the north of Ireland, where flax is grown largely from which is manufactured the world-renowned rust linen, as the seed from which it is grown is always brought from the bleak hills of Sweden and Russia, and is always found to produce a stronger and brighter fibre than home-grown seed.

My own experience in this matter has been the same. A few years ago I distributed fall wheat for seed from a level sheltered field which yielded 42 bush. per acre; at the same time also distributed seed from a hilly exposed field which yielded 22 bush. per acre, both of the same variety. The following season the former was in every instance badly winter-killed, while the latter was not affected, but yielded a good crop in every instance. Since that time I always select seed for distribution from the highest elevations possible, and results have always been satisfactory to the purchaser.

We are apt to run to extremes in grain raising; for instance, a few years ago Ontario raised scarcely anything but white wheat, nearly all Seneca or Clawson, which made such a weak grade of flour it was hardly saleable, and almost ruined our flour trade, as well as our millers. Fortunately, shortly after the spring wheat of Manitoba and the West arrived; the mixture made valuable flour, and saved our credit. Now the country has rushed into red wheat, and almost forsaken white. What the consequence of this is to be is a matter for serious consideration. Our red wheat will not make a grade of flour by itself at all saleable, neither will it be possible to mix it with the spring wheat of the West, consequently we must lose heavily and be content with a second-grade price for our flour. Ontario should raise white wheat, and with Manitoba spring, we would be of mutual benefit to each other. Ours would make the color and their strength; then we need not fear the world's competition.

But there is also another consideration why we should raise white wheat. It is always easier on land than red, being more of an atmosphere feeder, and consequently extracts less from the soil, which is of vital importance in the selection of all seed grain. We are aware this is a disputed point, that one plant extracts more from the atmosphere than another, so we will pause a moment and consider. Let us take a small amount of soil sufficient to produce one plant. First we plant one seed of buckwheat and find it has a very small fibrous root, which hardly penetrates the ground sufficient to hold the plant; it also has a large, branching top of remarkably quick growth, showing conclusively the air is its chief source of food supply, and it produces a large amount of grain in the short space of about two months. Then we take a kernel of fall wheat and plant it in the same soil. We find its fibrous roots penetrate every part of the soil, extracting nutriment from every part; it produces a comparatively small top, occupies the ground eleven months, and produces about one-third as much as the buckwheat, a great proportion of which is extracted from the soil. Now, we take a pumpkin seed and plant it in the same ground, and find it does not penetrate the soil as much as the wheat, and does not occupy it nearly so long, but still produces many thousand times more weight than the wheat or buckwheat, but yet does not extract as much from the soil

as the wheat, showing conclusively it derives much of its nutriment from the atmosphere. Now we learn from this the broader the leaf (which is the breathing part of the plant) and the shorter the time a plant occupies the soil, the more it must feed from the atmosphere, and the less it extracts from the soil.

(TO BE CONTINUED.)

East Middlesex Farmers' Institute.

This organization met on the 26th of last month in the court house of this city, and was fairly well attended by the farmers of the vicinity. Professors Mills and Greenside of the Agricultural College were present, and gave some practical and interesting information.

Prof. Mills gave an address on the cultivation of the soil, in which he stated that our farmers generally did not cultivate their soil thoroughly enough to ensure profitable returns. Thorough cultivation, he claimed, would increase the capacity of the soil to retain its moisture during drought, would thoroughly distribute the manure, and by the oxidation of the dormant soil fertility, make the soil more productive, and absorb more ammonia from the air. The increased power to retain moisture during drought was caused by the hot air, which contained a large amount of humidity or moisture, passing into the loose soil, where it was reduced in temperature by the cool soil. This would cause it to deposit a portion of its moisture on the particles of soil with which it came into contact, in the same manner as it would deposit dew on the grass and other cool objects on a cool night preceded by hot days. Another power at work was that if the surface soil was made very loose it would possess little or no capillary action, and therefore act as a mulch, preventing the direct rays of the sun from striking on the firmer soil possessing this force, thereby preventing the too rapid evaporation of the store of water below. The extent and depth of cultivation should be guided by the soil and the crop to be grown on it, light soils requiring less cultivation than heavy ones, and deep-rooted plants requiring deeper stirring of the soil than shallow-rooted. Thorough and frequent cultivation was also beneficial in destroying the weeds, as it killed them in their infancy. The Professor also spoke about cutting hay early, and that if a portion of it had to be cut either too early or too late, he would advise the too early cutting. He considered that if clover hay was cut and saved properly it could be fed to horses with safety, provided they were not fed more than they required. The benefits of plowing down a clover sod were also touched on. In the discussion that followed, two veterinarians and others endorsed the Professor's statement that well cured clover hay fed in moderate quantities to horses produced no ill results.

Mr. W. L. Brown read a paper in which he advocated the benefits of a provincial herd law in combination with soiling.

To this Mr. John O'Brien objected, on the grounds that such a matter should be left to the municipalities.

Mr. J. Geary read a very able paper on dehorning cattle, in which he described the various methods practised in performing this operation. The advantages claimed for the practice were that the animals would be more amiable, more could be put into the same space, they could be allowed to run loose and there would be less danger to man or beast. In the discussion of this paper, the advantages of allowing animals—es-

pecially growing cattle—to enjoy free exercise were dwelt on.

A lecture on the stable management of horses, delivered by Prof. Greenside, V.S., was of interest. He opened his address by stating that the prevalent idea of condition in an animal was that he presented a fat, sleek appearance, while in reality it should embrace one of good muscular development in a good state of health. There was a greater loss in waste occasioned by bad feeding than by sickness or death, and more of this was caused by a wrong method of feeding than by feeding improper foods. There was generally too great a bulk of hay fed, which, by giving the digestive organs too much work, weakened them and caused disease or derangement of these organs. The cutting of hay did not increase its nutritive value, but might save some waste. Oats were the most suitable grain to feed to horses, because they formed a balanced ration, or, in other words, they contained all the nutriment required in about the proper proportions; one other advantage they possessed was that they had a husk of coarse material surrounding the core, which prevented the grain from forming a compact mass in the stomach difficult to be permeated by the gastric juice; but the same end might be accomplished by other grains that did not possess these husks, by mixing cut feed with the meal, and if the latter was moistened a little before mixing it would cause the chaff to adhere to it and prevent the animal from picking out the grain and leaving the coarse food. The waste of oats when fed whole was due to the animal not masticating them thoroughly. This was caused in some cases by their eating too greedily, and in others by bad teeth. For the former the grain should be mixed with chaff or cut straw or hay, and for the latter the teeth should be examined, and any projections found on them interfering with mastication removed. Owing to the change of teeth in a colt, it would be advisable to feed him chopped grain until he was four-and-a-half years old. A horse should not be fed as heavy when at rest as when at work. Horses employed at work should not be clipped, while horses doing fast work, having a long coat of hair, and perspiring much, might have their hair clipped to advantage. In reply to some questions asked, the Professor stated that one or two turnips, or about half-a-dozen carrots, might be fed with profit, but that large quantities of roots caused indigestion. Boiled food was swallowed too quickly and not permeated thoroughly enough with the saliva and gastric juice, and was on this account less digestible than well masticated, raw food. Regular feeding of boiled food might cause acute indigestion, and the same disease might be due to feeding bran. In a properly built stable each horse should have 1,000 cubic feet or more of air, and such stables would not, with proper ventilation, rise above 40° of temperature, and as 60° would not be too high a temperature for horses, they might profitably be blanketed in stables of a lower temperature. Eighty percent of the heat given off from the body of the animal was lost by radiation from their skins, which showed the benefit of blanketing when the heat of the body was to be preserved.

According to the London (Eng.) Live Stock Journal, it takes fully three years of careful preparation to qualify an animal to compete with any chance of success in the adult classes for cattle in the English shows.

Flax Culture.

The cultivation of flax, although somewhat on the decline, is still an important industry in some localities of our Dominion. The plant is one of which both the seed and the straw are highly valued, the former for the production of linseed meal, oil and oil cake, and the latter for the flax and tow it contains. For its successful cultivation, a light, friable, well-drained loam in a high state of fertility is best required. A cold, stiff, wet or sour soil is very objectionable. The seed should be sown early in the season, at about the same time as peas, on a deep, well-pulverized, level seed bed, prepared by deep plowing and thorough harrowing. Rolling the land before seeding insures a more even distribution and covering of the seed than could be obtained on the surface as left by the harrow. After lightly covering the seed with a light harrow, the field is generally rolled again. This packs the earth more tightly around the seeds, which insures a more certain germination of the seeds. The quantity of seed sown to the acre is very important, and depends upon the condition of the soil (the more fertile the less seed required), and upon the purpose for which the flax is cultivated. If the straw be the main object, thick seeding, 1½ to 2 bushels per acre, is necessary. This prevents its branching and tends to produce a long, thin straw of the best quality for the production of dressed flax, but gives but little seed. Thin sowing, ½ to 1 bushel per acre, on the other hand, gives a large quantity of seed and a much branched, inferior quality of straw, which can only be used for the production of green tow, a material used for upholstering purposes. The relative profit in these two systems depends upon the locality in which the flax is grown. If near a flax-mill (a building in which the flax straw is, by the use of machinery, converted into the flax of commerce) the cultivation of the straw will generally be the more profitable, while in localities out of the reach of the flax mills the seed is generally the primary object for its cultivation.

Flax is an exhaustive crop, owing to the large amount of valuable ash it contains, and should therefore only be sown once every six or seven years in the same field. A rotation that is frequently followed, where flax is extensively grown, is to sow it after the breaking up of the sod; then for one season or two a crop of wheat, barley or oats is sown, followed by seeding to grass and clover, which is cropped for three or four years, and then broken up again to make room for the flax. The manure for such a rotation is best applied to the cereal grains, for farmyard manure applied shortly before the seeding of flax has the tendency to produce a coarse, thick straw of inferior quality. It is also liable to contain more or less weed seed, and as flax is a crop that requires an especially clean soil, it is also objectionable for this crop from this point of view.

The average yield of flax, when grown for straw, is about two tons per acre, including the seed, which, when of good quality, will realize from \$10 to \$12 per ton at the flax mill. When grown for seed it will give an average yield of 10 to 12 bushels of 56 lbs. per acre, which can be sold for 95c. to \$1 per bush.

The flax should be harvested when the stems receive a tinge of yellow, when the lower leaves die, and when the seed balls have become brown. This is now frequently done in a very similar manner to that of grains, care being taken to cut

it low so as to lose as little straw as possible. The old plan of pulling the flax by hand, which takes 4 to 5 days per acre for one person, is, however, still extensively practised in some districts. Flax, the straw of which is to be used, should be tied into small sheaves and kept straight.

We regret that nearly all the flax grown in Canada is exported, for with it we sell a large portion of soil fertility to farmers of other nations. This should not be the case, for linseed, besides having a high manurial value, has also a high feeding value. Compared with oats at a cent a pound, the feeding value of linseed would be nearly 1½ cents and oil-cake 1½ cents per lb. The present market price of the former is one cent per lb., and that of the latter, in ton lots, 1½ cents per lb. This shows that if these foods were fed in a proper ration, they, at their present prices, would be more valuable than oats.

The Beet-Root Sugar Industry.

BY WILLIAM SCRIMGEOUR.

The manufacture of sugar from the beet-root is one of the largest and most important industries in the world. Nearly all the countries of continental Europe not only make all they require for home consumption from this source, but export large quantities annually to England, the United States, Canada and other countries; the United States, alone, in 1886, importing 233,466,445 lbs. of raw beet-root sugar, the total production of sugar from the crop of 1886 being estimated at 2,700,000 tons.

The history of the birth, growth, and marvellous success of this vast industry cannot fail to be interesting and instructive to the student of social economy and the general public, especially as there is every reason to believe that this enterprise would be equally successful in this country, if its introduction were intelligently undertaken, and diligently prosecuted.

Before going further, let it be distinctly understood that sugar made from beets and sugar made from cane are chemically identical; the sap from the beets, however, contains a higher percentage of mineral matters, which are entirely extracted in the process of manufacture.

About the middle of the last century (1747) Margraff, a French chemist, made the important discovery that other plants than the sugar-cane contained crystallizable sugar, and that the beet-root contained this quality in such a degree as promised to be of commercial value. This discovery caused considerable stir in French scientific circles at the time, as sugar was then a very expensive commodity. Nothing practical was done, however, until about fifty years afterwards, when Achard, a former pupil of Margraff's residing in Prussia, succeeded in making a sample of sugar from beets, which, with a full account of the process, he forwarded to the Institute of France. The paper was read and published, but no one would believe that the sugar was made from the beet-root. Doubt and ridicule were the immediate rewards of the savant. Still the Institute decided to appoint a commission to investigate the matter, which after going over the work of Achard, reported that they too had been able to make sugar from beet-roots, but recommended further experiments before pronouncing as to the practical value of the discovery. It took some ten years of experimenting and theorizing to demonstrate the commercial value of the discovery, and among the first to realize its importance was Napoleon the Great. Foreseeing the many ad-

vantages that would follow the successful founding of this new enterprise, and also envious of England's great trade in West India sugars, he, in 1810, decreed that one million francs (\$200,000) be granted to further the new industry. This money was expended in factories and schools of instruction, so that young men might learn the art of making the sugar. He also decreed that all lands devoted to the cultivation of beets for industrial purposes should be exempt from taxation, and placed heavy duties and restrictions on all sugars coming from England or her colonies. While all this was going on in France, Achard, the originator of the industry, had succeeded in getting a large grant from the king of Prussia, for the establishment on his own estate of a factory for instruction in the manufacture of sugar from beets. For some time the new industry made steady progress not only in France and Germany, but also in other European countries, where the interest had been awakened by the reports of the scientific societies, which from the first were actively interested in the subject.

Students from all parts flocked to the schools of instruction, principally Achard's, to learn this art and carry away with them this valuable knowledge, thus leading to the establishment of many factories.

But on the breaking out of the Napoleonic wars, which shook the peace and commerce of all Europe to the very foundations, the new enterprise received a severe blow, from which it did not fully recover for many years. Then again, when trade had somewhat revived, the steady fall in prices consequent on the increased production caused much consternation among the manufacturers, and for some years the profits were not satisfactory, but with improved methods of working and a better class of beets, they were able to considerably reduce the cost of production, which, in turn, led to still further extension of the business, and the opening up of foreign markets, where the new sugar came in open competition with the cane sugar, and, notwithstanding determined opposition, steadily gained a place in the commercial markets of the world.

In 1880 the amount of beet-root sugar produced in France alone was over 500,000 tons, the product of 500 factories. Germany and Belgium were equally active, with Russia and Austria well to the front.

This brilliant industrial triumph was not accomplished, however, without the application of untiring energy and perseverance. The people of each country looked upon this as a national enterprise, and enthusiastically seconded the efforts of those engaged in the work. Scientific agriculturists took the root in hand, and after years of careful selection and skillful propagation, improved it so much that what originally yielded only six per cent. of saccharine matter was made to yield from ten to twelve, and in some special kinds fifteen per cent. Chemists, too, did a great deal in the way of introducing improved methods of extracting and treating the sap, so as to obtain the sugar in greater quantity and of better quality. Skilled machinists also contributed largely to the success by devising new and better appliances for the different processes of manufacture. This short review will suffice to show what a noble work has been accomplished in Europe in obtaining from the soil annually a product valued at millions of dollars, the manufacturing of which provides profit-

able employment for thousands of all classes of the community. This work is surely worthy of our emulation. The next article will treat of this subject from an agricultural and industrial standpoint.

[TO BE CONTINUED.]

The Value of Clover.

The limit of the value of clover for the recuperation of some soils—those deficient in vegetable matter—has not been reached. Mr. T. B. Terry, of Ohio, whose name is a household word amongst American farmers, is one of its strongest advocates. Mr. Terry is not a farmer's son, nor was he brought up on the farm, but he seems to have adopted farming because there was not enough scope for his ambition in any other profession. He has made piles of money out of his farm, and his success may be attributed to the fact that he had no agricultural forefathers whose footsteps he felt bound to follow; he has therefore studied the science or principles of farming, and the practical results will be found by reading any of the leading agricultural journals in the United States. In the Ohio Farmer he thus delivers himself of the clover question:

If one raises winter wheat, or rye, he should sow from 4 to 6 qts. of clover seed per acre, about the first of March in this latitude. The right time is when the winter snow is about gone, and the ground thaws a little daytimes, and freezes nights. I like to sow the first still morning after this kind of weather begins. Last spring it was the last of February. In 18 years I have never missed getting a fair stand in this way. The freezing and thawing of the ground covers the seed perfectly. The seed may also be sown on oats or spring wheat. If sown right on the mellow surface, after the crop is in, the first rain will cover it enough on my soil. With a Cahoon seeder one can sow 4 or 5 acres an hour very evenly. They only cost \$5. I usually sow my 12 acres before breakfast, because it is still at that time, on a clear frosty morning, and the ground is frozen so it is good walking, and is thrown up in just the right shape to catch the seed. No more is to be done to the clover until after harvest. Then, if there are any weeds in the stubble to speak of, run the mower over the ground, set high, so as to just clip the top of the clover and destroy all foil stuff. This is particularly for a dry year. If it is very wet the clover should make rank enough growth to keep the weeds down. It may then be mowed for hay about the 10th of September. All growth after that should be left for winter protection. Never think of pasturing the clover the first fall. If it makes too large a growth to leave on the ground, better mow it by all means rather early; it will then be cut off evenly, and have a chance to grow up evenly for its protection.

The writer was foolish enough, years ago, to think he wanted his mowing land fenced off in lots, so he could pasture it. Three lots were thus fenced. But all except road and pasture and line fences have since been taken up. No animal ever steps on my cultivated land to eat off any crop. I would almost as soon turn on to my wheat field, as on to clover. The stock injure the land, if at all wet, and injure the clover anyway. Of course clover may be sown for pasture for hogs, or for cattle; but I am speaking of a field I wish to get large crops of hay from. Hundreds of times I have seen farmers turn stock on to a new seeded stubble and let them run all the fall, and perhaps during the winter. Some time along in the spring they shut up the fence, and then wonder they do not get a large hay crop. I have seen a great deal of this in riding on the cars during the winter. No man would treat any other crop so poorly.

Treated as I have advised, you may expect a good big crop along the last of June, without much regard to the weather. Clover well treated, and on good, well tilled land, will start in the spring and shade the ground before hot weather

comes, and it can get along then fairly well without rain. The second crop will need rain more, but I never saw it so dry that we did not get hay or seed worth cutting. We have not had a soaking shower since our clover was cut the first time this year. We do not have it so dry more than once in 8 or 10 years; but we have 14 large loads of clover seed, stacked, from 12 acres. It seemed pretty well filled. Meanwhile timothy meadows have produced nothing.

For hay the clover may be cut three times during the season, unless the land is wanted for a fall crop. Then it should be plowed. If not wanted for fall grain it should be broken up in the spring anyway, if one wants to get the most possible good from it. Farmers often complain to me that clover heaves out the second winter. Why, bless you, men, that shouldn't make any possible difference to you. You should have heaved it under in the fall, or at any rate in the spring. Take care of it so as to get a premium crop the first year, and then never worry about its running out—or heaving out; but use the sod with its accumulated fertility to raise you a big crop of something else. That is the way to make money out of clover. My 12 acres brought me 40 large loads of hay the first crop, and then three stacks of seed. The next morning after the seed was off the plow was started in one piece, to fit for wheat. The other will receive one winter's manure, and be turned over in the spring for potatoes.

There are some places in Ohio where farmers have told me they could not raise clover. I do not believe it. They may not be able to raise such luxuriant crops as grow in some parts; but if they manage rightly they can grow a paying crop.

I do not care if the land is hard and clayey, clover will grow if the farmer does his part. I go to market at Akron by what is known as the State road. This passes through about six miles of as clayey country as I know anything about. But the farmers are getting into clover growing. There were several fields there this year that were very fine. The second crop for seed bloomed more fully than mine on lighter soil, and will probably bring as many dollars to the acre as the average wheat crop, with only about half the labor.

I have sometimes thought if timothy seed was \$5 a bushel and clover \$1.50, it would be a blessed thing for a certain class of farmers. One of them came along one spring when I had some clover seed to sell. He asked the price. I told him it was worth \$6 in any market. He declared he would never pay any such price when he could get timothy for one-third the money. Still this man is invariably out of hay in the spring, and probably rather short of money to buy it. It would be about as sensible for him to refuse to pay a man \$16 a month for work, because he could get a boy for \$8. Timothy hay is good, particularly to sell, if one has a large market; but there are thousands of farmers who could, if they would manage rightly, better afford to pay \$10 a bushel for clover seed than to take timothy as a gift. A good clover sod will bring 5 to 10 bushels more wheat to the acre, without any fertilizer, than a timothy. For this purpose then clover seed is worth some \$25 more than timothy. The first crop will give as much hay to the acre as any other grass, on suitable land; then if the second is left for seed, one may reasonably expect 2 bushels per acre instead of nothing, perhaps, or a ton and a half of hay in two cuttings. Tally one more for clover.

It is more work to cure clover than timothy; but not as much as many think, and after it is cured it makes a hay that cannot be beaten for either cows or work horses. Have the barn tight and put the clover in pretty green, as long as all rain and dew are dried off. It takes considerable experience, however, to make good clover hay. And one must be on time cutting. If he is a month behind—well he had better plow it under and feed straw.

The writer was riding through a portion of Wisconsin that is quite sandy, last spring. His seat mate told him it was a great potato section, and gave him a little history of it. Years ago farmers found their crops failing and began to fear they had got to the end of their string. At last they decided to send to Green Bay and get

my venerable friend, J. M. Smith, to come out and talk to them and see if he could suggest anything that would help them. Clover and tillage are his hobbies. Well, he preached clover to them, I imagine, about as I once heard another Wisconsin speaker do. He said: "Farmers, there are three things needed to bring up your land. The first is clover; the second is clover; the third is CLOVER." Now what has the result been? Why my informant said a single county had since raised 1,200,000 bush. of potatoes to sell. They took Mr. Smith's advice and are getting rich by it.

Now, friends, you may think I am prescribing clover too much; but I have taken my own medicine for 18 years, and found it to be a certain cure and pleasant to take. I do not believe a bushel of clover seed was ever sown on this farm before I came here. We mowed over nearly all the farm the first year and got no more hay than one 3-acre field produced this year. Well cared for clover did it. Not only can a well cared for clover field be made to produce far more hay in a season than timothy, but the clover sod will bring more wheat (straw), and more corn, which will winter more cattle, which will make more manure, which will raise big ensilage corn, which will keep more stock—who can tell the limit?

Grooming and Blanketing.

Both the above operations are now extensively practiced in the management of horses, and even cattlemen employ them to a more or less degree. The object aimed at in their use is, in five out of ten cases, only to obtain a nice sleek coat of hair pleasing to the eye, or to follow the fashion of the day. These objects alone, especially the latter, are, however, no criterion to go by.

Grooming has a somewhat similar effect to washing or bathing. It removes the dirt, opens the pores of the skin and causes it to become more active and do its share of the work in the purification of the blood. If the skin is inactive a portion of its work is thrown upon the kidneys, which, especially if weak, suffer from this extra strain and do the work imperfectly. Another function of the skin is to assist the lungs in their action of supplying oxygen to the blood, which oxidizes the carbonaceous matter in it, thereby purifying it and heating the system. A mistaken idea, so prevalent amongst farmers, is that grooming by opening the hair and skin "lets in the cold," whereas the exact reverse is the case, for by removing the dirt and opening the pores oxidation takes place and heat is generated. This heating takes place at the expense of the carbonaceous material of the food, but the increased energy of the organs, caused by the improved condition of the blood, will utilize the remainder better. Grooming and brushing draw the blood to the skin, which in itself, without the cleansing action (which is still better accomplished by washing), will increase its activity, thereby increasing its health and with it the ability to withstand the cold. Exercise has a similar effect and aids this condition.

Blanketing does not increase the action of the skin or any other organ, and does not form heat, but simply preserves that already formed by preventing its escape. It thus acts very similar to a warm stable, which also prevents the heat from being radiated from the body. The only difference between it and a warm, badly ventilated stable is that the former covers a portion of the body and prevents the free escape of the excretions of the skin of that portion of the body, while the latter forms a warm covering for the whole body, and not coming in contact with it, allows the free escape of the excretions of the skin, but some of them are re-absorbed again by compelling the animal to breathe the air contaminated with them.

Both close, warm stables and blanketing make the animals more susceptible to cold when taken out, and keep them in a less healthy condition than good grooming and cool, well ventilated stables—as near 45° as possible for stock in general, and somewhat warmer for fattening stock. This, besides being healthier, is more comfortable to the stock than the other methods of keeping them warm.

PRIZE ESSAY.

Soiling and Soiling Crops.

BY THOS. MACMILLAN, CONSTANCE, ONT.

By soiling is meant the feeding of farm stock with grass, or other green forage, cut and brought to them from the field. In this Province, as a rule, it is a course pursued only when the pastures fail; but to the average farmer of Western Ontario, at least as a system of farm operation, it seems to be little understood, and far less practised.

From reports obtained as to the result of the adoption of this system in other countries, this is a condition of things which seems rather unsatisfactory, when we take into consideration our position, our circumstances, and natural capabilities, believing that this Province is fitted and must ultimately become one of the great stock breeding and stock feeding portions of the American continent. This being so, it becomes the duty of every farmer to study and ascertain the most profitable and economical system which can be followed in the management of stock, with the knowledge at the outset that the development of every animal depends upon the amount and quality of its food, and that the best results in feeding can only be attained by giving food as uniform as possible, both in quality and quantity, during the entire year.

In the summer management of stock, there are but two systems which command our attention, viz: Pasturing and soiling. It is needless to dwell upon the pasturing system, the results of which are well known to every one; suffice to say that in the Province of Ontario, on an average, it requires about three acres to pasture an animal, and that during the heat of summer we are subject to much drouth, when the grass becomes dried up, creating a shortage of pasture, and affecting animals very injuriously during that time.

In pursuing the soiling system, buildings must be so constructed that ventilation is complete. Where cleanliness is strictly observed in stone buildings properly constructed, the comfort of animals, even in the hottest weather of summer, is remarkable.

Animals soiled should be fed in the stall, kept in during the day, with a yard in which they can take exercise and lie during the night. By this method there is no food wasted, and every animal will receive its proper allowance, without disturbance from the others. In order to show the beneficial effects upon stock which result from soiling, I will commence in the spring time. When cattle are first turned to grass it is almost impossible to prevent scouring, whereas under the soiling system you have the animals entirely under your control, and can so regulate their food by mixing the green fodder along with cut straw or hay, as to prevent this; and when we know that cattle are able to assimilate more nutriment than can be gained from grass alone, limited to its powers of digestion, it is evident that we can so complement the green foods with grain and other fodder, as to obtain better results than from grass alone.

Passing on till the middle of July, previous to which time grass is generally good, we come to the time when pastures begin to fail, the hot weather has set in, and the flies are becoming bothersome, all of which, along with the scorching rays of a noon-day sun, are fatal to the beneficial results of pasturing, and must commend

the advantages of the soiling system to the most casual observer. From this time onward the benefits of soiling can be reasonably doubted by no one, and when the fall season has come round the animals are protected from the occasional severities of weather which are experienced from time to time. Thus far I have tried to show the advantages which would result from the adoption of the soiling system during the summer season, in so far as it affects the condition and comfort of the animals, and enabling us to supply them with food in abundance and uniformity during the entire season. These advantages are almost sufficient of themselves to counterbalance any objections which can be raised, and which are extra labor and confinement of stock, the latter of which I will answer now and the former farther on. All ruminating animals are naturally averse to any great amount of exercise to obtain their food, but if it is supplied in abundance, will fill themselves quickly and lie down to chew their cud and fatten. Cattle stomachs are so constructed that nature intended lots of time for rest and rumination. Experience has proved that the best results in the production of milk and beef are obtained under the full soiling system; that animals required for beef and milk need only exercise enough to promote health and a vigorous appetite; and when we know that the first office of food is to support respiration and the natural waste of the body, and that all extra food consumed adds to the growth and the production of milk or beef, as the case may be, it follows that all unnecessary exercise or exertion over what the animal will actually take were the food plentifully supplied, must be a needless drain upon the system.

Mr. E. W. Stewart, in an article in the Country Gentleman, 1887, says: "We have easily grown calves on green food fed in the yard, together with skimmed milk, that weighed 700 lbs. at ten months old. We have uniformly found this system more favorable to the growth of young animals than pasturing—that less grain or milk in addition is required to produce equal results; and that steers and heifers during the second year will make a steady and uniform growth, on the full soiling system, with the liberty of a small lot for exercise." German and French beef growers adopt a strict soiling system, and produce a higher weight at a given age than any pasturing people have attained. It is also the result of observation and experience that the rich, juicy, and succulent foods obtained under the soiling system, seem to be generally favorable to the reproductive power of animals. Against the objection of extra labor can be placed such great advantages as saving of land, saving of fences, saving of food, more manure, and richer soil. Experience says that by soiling, an acre of land will produce as much as can be obtained from three acres pastured in the usual way. The Hon. Josiah Quincy, after eighteen years experience, says: "There is no proposition in nature more true than that a good farmer may maintain upon thirty acres of good arable land, twenty head of cattle the year round." It is known that an acre of good meadow hay, well cured, will furnish food for a cow during five months in winter. Every stock feeder knows that it takes more to keep an animal in cold than in warm weather; and also knowing that under the soiling system an animal can be kept on less ground than by curing hay, it becomes evident to note the great loss resulting through the mismanagement of Ontario farmers

in allowing each animal to rove over three acres of pasture land. Thus the saving of land will enable the feeder to keep double the number of animals; this means, that he can double the product of his farm without increasing the number of acres.

The fence bill is rapidly becoming a heavy burden upon every farmer. Fences now cost on an average of about \$1 per rod. Take a hundred acre farm, fence it off into ten acre fields, with a lane from the back of the front field to the front of the back field, and you have 640 rods of inside fence. Suppose the soiling system will enable you to do away with 400 rods, equal to \$400, which sum capitalized at 7% for twenty years (the time for fence to last), will amount to \$1,440, or a saving of nearly \$75 a year in this item alone, which of itself would almost counterbalance the cost of extra labor. The saving of food would be considerable. In grazing, animals spoil much by walking, lying, dunging and staling, and breathing upon it; while in the house they must consume everything they get, and all weeds such as generally grow upon our land would be eaten and nourishable, while upon pasture they are seldom touched. Soiling would therefore be a complete remedy for weeds; it would make clean farms, and the weeds would pay for their own destruction.

By pasturing, the loss of manure is so great, where it destroys as much feed as its virtue enriches the soil, that by soiling its value is worth twice as much; double the amount of manure will be obtained from each animal kept, and the summer manure will be in good condition to be applied to the land when needed. This reminds us of the truism: more cattle, more manure; more manure, more crops, which leads us to the inevitable conclusion known to every Ontario farmer, that we must increase the productivity of our lands, otherwise we shall be driven to the wall. As the result of reason and experience, it is claimed that the adoption of the soiling system will return to the soil its virgin fertility, which is the greatest argument in its favor; will bring back that fertility, which has been sold by the bushel, thereby causing farmers' sons to leave the pursuit of their fathers, saying there is no money in it. Our own experience tells me that the partial adoption of the soiling system can be followed profitably in the raising of heavy horses, as it enables us to have the animals and their food supply directly under control, the foals become quiet and docile, and will readily learn to feed with their dams, so that there is no loss of flesh in weaning, and no difficulty and annoyance in their after training; but as they are reared for labor, they need much exercise in order to develop their muscular strength.

The principal soiling crops, mentioned in about their proper order of rotation are: rye, clover and orchard grass, timothy and alsike, oats and peas, Hungarian grass, Indian corn. Rye should be sown the previous fall, during the latter part of August or September, and if it gets too rank before snow fall, it should be cropped off. It is a very hardy plant, and will occupy ground when no other than wheat will grow. It has a rapid growth, can be cultivated longer on the same soil, and is less exhaustive than other cereal crops. It should be fed during the younger stages of its growth, as shortly after the heads are formed it becomes tough and stock reject it; but when it arrives at this stage, it can be plowed under, analysts saying that as a green manure it is equal, ton for ton, to common barnyard manure. Orchard grass and red clover both mature about the same time, spring rapidly after cutting, can be grown profitably together, and constitute a valuable soiling food. Next, timothy and alsike, which makes a splendid ration. Both can be grown in the fall, and timothy will be ready to cut for a green food when the alsike comes in bloom. Oats and peas sown together make an excellent soiling crop, both for fattening and the production of milk; will be ready to cut at the same time; will yield a large quantity of food to the acre, and can be sown early, as the seed is not easily injured by the frost. Hungarian grass is greatly recommended by some feeders, and should be cut in the earlier stages of its growth, as it becomes wiry as it matures,

Indian corn is, perhaps, the most common soiling crop in this section, as it yields a heavy return, and is greatly relished by stock. It is very nourishing, but should be fed along with more nitrogenous foods, such as clover, peas and oats, or wheat bran. A point of importance in the feeding of green food is to try and have a variety of ration. Rye should not be fed alone; the percentage of albumen being small, it does not constitute a standard food.

In following a system of soiling, when it is known that most foods only remain a short time in their most preferable condition for feeding, great consideration must be used in putting in the seed; this should be the case in the sowing of rye and more especially corn, when a calculation should be made as to how long they are required, when the seed should be sown at regular intervals of perhaps a week apart, so that when one patch was finished, another would be just ready, and by this means always be enabled to have the fodder in its most succulent state. When the corn is finished in the fall it should be followed by soft early cut hay and meal, along with roots, as the best substitute for other foods.

I am of the opinion that not many years will elapse before soiling will be largely practised, more especially by small farmers, from a sure conviction of its advantages. As it is a system of feeding which requires the exercise of reason and judgment, it should be adopted slowly and gradually by even putting the animals inside night and morning, and giving them a feed twice a day. By this means we will be brought to a practical understanding of its advantages when partially followed, which will lead us to inquire into the method pursued by those who have adopted the system in full. From the nature of soiling foods, the condition in which they are fed, and the great care which must be taken in order to prevent the food from spoiling, and thus putting the stock off their feed, it becomes evident that in order to ensure success we must be particular in every detail, otherwise the best results can never be realized.

The Ensilage Question.

At our Dairymen's and our Creamery Associations, the ensilage boom engaged a good deal of attention. Prof. Robertson, speaking on behalf of the Model Farm, announced at the recent meeting of the Creamery Association that the failure of that institution to make the silo a success was owing to their ignorance, and then he went on to endorse the praises heaped upon ensilage by the other speakers. The following day we went to the Model Farm and found the ensilage to be little better than that made four years ago, which they pronounced to be a failure.

We have already expressed our views upon the ensilage question, and we see no reason for changing our views. We admit the benefits of succulent food as a part of the winter ration for stock, and concede that good ensilage is better than spoiled hay. What we mean by good ensilage is that preserved with little or no change from the original grass, and it has not yet been demonstrated that such can be produced without considerable risk. The claim that double the quantity of stock can be kept on succulent food, compared with the same food in the dry, well-cured state, is inconsistent with science, practice and common sense. It is a mere theory. No nutriment can be gained in the silo, although it may be easily depreciated or lost, and the loss, in well-cured hay or fodder, either in nutriment or digestibility, is little or nothing.

Where farmers can raise an abundance of roots, and where the haying seasons are favorable, we see no advantage in ensilage—even that of the best quality. The fact that the silo has been successful in other countries, where the seasons are unfavorable, is no reason why the boom should spread in Canada.

Stock.

A Chatty Letter from the States.

[From our Chicago Correspondent.]

Average price for 1,200@1,500-lb. beeves in Chicago at the first of the year was about \$4.25, being the same as one year ago, \$1.25 lower than 5 years ago, and just the same as ten years ago. The average price for heavy hogs, \$5.45, being \$1 higher than last year, \$1 lower than 5 years ago, and \$2.70 higher than 10 years ago, when the average price was \$2.75. Average price of good mutton sheep, \$4.15, being 70c. higher than last year, 20c. higher than 5 years ago, and \$1.30 higher than 10 years ago. These figures give some idea of how values have fluctuated.

The year 1887 was a notable one in the history of the cattle trade. Prices descended to the lowest level of which we have any authentic record. There were more failures among cattle raisers, great and small, than ever before. Scores of men who rushed into the business when it was "booming," or rather, after it had loomed, became disgusted, if not bankrupt, and decided to get out of it at any cost. There is a good old saying that the time to buy is when others are anxious to sell, and *vice versa*; but only a few act upon any such principle as this, and that is why we have such exciting "booms" and such disastrous reactions periodically. When prices are down, nearly everybody seems to think there is no limit to how low they will go, or how long they will continue at the bottom, and just so when the inevitable advance sets in. From the way everybody sets about working up a boom in prices, it would seem that the majority must regard it as the one thing to work for, but in reality great fluctuations in values do not result in the greatest good to the greatest number by any means. They are too much like climbing to the top of a toboggan slide; the length of the stay at the top and the time of descent are very short, compared with the time spent on the lower levels and in toiling back to the top again. The average boom, like a toboggan or an old-fashioned bob-sled on a good slide, consumes very little time in getting down, and a great deal in getting up again.

The new year shows greatly improved prospects for live stock raisers. There has been a great overproduction of cattle, and during the past few years the bonanza beef growers have been severely punished. Even if there is another early and sharp advance in prices, the "tenderfoot" chaps who rushed into the business at such a rate seven or eight years ago will not be in so big a hurry, but it is likely there will be plenty of others to take their places.

That there is a vastly better feeling in the trade no one can doubt, and while it is sincerely hoped we shall have no more wild booms, it is a widespread opinion among stockmen of experience that prices will continue on the up grade, as they have already commenced.

Less than ten years ago the live stock business was depressed and unhealthy. Dealers were then hoping and looking for the better times which came and went and are more than due again.

The great drouth of last year was by no means an unmixed evil. Many stockmen learned what they had not known before, that there is a better use for straw stacks than touching the match to them.

A prominent Illinois cattle breeder was recently credited with the statement that the prices received for his holiday cattle—\$5.50@6—lacked \$1@1.50 of paying a fair profit. He may have said so, but anybody who cannot make money at that rate, even on 40c. and 50c. corn, is not a very judicious feeder.

Oregon, Montana and Wyoming sheep, corn-fed in Nebraska and other sections of the corn-belt region, are coming to market freely, and are selling at \$4.75@5.15, averaging 120@135 lbs.

"Nothing ventured, nothing won," is an old saying and a trite one, but the idea of it is not only used but badly abused in the west. There are, of course, more ways than one in which this is true, but the common and almost universal abuse of the idea among common farmers of the west is in loading their property with heavy mortgages at rates of interest often as high as 1 to 3 percent per month. It is said there are now \$200,000,000 on which farmers of Kansas, Nebraska and the southwest are paying ruinous rates of interest. What is the inevitable result of this reckless farming? Bankruptcy in the great majority of cases. Instead of calculating on the worst that can happen and governing themselves accordingly, these borrowers usually "go in deep," and hope for "booming" times to come and help them out.

Profits in Feeding Stock in our Northwest.

BY JOHN KIDD, FAIRMEDE, ASSINIBOIA, N. W. T.

I notice in your December number a table showing the cost of housing heifers to three years old. Now in order to raise a good animal I am satisfied that you are not above the mark, considering the market price in Ontario of the items composing your bill of fare, but I think that I can give your readers a table showing that we can raise cattle equal to your best grades in Ontario for one-half the cost first year and for one-third the second year. Heifers almost invariably calve at the age of two years in this country, and consequently pay their keep the third year.

Service of thoroughbred sire.....	\$2 00
200 lbs. whole milk.....	2 00
1500 lbs. skim milk.....	4 50
100 lbs. chopped oats.....	60
Total for first summer.....	\$ 9 10
500 lbs. hay.....	\$ 75
500 lbs. chopped oats.....	3 00
Total for first year.....	\$12 85

Six months pasture.....	\$1 50
2000 lbs. hay.....	3 00
600 lbs. grain.....	3 60
Total cost second year.....	\$ 8 10
Cost for first year.....	12 85
Total cost of two-year-old.....	\$20 95

A good grade heifer fed as indicated above and in calf would sell here at \$30 to \$40. A good grade steer or a heifer not in calf would require to be kept until two and-a-half years old to realize the same amount, the only additional cost being six months pasture, \$1.50.

4000 lbs. hay.....	\$6 00
500 lbs. bran.....	2 50
500 lbs. grain, chopped.....	3 00
Six months pasture.....	1 50
Total for one year's feed.....	\$13 00

An average cow fed as shown above will make 200 pounds of butter, say at 18c. (that was the average price the past season), will give \$36. Add to this sum the value of the calf, butter-milk for hogs and skim milk after weaning calves, and you will see that there is a profit in dairying in the Northwest, and no loss in stock raising.

Your readers may think that my figures are low, but they are up to market prices. We can buy wheat from the Jews at 20 cents a bushel (they are poor farmers, always behind in seeding, consequently they have more or less frozen wheat every season); barley sells here for 25 to 35 cents a bushel, and we can buy dark colored barley, weighing 48 to 50 lbs. per bushel, at 25 cents. The market price of oats is 20 cents. Now take 21 bushels: say 7 bushels of wheat, at 20 cents, 7 bushels oats, at 20 cents, and 7 of barley, at 25 cents, and you have 994 lbs. for \$4.55. Add to this \$1 for chopping and you have \$5.55 for 994 lbs. chopped grain, equal to 56 cents per 100 lbs.

Hay is selling at from \$1 to \$2 a ton at the stack, and you can have it laid down at the stable for \$3. It costs nothing but the putting up, which can be done for \$1.50 to \$2 a ton. Then again, every farmer has tons of good chaff going to waste every year. I consider after a cow is allowed all the chaff she will use and 1000 lbs. grain, she will not consume two tons of hay during winter.

With regard to pasture, I have my pasture fenced. It cost me nothing but the fencing, as the land was a free gift from the Government, and we pay no taxes except a trifle to schools. Those who have not fenced pastures join together and hire a herder, who takes the stock out each morning to vacant pasture, and returns them in the evening to the corral. For this he receives 25 cents per head per month, or \$1.50 for the season.

I have a thorough-bred Shorthorn cow (not pedigreed), which was eligible for the old herd book but not for the new. This cow calved 4th April last, and is due to calve 21st March. As she was tough to milk, we allowed the calf to suck; another calf was also allowed to go with her, and she raised the two calves; they did well, in fact her own would compare favorably with your Ontario calves when one calf has two cows' milk. The calves were taken off the cow November 1st, and she is milking still, giving almost as great a flow as in summer. I have always succeeded in putting her to a pedigreed bull for some years. The nearest pedigreed bull was eleven miles off, still I travelled that distance, and would travel three times eleven before I would put her to a scrub. But times are changed. My close neighbor, John Stutt, imported an excellent Shorthorn bull with a good pedigree. I put five of my best cows to him last season. There is money in raising good stock here, and the cost is remarkably low.

I was pleased to see you at the Moosomin Agricultural Exhibition last fall. You saw the cattle on exhibition. The fattest beast on the ground belonged to A. Crosson, who says he never fed a bushel of grain to that beast in its life, and you may rely on what he says. You must admit that these cattle would compare favorably with your pampered stock in Ontario, fed on grain, roots and oil cake. I consider there is more nutriment in our wild grasses than in your artificial grasses. I fed stock in Ontario, and with all my attention in feeding and combing, they were not equal to stock here fed on hay, without grain, roots or oil cake.

Veterinary.

Treads on the Coronet.

These are, as the name indicates, injuries to the upper margin of the wall where a ligament secreting the outer dense structure of the horn is situated. They are generally caused by the calking of sharp shoes, and are very liable to injure the ligament above named, which will be very apt to cause what is known as false quarters. Quitters are also liable to be caused by them, if deep, for the orifice of the wound being small, the matter formed to expel the dirt cannot freely escape, and will burrow channels for itself.

Remove all the dirt and sand from the wound, which is best accomplished with a syringe. Then, if much inflamed, apply a cooling lotion, and if the wound is deep apply bandages. If slight, a simple covering of tar will be all that is required.

False Quarter.

This disease arises from an impaired condition of the coronary ligament, which may become injured or ruptured by treads or quitters. It consists in a crack or fissure, bounded on its margin by horn of degenerated character, differing in color from that of the remainder of the hoof. The injury commences at the coronet and works downward, and being permanent, if old, and more or less painful, especially when dirt works in, it must necessarily be considered an unsoundness. If the disease is of recent origin, treat its cause carefully and bring the edges of the coronary ligament, if lacerated, closely together to give them an opportunity of healing together again. If of old standing, little can be done except to fill the crack with gutta-percha to prevent dirt from working in.

Quitter.

This disease is one arising from varied causes, the majority of which are injuries to some part of the foot, such as pricks in shoeing, bruises of the soles, corns, sand cracks, treads on the coronet and such like. Sometimes diseases of the bones and cartilage of the foot cause it. In these diseases and injuries matter or pus is frequently formed, and unless it is timely noticed and allowed to escape it will burrow its own way out. The hoof preventing its escape in any other direction, it will burrow upwards and escape at the coronet. The channel formed during its ascent will be lined with an abnormal growth, which will prevent its healing, even if the original cause has been removed. The presence of these channels or quitters will be first noticed (apart from the lameness they cause) by a swelling at the coronet, in the center of which a quitter will be found, or shortly make its appearance.

The first step towards the cure of this disease, like in all others, is to remove the cause. If caused by pricks in shoeing, remove the shoe and allow free exit of the matter below: the same for other external injuries to the wall or sole. Then poultice the foot, and after the inflammation has subsided inject a solution of corrosive sublimate, one drachm to an ounce of water. This will cause the wall of the quitter to shift away and bring about a healthy growth. Sometimes five grains of corrosive sublimate are dissolved in one ounce of spirits of wine, to which twenty drops of muriatic acid have been added. The solution is injected into the quitter three times the first day, twice the second and once each succeeding day, until a healthy growth takes place. If the complaint arises from dead portions of bone or cartilage, these bodies as foreign matter will have to be removed.

Garden and Orchard.

Our Fruit Experiments.

On our experiment grounds we have not yet undertaken the testing of new varieties of fruits; our fruit growers are doing excellent work in this direction. We have therefore, for the present, confined our attention to the testing of manures and fertilizers on apple and pear trees—also on mostly all classes of small fruits, using only the leading varieties. We are also testing various methods of cultivation and management. We are convinced that this is an important question for investigation, even more so than too exclusive attention to varieties, but it requires much more scientific knowledge. We hope to bring out some facts which will be of practical use to our farmers and fruit-growers.

Protecting Fruit Trees.

L. Mohler, in the Warrensburg (Mo.) Standard, gives below a method for protecting fruit trees against rabbits. As winter is the time when these pests to the orchardist do their damage, the suggestion is seasonable, and if heeded by all our readers, will, doubtless, save thousands of trees this winter. This method is endorsed by the State Horticultural Society, it having been given at the 29th annual meeting and also at the recent one at Boonville:

Wire cloth around the tree is an effective protection against rabbits, and if inserted an inch or two into the ground, is an equally sure protection against the ground mice which often girdle the trees at and below the surface during the winter. There is especial danger from mice if the ground is covered with grass, weeds or the mulch of the summer, which should be removed for some distance around the tree unless the wire mentioned is used. If the wire is used it may be left on as a protection to borers in the summer. Apple, pear, peach, plum, cherry, apricot, quince, all kinds of fruit trees are now nightly exposed to destruction by the rabbits unless protected by some means. The rabbits not having done so before, is no reliable assurance that they will not eat up your orchard this winter. The change in grass and weed plots, corn fields, conditions of hedge rows, etc., also change the haunts of the rabbits and one cannot tell when they will make a raid on the orchard. As a protection sprinkling blood on the trees, rubbing with greasy bacon, or the flesh of the rabbit, as is frequently practiced, may be effective for a time, but these applications are liable to be washed off by the heavy rains, leaving the tree exposed before winter is over. A surer method is to wrap the trees with something. Rye straw, slough grass, heavy paper, rags, etc., are used, and one is as good as the other if the body of the tree within reach of the rabbits is covered.

The value of apple pomace is beginning to be appreciated by many cattle owners in the vicinity of cider mills. Some of the mills are constantly kept clear of pomace by men who cart it away free of expense. In other sections the demand is so great that millers are getting a small price for it, in some cases selling their entire make to a single dairyman, who preserves the pomace in silos. A man in Pennsylvania reports to a dairy convention that he began feeding a peck of pomace per day each to his cows, night and morning, with marked increase in the quantity of milk. The increase continued as the pomace ration was increased till a bushel and a-half was fed to each cow per day. Another found the pomace a complete substitute for the grain he had been feeding to supplement a short pasture. Pomace, like apples or other rich food, must be fed with caution or ill results may follow.—[N. E. Farmer.

Our Horticultural King.

In the accompanying illustration we present to our readers Mr. A. McD. Allan, Goderich, Ont., President of the Ontario Fruit Growers' Association. For the engraving we are indebted to Mr. L. Woolverton, Grimsby, Ont., editor of the Canadian Horticulturist, and Secretary of the above Association. As our readers well know, Mr. Woolverton was a contributor to our columns prior to his promotion to the Secretaryship of the Fruit Growers' Association, and we are pleased to see the recent improvements in the journal he edits. It has been enlarged, presents a handsome appearance, and is well worthy of the cause which it espouses—the horticulture of Canada.

Mr. Allan has also been one of the chief contributors of the ADVOCATE on horticultural subjects, and is already well known to our readers as the ablest authority on many branches of horticulture. In early life he pursued agriculture in the county of Perth, township of North Easthope, the old homestead having consisted of 230 acres, and he endured many of the hardships incident to backwood life. However, through the sympathy and generosity of his indulgent parents, he enjoyed a liberal education, having attended the Stratford Grammar School, and afterward pursued a course of classical studies in the city of Toronto. His early taste for horticulture may be gathered from an address delivered at a meeting of the Fruit Growers' Association held in Stratford about two years ago, by his former teacher, Mr. McGregor, viz.: "I do not wonder at Mr. Allan reaching the highest office in the gift of this Association, as it was well known in Perth that he could, when attending my school, tell all about the various fruits and their names in every garden and orchard within the scope of his travels in the country." His fondness for his classical studies is shown by the various *nomes de plume* which he signs when writing for the agricultural and horticultural press, viz: *Agricola*, *Hortus*, and *Fructus*. Articles from his pen are in great demand by the press of Canada and the United States, and he is widely known on both hemispheres both as a writer and a practical horticulturist. He has a magnificent fruit garden in Goderich, where he delights in conducting all sorts of experiments. He has been the means of drawing attention of the people in Britain to our immense possibilities as a fruit growing country, and is now the king of fruit dealers on this continent. He is also widely known in continental Europe, having extensive correspondence, the result of his attempts to place our fruits on foreign markets.

Some years ago he entered local journalism, having been editor of the *Huron Signal*, but having a strong mind of independent methods of thinking, he developed no taste for politics, and therefore quitted the profession. His sphere is not confined to horticulture alone; he still delights in agriculture and live stock, and he

enjoys the honor of having originated the "Dominion Draft Horse Studbook." He has never sought preferment; it has been thrust upon him, and he undertakes his manifold public responsibilities as a matter of duty, not on account of any ambitious designs.

Unlike other Government organizations, the Fruit Growers' Association, largely through the honorable and independent career of Mr. Allan, is accomplishing excellent work. So strong is he in his avocation, so deeply rooted in the sympathies of his friends and acquaintances, and so enthusiastic in his horticultural pursuits, that he is above all party jealousies and preferences, and he would be the first to stoutly resist any attempts made to introduce party corruption or ungenerous designs into the Association of which he is now President.

Cleanings in Forestry.

The Forestry Report of last year, by Mr. R. W. Phipps, contains some valuable hints. In it is estimated that if in Ontario no coal were used



MR. A. McD. ALLAN, GODERICH, ONT.

for fuel the supply that the original woods with their present management could give would only be sufficient for the next twenty years, and that at the end of that time each average farmer would have to expend between \$100 to \$150 in coal. This would be so much direct loss, for although the cultivated area of the farm would be increased, yet this increase would be necessary to bring up the remainder of the cropped area to its former standard, reduced by the removal of the forest. If, however, the present woodlands were properly preserved, cattle kept from destroying the young undergrowth and the wood economized, they would furnish fuel for a much longer period of time. Forests, if replanted, should be at least 100 feet in width, and placed in the most exposed position of the farm, so that they may, as well as supplying wood, serve for shelter and windbreaks.

The demand for wood by the railroads is so enormous that to supply it they have in some of

the States planted square miles with trees. Railroads of the United States alone require over 12,000,000 acres of forest to keep up the supply of ties necessary to keep their tracks in repair. This calculation does not include the wood used for the building of the cars, the firewood yet extensively used by some lines, and such other demands for wood which will materially increase the area necessary to maintain their requirements.

When raising forest trees from seed they may be sown to good advantage at the time of ripening. If nuts are to be kept to be sown at some future date, they should be kept moist and cool enough to prevent their germination. The seeds of deciduous trees (those that drop their leaves in the fall), should be sown in drills far enough apart to cultivate between them, and three to four inches distant in the rows. They should be planted twice the depth of their own thickness, and mulched until they appear above ground. Cultivate them well for the first two years, at which time they should be transplanted. Place them in rows, four feet apart between the rows, and one foot in the rows. Transplant the nut-bearing trees when one year old, and trim back the tap root at that time. The soil best adapted for the cultivation of seedlings is a well-drained and well-cultivated loam. If this cannot be obtained, and the seeds are sown on a heavy soil, they should at least be covered with a light sandy soil. Evergreens are generally obtained from the original forest. If grown from seeds they are sown broadcast on a well cultivated, light, loamy plot, slightly covered with earth and then mulched with leaves or some similar substance. In this bed they may remain for three years, after which they are transplanted. Evergreens thrive better when in a group by themselves. The seeds of these trees are contained in the cones they bear, which may be collected in fall or winter. These cones if warmed will open their scales and let the seeds—of which the mice are very fond—drop out. A good plan to collect the seeds is to take the boughs bearing the cones, tie them together, wrap muslin around them, and hang them over the stove.

By destroying the forests, and more especially its undergrowth, we also destroy the shelter for the birds of the woods, a large percentage of which are insectivorous. And as we can do as much by preserving and fostering the enemies of the injurious insects than by waging war against these plagues ourselves, we should do all we can to protect our feathered friends. (The English sparrow, or more properly the house sparrow, is not only very injurious itself—doing fully four times as much harm as good—but is charged with driving away the truly insectivorous birds, and their spread should therefore be discouraged.) The life of a forest is in the young trees and underwood; preserve them and you will preserve the forest.

In an estimate by the Hon. Martin Conrad, Chicago, on the profit in a cultivated forest, he

calculates 2,720 young oak trees to the acre, which in the course of time are thinned out until 110 are left to reach the age of eighty years. These are estimated to give 55,000 feet of lumber, which at \$18 per thousand would realize \$990, or an annual return of \$12.37 per acre. The younger trees cut before that time are estimated to cover the expenses the plantation incurs.

In his remarks on suggesting an encouragement to tree planting, Mr. Phipps says: What is suggested is that a large public nursery should be established, where trees of all sorts should be grown from seed, transplanted frequently till good roots were secured, and then given free to those who would undertake to plant and take care of them on their farms. It would be necessary to plan this in a sheltered portion of Ontario, where easily worked soil is cheaply procurable, such as is the land at the mouth of the Don, or in the districts near Niagara or Windsor. Three or four men employed during the season could grow, care for, and send away millions of trees—trees, too, which would be likely to grow and flourish. Those receiving the saplings would, no doubt, be glad to pay the freight, which would generally be no large amount. It is not at all doubtful that by this means, every year, large numbers of trees would be planted throughout Ontario. At present, under the tree planting Act, the Government and Townships pay twenty-five cents bonus on each tree surviving three years. There is every reason to believe that every twenty-five cents expended under the other plan would establish fifty trees.

The longer and larger a tree grows the greater the annual returns that it will give. In France careful investigations showed that, for ship-building purposes, an oak tree fifty years old would give an annual return of 1.9 cents; one 100 years old, 15.2 cents; one reaching the age of 150 years, 38 cents; while one 200 years old gave increase in value at an average of 76 cents yearly. A 50 year old tree is therefore worth \$9.50, while one 200 years old realizes \$152.

Forest and Fruit Deterioration.

A paper by George W. Campbell on this subject before the American Pomological Society was heard with marked attention. The speaker said that where the area of our forests had diminished fruits did not succeed as formerly. This was noticed with apples, peaches and grapes in Ohio. The sudden changes were oftener than formerly. Years ago peaches had been cultivated all over the State of Ohio; now but few were grown in any part of the State. This might be owing to forest destruction; if it was not that, he was unable to tell the cause. Our insect enemies that formerly invaded only our wild forest fruits had now taken possession of our orchards. Birds that once subsisted in our forests now destroyed our fruits. Water, so necessary to fruit growing, had diminished in our rivers. Our people had in a century cut down more acres of forests than the people of Europe had in 2,000 years. Only 16 per cent. of our area was covered with forests, and this was fast decreasing. Some of our prairie States had commenced tree planting in earnest; Nebraska was doing much in this direction.

Upon being questioned, Mr. Campbell said it was a difficult matter to ascertain accurately just what influence forests have on fruit culture. But the careful observer could but notice that there was an influence. Mr. Fuller said the scientists held there was just the same amount of

rainfall that there had been a century ago. It was not the amount of rainfall that was lacking, but it was the hot sun and the drying winds that absorbed and dried up the rain so quickly. T. T. Lyon, of Michigan, thought the cutting away of forests in his State had had an injurious effect upon orcharding. Mr. Caywood, of New York, spoke of the gradual decrease of the water in our streams, and this could be attributed to nothing but the destruction of our forests.

The opinion appeared to be general that some measures were necessary to save our forests for the fruit grower, but just what to do was not obvious.

The Apiary.

Who Should Keep Bees.

At the late meeting of the Ontario Bee-Keepers' Association, held at Woodstock, Ont., considerable attention was directed to the question of who shall keep bees. There were several present who strongly favored the idea that the specialist should be the man, and that the one who did not make bee-keeping his chief business, generally did not succeed. The following paper was given by Dr. C. C. Miller, Marengo, Ill.:

CAN THE SPECIALIST PRODUCE HONEY MORE CHEAPLY AND IN BETTER SHAPE THAN OTHERS? IF SO, WHY?

By *specialist*, in this case, I suppose is meant one who keeps a number of colonies, and makes bee-keeping at least a principal part of his business. Just where the dividing line is between one who is and one who is not a specialist may not be so easily determined. I suppose all would agree that a man who keeps a thousand colonies, and devotes his whole time and thought to bee-keeping, is a specialist; and one who owns a single colony, which is left to take care of itself, without the owner's knowing whether the king or the drones lay the eggs, is not a specialist. Somewhere between these two lines is a ground where it might be hard to tell whether a man were a specialist or not. Without any hair-splitting, however, we may all agree that the specialist in bee-keeping devotes a considerable portion of his time and thought to the care of his bees, and has enough colonies, so that their failure or success may be a matter of serious concern to him. I may as well frankly avow myself as a believer in specialists, but it is well to look at both sides. The general tendency is towards specializing in all departments. Our great grandmothers cut the wool from the sheep's back, and without passing from their hands, the wool was fashioned into stockings or coats. Now all that is changed. At least half a dozen persons take the place of the one great grandmother, each one pursuing his specialty, and so it is everywhere. In an age so keen in the pursuit of wealth, there is no evading the conclusion that there must be money in settling down into specialties, or it would not be done.

There are, however, exceptions to general rules. Take the two cases we have supposed, one man with a thousand colonies, another with one. The thousand-colony man cannot produce honey for nothing, that is clear. He must have something to buy his bread. The one-colony man attaches little or no value to his bees. They cost him nothing, and in the event of a failure of the honey crop, he counts upon no loss, for he has bestowed no labor on his bees, no study or

thought. If they give him a crop, it is so much clear gain. He divides with his neighbor or takes his honey in a pail to the nearest store, and accepts whatever price is offered, as he is not particular what he gets for that which has cost him nothing. He counts it about the same as the wild grapes which grow in his fence rows, and which any one can have for the gathering. Looking at it in this light, as between the man with a thousand colonies and the man with one, does it not look as if the latter has the best of it in point of cheapness? Looking at it no further than this, I do not wonder that some hold the view that every one should be encouraged to keep bees, and that to have honey plenty and cheap, all that is necessary is to have a bee-hive at every man's door. But let us see what is the result of this happy-go-lucky state of affairs. Has not this system been tried? I think close observation will bear me out in saying that before the days of specialists in bee-keeping, when honey "cost nothing," not one family had honey to eat where three now have it. Please don't forget that the plan of having bees kept one or ten colonies in a place, is exactly the system that was in vogue fifty years ago, and is no new thing. Is the system practiced as much now as then? Look around you and see. People are not apt to give up that which is profitable. If the man with one colony can raise honey for nothing, does he follow it up year after year? Very seldom. The fact is, take a series of years and he cannot produce his honey as cheaply as he can buy it of the specialist, and the strongest proof is his own actions. I have just been looking over a list of bee-keepers of ten years ago, and of those who were specialists not one in ten has left the ranks. On the other hand, I recall to mind those who were non-specialists living about me ten years ago, and not one in ten of them to-day owns a bee, although some of them had as many as twenty colonies. Putting these two facts together, do they not show that the specialist can produce honey more cheaply than others? Else why does he keep at it, and others give it up? The fact is, the latter consider it a matter of luck. If walking along the road, I find a silver dollar and pick it up, it costs me nothing, but I would hardly argue from that that finding silver dollars in the road is the cheapest way of getting them as a steady business. Very strong proof, then, that the specialist can produce honey more cheaply than others, is the simple fact that he persists in the business where others give it up. Now why can he produce it more cheaply? Why can you buy your coats and pants at the clothier's more cheaply than your wife can make them? Because the clothier has the proper appliances and knows his business. Just so with the specialist in any line. The man who makes a specialty of bee-keeping, is provided with books and papers, he studies his business, and is the less liable to make disastrous mistakes. Keeping a large number of colonies, he can afford to be supplied with the best implements and labor-saving appliances. Above and beyond everything else, however, is the one reason that the specialist knows his business. Can you expect anything else in any line of business than that the man who gives his best thoughts and energies to that business will succeed better than he who knows nothing about it? To take the middle part of the subject last, the specialist will produce honey in better shape, for the same reason that he can produce it more cheaply, sim-

ply because he has better facilities and because he knows how.

A resolution was passed at the meeting stating that it was the sense of the Convention that no one should keep bees without adequate knowledge and due qualification. There were, however, some who strongly objected to such a resolution, and pointed out the fact that many present had commenced bee-keeping with no experience and in a small way, and succeeded. Whilst an extreme towards either side is dangerous, it is nevertheless a fact that many have embarked in bee-keeping with the idea that they required to gain no experience and the bees required no care. This has been a mistake and often occasioned loss, but there is no reason why a man may not with profit keep some bees, provided he is willing to give this branch of his farm that care and attention necessary to bestow on any other department of the farm.

The temperature of cellars was fully discussed, and 48° to 54° (best 50°) appeared to be the general verdict. No underground ventilation appeared necessary for successful wintering. The moisture of the cellar appeared to have no bad effect, provided the temperature was kept at the required point. Several present had even wintered with water in the cellar bottom during the entire season. Good stores and plenty of them were shown to be an important feature.

Should a horse be stung by the bees, make a smudge of some damp hay and smoke them away; drive the horse into the stable and sponge him with a solution of ammonia. If there is no ammonia at home, make a strong solution of common baking soda, which is always to be found at every farm house. This is as good a cure and as simple as anything known.

Culture of the Apple.

The apple requires for its best development a deep, moist soil with an abundance of plant food in it. It cannot be expected, however, even upon our best soils, continuous crops of large, fine fruit can be grown without returning to the soil an equivalent in plant food of those elements that the soil does not supply in sufficient quantities. Whether this can best be supplied by cultivation with some other manured crops, or whether the land be given up to the apple crop entirely and kept in turf, and all other vegetable production of the land be allowed to decay upon it, are questions which each have their ardent supporters among orchardists.

For myself, I believe in turf culture, from the fact that land that cannot be cultivated may be made to produce paying crops of fruit, and that trees properly treated, under such conditions live longer than those that have their roots cut and torn by the plow. The fruit is generally of more brilliant color and will keep longer. Under no conditions would I advocate the cultivation of the apple or any other fruit without supplying an abundance of plant food. The crop in its present condition is large enough, as we all know, but what the growers of the country must do is to increase the size, color and quality of their fruit by better care of their trees.

As to injurious insects, I will here only touch upon the matter to urge more vigilant fight against them. I would depend more upon the use of swine, poultry and other animals, and the cider mill, for the destruction of the codlin moth (*Carpocapsa pomonella*). I would use more carefully the tar or ink band upon the trunk and Pyrethrum powder to spray the tree with, rather than Paris green for the destruction of the canker worm (*Anisopteryx vernata* and *A. pomataria*), the apple borer (*Saperda bivitata* and *Chrysothrix femorata*). I know of no better method of destroying than with the knife and wire, and would fill up their holes after they have escaped with grafting wax, putty or plaster of paris.—[Prof. S. T. Maynard, in Farm and Home.]

Poultry.

Pointers for Poultrymen.

The Rural New Yorker sent the following questions to prominent poultrymen:

1. How do you provide lime for your poultry?
2. What green food do you feed in winter?
3. How do you prepare nests for setting hens?
4. How do you get rid of vermin?
5. What do you consider the safest way to pack eggs for shipping?
6. Would you consider it fairer to sell eggs by weight than by the dozen?

We amalgamate and condense the answers:

1. Ground oyster shells and granulated bone. Also old plaster and slaked lime.
2. Rowen cut short with a hay cutter and steamed by placing in a tub or pail, pouring on hot water and covering closely for a time. Mangels, turnips and beets cut in halves, chopped carrots, boiled and mashed potatoes, cabbages hung up by the roots high enough to pick at conveniently, and small apples.

3. Make a box about 13x14 inches, or for large hens a little larger, water tight roof preferred, cut straw for nest; put no bottom in the box, and let it set on the ground. Keep the hen on nest eggs for a short time, or until she shows a disposition to attend to business. Keep her closely on the nest until near dark, feed and water, and see that she goes back on. She will soon go on of her own accord, but must be watched if good results are to be attained.

4. Do not get them at all unless buying fowls or chicks. Use insect powder; whitewash often, putting carbolic acid in it; pour kerosene on perches once a month; dust nests and dust bins liberally with sulphur; burn sulphur in the houses, and burn old nests.

[Have found a weak solution of crude carbolic acid—say one gill to twelve quarts of water—the best wash to prevent lice.—Ed.]

5. Wrap eggs in paper, twist the ends, pack in a box with dry sawdust or bran, standing them on the ends, cover up with same material, so that when cover is screwed over it will hold all firm. Use baskets, placing sawdust chaff or bran in the bottom, wrap in paper, cover with same material as packed in, sew a cotton cloth close down over all, tight enough to prevent shaking.

6. Of the seven persons answering these questions, six thought eggs should be sold by weight for culinary purposes; one thought as it took two to make a bargain, it made no difference, as buyers were not obliged to take small eggs unless they saw fit to do so, but that it would likely improve the size of eggs generally.

The Poultry Association of Stratford held a show in the city hall there Jan. 17th to 20th, and scored a success. There were a great many very fine birds on exhibition. The sales, however, were few, considering the number and quality of the stock on exhibition.

Oil, says the American Agriculturist, is fatal to every insect it touches, and sulphur is very offensive to them. A mixture of four ounces of lard and one of sulphur well rubbed together, and with the addition of one ounce of kerosene oil and one drachm of creosote, will be found an excellent remedy against all sorts of insect vermin, while the liberal use of kerosene oil on poultry roosts will free the fowls of their tormentors.

The London Show.

As has been customary, the show of the Poultry Association of Ontario was held the two successive seasons in London. The show last year was considered a success, but although the entries were more numerous and the attendance greater, it did not clear itself. This season the entries were not so numerous, chiefly from the fact that the parties getting out the prize list were very much behind time, and instead of getting them out for distribution six weeks before the show, they were not out until within eight days of the show, many exhibitors not receiving them in time to make entries—many coming with their birds and entering them on the first day of the show. The fault, however, was not with the management, who have certainly conducted this season's work with the most rigid economy, thus making this show pay all expenses and leaving a balance of about fifty dollars. This is not the official statement (which is not out yet), but it will be found close to the mark. The show was held in the poultry building on the exhibition ground. Visitors and exhibitors were delighted with the building for exhibition purposes, being well laid out both for convenience and light. The judges were Mr. Jarvis, Port Stanley, and Mr. Butterfield, of Amherstburg, on fowls, and Mr. Cooper, of Hamilton, on pigeons and pet stock. General satisfaction was given. Several new exhibitors put in an appearance, and, on the whole, the outlook for the Association is better than ever before. The next show will be held at St. Catharines. It has been decided for the future to hold it only once in a place.

A writer in the London Agricultural Gazette says none of the Derbyshire cheese factories net the milk contributors less than 6d (12 cents) per ten pounds; some of the best managed have netted 6½d.

The best judges of live beef cattle do not always know the quality of meat by either appearance or touch. Not one of the carcass awards at the recent Chicago fat stock show went to an animal that took a prize when alive.

English exchanges just at hand tell of a few recent sheep fairs which have been characterized by increased activity and better prices. The little improvement is for stock sheep, in which stock for the butcher's block seems to have no share. The fall sales over there have been well supplied with offerings of a wide range in quality. The manner of conducting sales over there is very dissimilar from ours; in fact in this country nothing akin to the sheep "fair" is known.

To make a paste that will keep labels on tin honey cans, make a good flour paste, and when nearly done add about one-eighth as much of the cheapest pure molasses, and cook for about ten minutes longer; stir to prevent burning. If too thick for use, thin with hot water and stir well before using. This paste, if well made of good materials, will fasten paper or cloth firmly to metal, earthenware, or other packages, and labels put on with it will bear rough usage without marring.

I will give you an infallible preventive which will cost nothing but a little work. Late in the season, before the ground is frozen, cut out all grass near the trunks of your trees with a sharp hoe; then shovel up to them clean soil, hilling up somewhat, and to extend a foot or more around the trees, and pack with shovel or trample with feet, solid. Mice will find no harbor next the trees, nor will they injure them in any way. Try this sure remedy, and feed your oats to your horses.—[Vick's Magazine.]

Commercial.

Farm Produce.

PRICES AT FARMERS' WAGONS.

Toronto, Feb. 1, 1888.

Table listing prices for various farm produce items such as wheat, corn, oats, and livestock.

LIVE STOCK MARKETS.

Buffalo, Jan. 30, 1888.

CATTLE.—Receipts, 11,404 against 11,220 the previous week. The market opened up on Monday 140 car loads on sale.

QUOTATIONS:

Table listing quotations for various types of cattle, including extra beefs, choice beefs, and butchers' stock.

BRITISH LIVE STOCK TRADE.

There has been a change for the worse in the British cattle markets, and values have undergone depreciation, which is chiefly on account of increased receipts, especially from this side.

THE U. S. GRAIN TRADE.

The wheat movement continues restricted, the severe weather in the Northwest curtailing the receipts of the spring grain.

ceipts of wheat for the week at primary markets were 676,000 bushels, against 1,054,000 the preceding week, and 1,133,000 last year.

Wheat exports from Atlantic ports, flour included, were 1,648,800 bushels for the week, against 1,719,800 the preceding week, and 2,537,800 last year—the total Atlantic exports for 29 weeks from July 1 being 69,356,000 bushels, against 69,821,000 last year.

The visible supply statement shows the following comparisons:—

Table comparing wheat and flour supplies for Jan. 21, '88, Jan. 14, '88, and Jan. 22, '87.

Wheat and flour afloat 12,952,000 bushels, against 25,680,000 a year ago.

Total stocks of foreign wheat and flour in principal ports of the United Kingdom on January 1, 1888, estimated as equivalent to 19,400,000 bushels, compared with 15,641,000 in 1887, 25,552,000 in 1886, and an annual average of 17,295,000 for ten years ending a year ago.

BUTTER.

Montreal, Jan. 30.

Butter market dull and inactive, with the whole demand furnished by local buyers.

Table listing butter prices for various locations including Creamery, Townships, Morrisburg, Brockville, and Western.

Correspondence.

NOTICE TO CORRESPONDENTS.—1. Please write on one side of the paper only. 2. Give full name, Post Office and Province, not necessarily for publication, but as guarantee of good faith and to enable us to answer by mail when, for any reason, that course seems desirable.

Correspondents wanting reliable information relating to diseases of stock must not only give the symptoms as fully as possible, but also how the animal has been fed and otherwise treated or managed.

In asking questions relating to manures, it is necessary to describe the nature of the soil on which the intended manures are to be applied; also the nature of the crop.

We do not hold ourselves responsible for the views of correspondents.

Soil Exhaustion.—The "Advocate's" Experiment Grounds.—Quality of Potatoes Affected by Manure.—I read with interest the discussion on soil exhaustion, also your experiment in potato culture.

house, with a good deal of blood in it, that was used. The only trouble with some of our garden land near the city, we pile in the manure year after year, and vary the crop with different kinds of vegetables and roots, but we find in spite of our heavy manuring the crops decrease; then we say the land needs a rest, or is manure sick, so we put our land in hay or pasture for a couple of years.

[We dont think that even well-rotted manure would produce profitable results on a vegetable soil in an average season. We did not test the quality of the potatoes last season, but we did so in somewhat similar experiments conducted by us a few years ago.

Preserving Beef and Pork.—Room for Pigs.—Feeding Charcoal to Stock.—Will you answer the following questions in your paper:— 1. What is the best way to keep beef for summer use, and what should it be kept in? 2. What is the best way to keep pork from getting yellow in summer, and what should it be kept in? We have tried oats, bran, shorts and salt, all without effect.

[1.—Beef is much more difficult to preserve in a palatable form than pork. It is generally preserved by "salting it down" in a barrel, but a plan that is equally as good, or better, is to cut it into large and compact pieces as possible, which are thoroughly rubbed with salt.

The Condition of the Farmer.—Notice that Mr. Thos. Elmes, in his essay appearing in the January number of the FARMER'S ADVOCATE, says: "But this over production has its right side; it has affected all the products of every clime, and what matters it if the farmer receives fifty cents or \$1 for his wheat or products, if for his fifty cents he is returned \$1 worth of tea, sugar, cotton or manufactured goods?"

About Keeping Eggs.—The egg business is an important part of our industry, and cannot be over-cooled. Eggs must be kept in a cool place, the cooler the better; also handled very carefully; rough handling is apt to break the membrane connecting the yolk and white, therefore lessening their keeping quality.

Immense Yield of Wheat in Manitoba.—Have had grand crops here.—One small field of mine, 7 1/2 acres, summer fallowed, very rough and badly plowed, yielded within a few pounds of 60 bushels to the acre of No. 1 Hard.—G.M., Eden, Man.

Killing Lice.—Please let me know in your next issue what is the best thing for killing lice on cattle fed in the stall.—W. A., Carp, Ont.

[There are a large number of applications of about the same merit, such as tobacco water, lard and coal oil mixed together in equal parts, different preparations of sheep dip, and similar lotions frequently described in previous issues. Look at page 20 of our Jan. issue of this year.]

Relative Feeding Value of Wheat and Bran—A Petroleum Paint.—1. What will pay better, to feed pigs with bran at 80 cents per hundred or with wheat at 80 cents per bushel? I have to draw it 12 miles. 2. Is wheat, if fed to pigs, better chopped, boiled or soaked? 3. Is it better to sour the food for pigs, mix it just before feeding, or feed it dry? 4. Can I mix any kind of paint with petroleum for painting rough building, and will such paint become dry and hard?—W. H. S., Sintern, Ont.

[1.—The comparative feeding values of bran and wheat, as given in our Jan. issue, page 1, is as 88 to 102, or if bran is worth 88 cents a hundred wheat is worth \$1.02. Your price for bran is, however, 80 cents per hundred, or 1-10 less than that estimated in the table. Reducing both bran and wheat the same amount does not destroy the relation, and, therefore, if bran is worth 80 cents wheat will be worth 92 cents. Now your price for wheat is 80 cents per bushel, or \$1.33 per hundred pounds, which is 41 cents, or about 4-9 above its feeding value. Therefore, if you can draw the bran for less than 4-9 of its cost, or 35 cents per hundred, it will pay you to do so. But as bran is rather too concentrated, it will be advisable, at least for a change, to mix corn, oats, or even wheat with it. 2. Of the three methods you name, chopping is the best for healthy pigs. 3. Feeding the food dry is the best plan; wetting it will prevent the secretion of the proper amount of saliva which is very useful in the digestion of the food. Under no conditions feed sour food, for it is injurious to the digestive organs. 4. Petroleum paints are very liable to scale off, form but a dull, soft coat, and are therefore rarely used. Painters do not recommend them.]

A Book on Gardening.—Could you give me the name of some cheap work giving practical hints on gardening, useful to a novice?—R. P., Belleville, Ont.

[Gardening for Profit, by Henderson, is the latest and best. See our premium list.]

Quantity of Ashes to be Sown to the Acre—The Quantity of Onion Seed Required per Acre.—1. How many bushels of unleached ashes should be sown to the acre for gardening purposes, and how many bushels of unleached ashes? 2. When is the proper time to sow onions, and how many pounds of seed should be used per acre?—T. R., Wilsonville, Ont.

[1. Quantity depends upon the soil, and the crop intended to be grown. For a crop of potatoes on light sandy soil with abundance of vegetable matter in it a dressing of 30 bushels to the acre can be used to advantage. Soil almost destitute of organic matter should not receive as liberal a dressing. For clay soils 30 bushels of leached ashes will give almost the same effect as the same amount of unleached ashes. The former should, however, be sparingly used on light sandy soils almost destitute of organic matter. 2. The amount of onion seed used to the acre depends upon the quality of the seed and the purpose for which the onions are grown. If mature onions are to be grown, 4 to 6 lbs. of good seed will be sufficient. For table use, when green, and for Dutch sets, a larger amount of seed should be used.]

Removing Warts.—I have a gelding a year old, which is troubled with warts on his lips. When they first appeared they were quite wet, and some kind of fluid seemed to ooze out of them. Now they are perfectly dry, but larger. Would you please give me a remedy for them in your next issue. The colt is healthy and thriving nicely.—W. Y. M., Mitchell, Ont.

[1.—A good method of destroying warts on the lips is to mix nitric acid and sulphur together in such proportions that they will form a mass of about the consistency of paste, and apply this mixture with a stick to the warts. They may also be destroyed by treating them with lunar caustic—which is especially useful when they are on the eyelids—butter of antimony, blue stone and chloride of zinc. When they have a neck they are sometimes removed by tightly tying a silk string around them, but more frequently by cutting them off with a sharp knife and cauterizing the root with a hot iron.]

Spasmodic Colic.—I have a young mare about seven years old, which is attacked about two or three times a year, generally in spring or fall, by a disease which may be colic. She paws with her front feet, rolls violently, gets up again, looks at the flank, passes dung frequently and water sometimes. If done rolling, she lies down as if dead, and groans. Sometimes she refuses to eat for twelve hours after the attack has taken place.—G. K., Brandon, Man.

[Your mare is likely suffering from spasmodic colic, fully described in our last issue of last year, page 238. Give her 1 oz. of laudanum, mixed in 1 pint of raw linseed oil. If not relieved in an hour give 1 oz. of sweet spirits of nitre and 1 tablespoon of ginger in a pint of water. Repeat this latter dose every two hours until relieved.]

Positive Cure for Scratches and Grease.—A correspondent sends us the following cure for the above diseases, which, he states, he has thoroughly tried with unfailing results:—Wash the affected part thoroughly with castile soap and soft water, dry perfectly and then apply, once a day, an ointment composed of 1/4 lbs. mutton tallow, 1/2 oz. of tincture of iodine, 1/2 oz. of oil of origanum, 2 ozs. of turpentine, 1/2 oz. of finely-ground verdigris, and 4 oz. of ointment of rosin, mixed well together. For grease he recommends an application of tincture of iodine before the first application of the ointment.

Cultivation of Beans—Clover for Seed—Hedges for Lawns.—I would like to ask you some questions. 1. About the white beans, their culture, harvesting, and what kind of a market is open for them. Would they do in place of summer fallowing? what is the quantity of seed per acre? What kind of soil is best for beans, and the threshing? 2. About red clover—which is the best way to raise it for seed? cutting early or pasturing till June 20th, and then letting it grow for seed. 3. What kind of hedges should farmers in this part of Ontario plant, that is, about the house, to make a neat and cheap fence for a lawn? If you would kindly give the information in the ADVOCATE before spring you would be doing good work for one of your subscribers.—W. H., Underwood, Ont.

[1.—The bean is a plant very susceptible to frost, and must therefore be sown when all danger of night frosts is passed. They are planted in hills and drills with about equal results. For both methods the rows should be far enough apart to allow a cultivator to go through between them. When planted in drills these are made about three inches deep. The beans are dropped in about 3 to 4 inches apart, and then covered. For hill culture the holes are made 18 inches apart and from 4 to 8 beans planted in each. They are cultivated once or twice a season to keep the weeds down, and a little earth thrown against their stalks, somewhat similar to hilling potatoes, completes their cultivation. When ripe—or even when a little green, if there is danger of frost—they are harvested, which is generally done by pulling them by hand. After they have been lying on the field for several days, and have become perfectly dry, they are hauled in and spread out on scaffolds to prevent heating. They are threshed with flails, run through a fanning mill and then spread out in thin layers to prevent moulding. The soil best adapted for their cultivation is a fertile, warm, light soil. They have only a local market. 2.—Under average circumstance, it is better to make a very early cutting. 3.—Cedar and Norway spruce are both very well adapted for this purpose.]

Superphosphate.—I have a farm considerably run down, and would like to have some information about superphosphate. Should the seed be dropped on it, or should it be covered before the seed is dropped?—C. E. B., Jacksonville, N. B.

[Superphosphate is a fertilizer which supplies a portion of its phosphoric acid in a soluble form, thereby giving more immediate, though not so lasting, returns as ground bone and apatite. It should not be used in combination with lime or any compound containing it in either its slacked or unslacked form, for this will cause the superphosphate to revert into its insoluble form. The majority of soils possessing a great absorbent power for this form of plant food will prevent its even distribution through the soil by natural means, and as this thorough distribution is necessary to insure the best results, the fertilizer, after being sown as evenly as possible on the surface, should be mixed with the soil by thorough harrowing and plowing. This fertilizer is not adapted for hill or drill manuring. The finer the fertilizer the evenness its distribution can be effected and the more valuable it will be for most soils. However, on light sandy soils, if applied at all, it should be somewhat coarse, for these soils, possessing very little retentive power, would lose too much of it. On marly, light, sandy and peaty soils it has not given

very favorable results, and ground apatite or bone could be more economically used in its stead. Superphosphate is very beneficial on soils having a dark color, especially if heavy. It is frequently applied immediately before the sowing of the crop, but its action would be more powerful if applied several weeks before seeding time. Turnips, mangels, beets, in fact all root crops, and some of the oil crops are specially benefited by its application, while for cereals it requires an addition of nitrogenous, and sometimes potash fertilizers, to give the best results. Apart from its fertilizing properties, superphosphates possess the characteristic of shortening the period required for maturing the crop. This, although injurious on light, sandy soils, is a benefit for cold, wet soils, especially if they bear crops that matured late in the season.]

Short Pasture.—In reading your valuable paper, I see question from J. C. S., Danville, as what to do when short of pasture. I will give what I consider one of the best courses to pursue in case of seeds failing to grow. Take some of your poorest and dirtiest land; work it after harvest as thoroughly as time will permit; seed to rye. You can pasture that the next spring before grass is ready to turn on and it will give your other pasture a chance to get a good start. About 10th or middle of June, manure light or heavy if you can afford the manure. Plough, roll it down and before sowing plough again. Work thoroughly and drill up same as for turnips, only have drills closer together. Sow two or three pounds rape seed per acre latter part of June. In sowing in drills you can run horse hoes between drills, and by so doing keep down weeds, and by stirring the soil you will get greater growth, as it will tend to keep the land moist. Rape will be ready to pasture in September and balance of fall. By sowing rape in drills stock will not waste near so much by trampling. By pursuing this course you have early pasture; you also have a crop when other pasture is done or dried up. In a dry season it will also tend to clean dirty land, especially of thistles. Rape will also fatten sheep and cattle very fast, and cows will give a large flow of milk, but the milk will be tainted some by the taste of rape. But butter will have splendid color and will be very firm. We have frequently sent milk from rape to cheese factories and heard no complaint.—T. B., Selina, Ont.

Out-look of the Sheep Business.—The strong demand for all classes of high bred sheep the past season surely indicates an improvement in the business, and I would suggest to flock masters the necessity of putting their houses in order, and although prices have not perhaps ruled as high as in some former years, yet when compared with present prices of other farm products, will compare favorably with them, so that upon the whole flock masters have reason to be hopeful of a brighter future ahead, especially those of the finer improved breeds. But it would only be in keeping with the prospect for the future, for breeders of all classes of sheep to see that all is being done that can be done to improve their flocks. Those breeding for mutton and wool should see to weeding out all ewes defective in any way, and make timely arrangements with some reliable breeder for a pure bred ram for the coming season, and not be forced to do, as many had to do last season, take up with some cull or scrub, that it would be contrary to the nature of things to expect profitable stock from. Upon the selection of a suitable ram hangs the door to loss or profit in the business, whether of the pure bred, or more common flocks of the country. And it behooves the breeders of pure bred flocks to be ever on the alert, and to be determined to improve the improved. Really first class stock will always find a ready sale, even in times of depression. There is now a strong demand in the U. S. for first class reg. pedigreed stock, but in order to successfully meet this demand, and protect ourselves and our customers against fraud and deception, it behooves us to unite in some way to establish a well authenticated record of pedigrees of all the more prominent and leading breeds of sheep. Now the question is whether this can be best and most economically accomplished through a sheep-breeders' or wool-growers' association, with branch associations for the several different breeds, or by each having a separate association and publishing a record for each. I have thought it might be practicable to publish in one volume, under separate heads for each breed, a record of pedigrees that would be satisfactory to all. Would be pleased to have the opinion and suggestions of yourself and your readers interested in sheep husbandry on the question, and hope to see some move in that direction at an early day.—J. J., Woodside, Ont.

[There is still a steady and profitable demand for the leading breeds of sheep, and cautious farmers have made money in the business. Sheep have not been over boomed like the breeds of cattle. There is one evil, however, that should be abolished, viz., the ruination of so many fine sheep in preparing them for the show ring, and the imperfect system of judging. In order to publish the pedigrees of all the breeds in one volume, there must be more harmony and less jealousy amongst breeders than usually exists, otherwise the scheme is an excellent one so long as the representatives of each breed are not strong enough to form separate organizations. We should be pleased to hear from other breeders, and shall gladly aid in promoting any scheme which will advance the good work.]

Family Circle.

THE SEAMSTRESS.

"That will do—yes, it is charming—quite the right style; do you not think so, mamma? I don't believe Madame Michan could have made it better," said Adela Jefferson, exultingly, as she examined a dress which was just relinquished by a pale, gentle, silent girl busily stitching at the other end of the apartment.

Mrs. Jefferson looked critically at the robe. "Yes, it is well—very fair indeed, and Miss Spencer has understood my instructions; but still, of course she could not have done without them."

"I never knew that my gentle, high-bred mother was a modiste," said Norman Jefferson, who had just entered the room, without, perhaps lawful permission.

"Really, Norman, how you do startle one! And your father is coming too. Really, I shall be obliged to forbid the morning-rooms to all male comers," returned the mother, half-reprovingly, half-proudly, regarding her handsome and favorite son.

"My dear mother, the snow is falling thickly, the wind blows like a monster organ in a rage, and the fire in the library smokes, and the drawing-room is in agonies of dissolution, or revival, as the case may be. You really cannot send me away. It is cruelty to animals."

The lady shook her head. She fancied she had detected glances of admiration bent on the simply-attired dressmaker, which she could ill-brook from anyone in the presence of Adela's queenly beauty.

"Of course, there could be no rivalry in this case; but if Norman thought the girl worth looking at, there might be danger ahead."

And Mrs. Jefferson was a far-seeing pilot. "Have you nearly finished, Miss Spencer?" she asked.

"I will be as quick as possible, ma'am," said the girl, calmly, "more especially as I wish to get home to a sick mother."

Mrs. Jefferson pushed the lamp nearer to the workwoman, and then she, her husband, son, and daughter drew near the fire, to chat over the morning's expected festivities.

"It's all very pleasant, getting up these Christmas gales," remarked Norman; "but I often think we are, as a family, sadly deficient in near relatives to share them with us. We are peculiarly isolated in that respect," he continued, musingly.

"Do you know, I often recall a remembrance of childhood, in the shape of a fair aunt, not very unlike our Adela, and a little child, who was even more attractive to my boyish fancy. She was so sweet, so gentle and girlish in every little childish way."

Mr. Jefferson cleared his throat. His wife frowned gloomily.

"Better forget all such nonsense, Norman; your aunt was not one of us. She exiled herself from her family, and deserves no thought for regret at our hands," she said.

"And why not, mother? She did not look like one to commit an evil deed. She seemed purity and sweetness itself," he said, thoughtfully, his eyes still fixed on the fair, wan face of the dressmaker, whose downcast eyes displayed to the full their long, thick lashes.

"No, boy—no. She did but marry beneath herself," interrupted his father, hoarsely. "It was a venial error, and I have often repented I did not bring her to my home, when she was at last left a widow. But we were not so rich then as we are now, and your mother feared the consequences on our rising fortunes, and your sister's future prospects, so I sent her a present, poor thing! and never heard of her more."

"You do not know whether she is living or dead?" said Norman, in astonishment.

"His father was fain to nod assent. "I have no doubt she went abroad, as we advised," put in Mrs. Jefferson. "Very likely she is dead, and her daughter married, by this time. Bless me, Miss Spencer, how you made me start! Have you finished, that you dropped the scissors in such a hurry, and almost overset your chair?"

"Yes, madam, I have finished; and, if you please, I will go home at once," returned the girl timidly.

"It is a dreadful night. Has she far to go? Can she not remain here, Margaret?" asked Mr. Jefferson of his wife.

"No, no, please. I must return to my mother. I do not mind," said the girl, anxiously.

"Very well, then; I will pay you at once." And Mrs. Jefferson, eager to get her dangerous inmate out of the way, drew out her purse, and handed Miss Spencer her scanty dole.

"It is very cheap, certainly. Upon my word, I believe Madame Michan would have charged half as many pounds as this girl has charged shillings," said Mrs. Jefferson, exultingly, as she held up the dress to view. "And it fits beautifully, I must say."

"Then I must say you should have given her twice as much as she charged, my dear, especially with a sick mother, and on such a night," remonstrated her husband.

"Dear me! you would spoil all these people, my dear," said the lady, scornfully. "I'm sure everything is dear enough, without raising them upon us also."

"Only that they are as dear to them as to us," observed her husband. "But where is Norman? He has disappeared during the housekeeping argument."

"Perhaps he has gone to the theatre," said Adela. "He did talk of doing so, I remember."

No more was said, though the mother was not quite satisfied, even with all her faith in her darling son. Still, she was too wise to impart her fears to her husband, who, she was well aware, would only laugh them to scorn.

And when Norman re-appeared some two hours later, she abstained even from asking any hazardous questions on the cause of his absence.

Miss Spencer had wrapped her cloak round her with one hand; the umbrella and veil obscured the light and occupied the other hand.

The snow was falling fast, and the ice becoming impassable, save with the utmost care and steadiness.

No wonder that her limbs trembled after that long day's work, and that in her haste she slipped, and would have encountered a dangerous fall, but for the friendly support of some powerful hand.

She started round, to perceive that her kindly assistant was no other than the son of her employer.

"Thank you. I shall not be so careless again. You are very good," she said, as he offered her his arm. "I am not at all hurt."

"I hope you are not; but you must not run such another risk," he said, persistently.

She was, in truth, too thankful for what was well-nigh a necessary support to refuse longer, and for a few minutes they went on slowly and in silence.

"I quite forgot to ask you where you live," he said at last, with an amused smile at his own absurdity.

"It is not so very far; just out of the Brompton Road; we are near the turning now. I need not trouble you any more," she said.

"I shall see you to your own door," he said, resolutely.

"But," she stammered, "I cannot—I dare not ask you to come in! Mamma would be angry."

"Is she so suspicious or so stern, then?" he asked.

"No, no; only she does not know I work at your mother's; and I would not," she added, sadly, "only for her sake, and I have so little connection."

"I do not understand you," said the young man, in bewildered surprise. "What dislike can your mother have to mine, when she has never, I presume, heard of, much less seen, her?"

"Then you—you do not know me?" said the girl, her feelings seeming to break through all reserve.

"I do not understand you," said the young man, in bewildered surprise. "What dislike can your mother have to mine, when she has never, I presume, heard of, much less seen, her?"

"My aunt and cousin!" repeated Norman, stopping short. "Then, can it be—is it possible that you—you are—"

Your cousin, Maud Dasant," said the girl, sadly. "I ought not to have told you, perhaps, and you must keep my secret, only I am so desolate, and when I heard your kindly words, I could not help it—indeed I could not, and I fancied you remembered the little Maud of whom you spoke so kindly."

"And you are reduced to this—you, my father's niece, are compelled to work for your living—to be exposed to such insolence—such hardships!" he exclaimed. "Maud, no wonder your mother hates our very name, and that your lip curled with scorn, as I noticed but now, at my poor mother's vain boastings."

"Hush—hush! If it did, I was wrong," said the girl, eagerly. "You must not speak or think thus of your mother, Mrs. Jefferson. Then, too, your sister is so lovely—no wonder she's proud of her, and—"

"Call me Norman; give me but the chance of seeing your mother—of imploring her pardon, and I will do anything!" exclaimed the young man.

Maud shook her head.

"I can call you Norman, if you like, for the name seems so familiar to me from my very childhood," she said; "but to take you to poor mamma—to agitate her by the knowledge of my deception—for such, I fear, it must be called—would be impossible. No, no; you must leave me now. Mamma will be only alarmed too much already; but I shall not forget your kindness, cousin Norman," she added, with a sweet, childlike smile.

The young man longed to kiss the pretty lips turned so temptingly towards him; but he was too generous not to respect her loneliness, and he contented himself with pressing the small hand as he turned away.

But he followed at a distance till he saw Maud safe at her own door, and walked home slowly and silently, musing on the eventful walk.

and after all that has passed? I will never speak to her, nor him either," gasped the mother; while Adela sneered as scornfully as she dared before her determined father, on whom her chief pleasures and comfort depended.

"Quite a mistake, my love. Maud will have £5,000 from a distant relative, who has kindly taken himself off this world's books. But, mark me, Margaret, had she been penniless, I would have taken her to my heart as a daughter, thankful to atone for the past sin to her and her mother."

"And is she living—your sister?" asked the wife, sullenly.

"Thank Heaven! yes, though in most fragile health," replied her husband; "but she will want for nothing that wealth can give to restore her to strength and prolong her life. But are you not anxious to see your new daughter and sister, ladies?" he added, triumphantly. "I would not announce her till I was prepared to prove my words by producing my little jewel." And, opening the door, and disappearing for a few minutes, he returned, leading in Maud, now blooming and blushing like a rose, and dressed in elegant though most simple and inexpensive costume.

"Miss Spencer!" burst from both mother and daughter.

"Why, my dear, you said—" continued the former.

"I said the truth, and no more; and another time I will explain all," interrupted Mr. Jefferson. "Now give a welcome to our future daughter—our long-lost niece."

Mrs. Jefferson inwardly confessed that Maud was almost as lovely and more graceful and refined than her idolised Adela, and that she could not be ashamed of so graceful a girl with £5,000 as a portion. And when she was persuaded to accompany her home, and saw the gentle, fragile sister-in-law, who was yet so unrepining and patient, and when she did really satisfy herself as to the truth of the wonderful legacy asserted by her husband, all scruples and anger passed away; though it may be feared she scarcely repented the cold unkindness to Miss Spencer, while petting the lovely Maud Dasant. Nor did she ever know that her husband had risked hundreds of his own money to establish his sister and niece's claim as the next-of-kin to the deceased relative of Mr. Dasant, or that long ere its success was certain, he had given his sanction to Norman's love for "THE SEAMSTRESS."

S. D.

Never Become a Household Drudge.

A woman should never allow herself to become a mere household drudge, and when she finds she has no time to read an occasional good book, to write a letter to a friend, to read a story to the children, or to walk or talk with her husband, she may conclude that there is something wrong somewhere in her domestic economy, and the more quickly she recognizes and remedies the evil, the better it will be for herself and family. If she is obliged to do her own family sewing, every tuck or ruffle that she puts on her children's clothes is a crime. The hour or hours spent in making an elaborate dress that baby will look "lovely" in is a waste of energy that a mother who does her own work cannot afford. Baby will look quite as lovely in her eyes in a plain slip, and if he has only his elaborate dress to recommend him to the eyes of others, he might rather pass unnoticed. Give the matter serious thought, oh tired housekeeper, and see if you do not daily take many unnecessary steps, and do much that you might, without injury to anyone, leave undone. Rest your body and improve your mind, keeping your face and heart as fresh as possible, as you value the love of your husband and children.

Spiders' Eyes.

The more you study into things, the more wonders you will find, even in things so small as the eyes of a spider. Eight is the usual number a spider has, and in each branch of the family they are differently arranged to suit their way of life. Those which live in caves, or dark holes, and need to see only before them, have all the eyes in a group on the front of the head. Spiders which live in a web have the eyes raised so that they can see all about them, and those of the family which travel about and hunt their prey have them more scattered. They are very beautiful, too—looking under a microscope like round polished diamonds.

Minnie May's Dep't.

MY DEAR NIECES.—Are you enjoying yourselves as you might? While enjoyment is not the only nor even the primary thing in life, it is important because it generally goes with a sound body and a clear conscience. At this season I want to talk to you about a good time in the way of skating, tobogganing, coasting, snowshoeing, etc.; for I do think that among farmers' daughters there is too great a tendency to view these sports as childish, and we behold the girl of eighteen or nineteen preferring to sit by the fire and read (a novel?) or crochet, while her young sister goes out, and, inhaling the fresh, invigorating air, lay the foundation for a strong mind and a strong body. Perhaps this is the reason why so many girls, who are healthy at fifteen, are weakly at twenty-five.

What youthful pleasure greater than that felt when making bold, sure strokes over the ice, or flying swiftly down the hill on a toboggan or sled? Do let us try to keep more of the free, unconventional gaiety of the child, who laughs not because it is expected of him, but because he feels like it—it rings through him. So many things are done now-a-days because some fashionable person has set the example. It is not wise to lay aside ALL rules; many of them are calculated to keep the social atmosphere pure and wholesome; but neither is it wise to be a slave to them—to withhold an honest opinion for policy's sake, or for fear of offending some one. If more people would speak out, a great many sad mistakes would never be made. Of course there is an extreme of candor, in case of those who always speak bluntly, and if they have a disagreeable thing to say, do not soften it so as to avoid wounding the feelings of sensitive persons. The Golden Rule of "doing unto others as we would have them do unto us," will settle a great many questions of "shall I?" or "shall I not?" in these cases. If we try to follow this grand old guide, it will bring more happiness, and hence more enjoyment, than aught else can ever bring. We are never happy unless self is right, are we? If at night we remember that we have done a mean act, or failed to come up to the standard we have marked for ourselves, how miserable we feel! Perhaps our standard is not very high, as, for instance, we may only aim to show *justice* and forget *mercy*, but if we earnestly seek to reach that standard, it will be placed higher each morning than on the preceding one. It is necessary that we bring ourselves up to some mark, if we would keep our self-respect, or be happy, and we cannot do this without constant effort. A book of stories may be much more attractive than a book of Euclid, but if we would have strong intellects, able to solve even one of the intricate problems of the day, we may not feed them entirely on stories.

Now, my dear nieces, I'm afraid you'll call this more of a lecture than a letter, but, believe me, only kindest wishes are entertained for you by your aunt,
MINNIE MAY.

Why are our entertainments such laborious undertakings, and the giving of large parties looked forward to with dread—for who that has gone through it does not remember the tribulation attending the preparations, from the time the invitations were issued until the last guest had departed? The fault lies all with ourselves.

We invite too many at once. Our real friends number very few, and we extend invitations to every one we know and care little about, and from whom we expect to get nothing in return, for what circle has not got its social sponges? Did we ask fewer and ask oftener, we could put a little more cheerfulness into the operation, and get a little more enjoyment from it ourselves. No hostess can say she has enjoyed her own party. Many young housekeepers have a wish to entertain, but are deterred from doing it at all because they cannot do it on a scale of magnitude like their neighbors. Their own little dining room is furnished with all that is requisite to invite a few, and what more enjoyable form than two or three real friends to dine? Set apart one or two evenings every week, and a trifling addition to your own dinner will be enough for friends. Believe me, you will enjoy this far more—so will your friends.

Things that are New.

The Bon-bon Tray now has a place upon my lady's tiny table, and the morning caller shows his or her proper appreciation of the dainties by helping themselves with the tiny gold tongs. Crystallized violets and delicious chocolates are amongst the favorites, but any sort of bon-bons are allowable, even to the old-fashioned peppermint. Pretty china dishes formed like a leaf are most in favor, but any lovely piece of china will answer.

White lawn handkerchiefs, with beetles of black lace set on each corner.

Oyster forks have handles of fine china.

A muff of leopard skin with a silver-tipped claw at one side.

Serviettes of white damask, embroidered in gold thread.

A pen-wiper that has for its outside leaf an enormous postage stamp printed on cloth.

Recipes.

SPONGE CAKE (good a week old).—Beat four eggs together until very light; add two cups of sugar, beat well; add slowly two-thirds of a cup of boiling water, two and one-half cups of flour, two teaspoonfuls of baking powder, a little salt, and extract of lemon. Bake in a slow oven.

TO BAKE A FRUIT CAKE.—When your cake is ready for the oven, put it into your steamer instead, and keep boiling for four hours, if large; then put into a slow oven for an hour. It will turn out with a nice brown crust, not burned.

OIL CLOTH.—Never wash an oil cloth. Wipe well with an old bath towel wrapped around a broom, and it will look much better than if washed. Then rub lightly with warm linseed oil; wipe off thoroughly with a clean cloth.

JELLY.—Excellent jelly can be made from pigs' feet. Parboil until the hoof and hair can be easily removed; boil until very tender in water, strain the liquor and set away to cool. Next day skim off every particle of fat; whip the whites of four eggs to a froth, stir them into it when boiling; strain through a jelly-bag, and you can add wine, lemon or any other flavoring; sugar to taste.

CELERY SALAD.—Chop fine one head of celery, saving the green tops; mince the remains of any cold chicken, turkey or game, and add to it a little black pepper and salt; toss all well together with a fork and spoon; boil two eggs hard, cut the whites in rings, and place fanci-

fully on the top; rub the yolks with four table-spoons of melted butter, and pour over. Ornament with the green leaves of the celery.

BROWN SAUCE FOR PUDDINGS.—Put one tablespoon of brown sugar into a frying-pan; stir until brown, but not burned; pour in half a pint of milk or cream, and add a small pat of butter.

MUTTON CHOPS.—Cut six nice chops from the ribs, with rib about six inches long. Scrape it from the flesh, leaving the rib bone bare; dip in egg and bread crumbs; fry a nice brown in dripping or lard; serve around a pyramid of mashed potatoes.

HEAD CHEESE.—Split open a pig's head, cut off the two jaws, wash clean. After taking out the eyes and ears, boil in plenty of water until very tender; place on a large dish and cut all the meat from the bones and skin; put the bones and skin back into the water and boil until reduced to a quart; strain and add one teaspoonful of black pepper, one of powdered sage and salt to taste; put in the finely chopped meat, simmer for an hour and put into moulds to cool.

Babies' Biographies.

A pleasant custom, that I am sure more mothers would like to observe if they knew of it, is that of keeping a brief record of baby's life. Our children's earliest years must ever remain a blank in their memory, and who can tell with what delight they may in after years peruse the pages that may give them a clue to the happenings of that wonderful period?

Once, when looking over some rubbish in my mother's garret, I found a package of old letters, some of which had been written by grandmother to my mother when I was a tiny infant, and never shall I forget the eagerness with which every word referring to that remarkable baby was devoured. The color of hair and eyes, weight at birth, a suggestion concerning the name, etc.—all were invested with a strange charm for me; yet the facts were pitifully meager; and when my own sweet baby came I resolved to keep for her future gratification a systematic record of her progress and achievements. To be sure there isn't time to do much at once, but I plan to write at least a few lines each month, even though baby has to sit on my lap during the operation.

It takes but a few minutes, and if the darling, when grown, shall value her baby history, surely the reward will be sufficient. Such a record could conveniently be kept in a small blank book and in any way desired. Mine begins with a newspaper notice of baby's birth, and is followed by a minute description of the interesting little maiden. Then in order of occurrence are chronicled the principal events of her babyhood, together with many hopes, reflections and prayers of her mamma. When baby was a few months old we printed her tiny hand and foot on one page by carefully rubbing ink on them with a sponge and pressing them on the paper. What would not you and I give if we to-day could see the imprint of our own baby hands or feet?

A lock of silken hair graces one page, and here and there throughout the history are short poems clipped from papers and magazines by way of variety, and which are, of course, appropriate for baby. Other features to make the account interesting could be added from time to time as taste or ingenuity might suggest, and the history itself could be as lengthy and complete as time and inclination permitted. But if no more than five minutes in each month could be devoted to this purpose, I would earnestly recommend every mother to do so much for the future happiness of her little ones.
RENA ROSS.

Cutting Red Tape.

[Interview between a negro and a sentinel at armory gate, Richmond, just after the war.]

Sentinel—"Halt!"

Negro—"What I gui halt for?"

Sentinel—"No one allowed in here."

Negro—"But I bleege ter go. I got a note for de boss."

Sentinel—"No one allowed to go in without a pass."

Negro—"But I tell you I bleege ter go in; Mr. Annerson he sent me."

Sentinel—"Cant help who sent you; you can't go in."

Negro—"Well, den, you gimme de gun an' you take de note."

Palace in the Island of Jugnavas.

The Island of Jugnavas is near Oudeyvoor (the city of the rising sun), the capital of Meywah. It is literally covered by a series of palaces, which extend over an area of one hundred and fifty acres. These palaces contain reception halls and apartments, and baths and kiosks of the most beautiful architecture, ornamented with a richness quite fabulous. Marble is the only stone used in this construction, pillars, vaults, reservoirs, garden walks, all are of marble, either black or white; the walls are ornamented with glittering mosaics, and the principal chambers are decorated with historical frescoes. Each mass of building has a garden attached to it, surrounded by galleries, where flowers and orange and lemon trees grow near a stream, the different channels of which form a curious pattern. Immense mango trees and tamarinds shade these beautiful places, while the coconut and the date palm raise above the very domes their feathery heads, which are gently swayed to and fro by the breeze from the lake. The smallest details harmonize with the beauty of the whole scene.

A HARSH REMINDER.—"My dear," said a gushing young wife to her practical husband, "what do these wailing, sighing October winds remind you of?" "They remind me of the fact," he replied, somewhat sadly, "that I have got to arrange in some way for a winter's stock of coal."

INNOCENCE.—"What a lovely cane that is you have there, Mr. De Garmo!" she remarked, as he struggled with a stick nearly as big as himself. "Yaas," he drawled. "The man I bought that from assured me that it was a piece of the genuine north pole. He procured it from the cook of the Greely expedition. Only one of its kind, yer know, in the country."

Feeling at Ease in Society.

O dear, I can remember perfectly the first formal evening party at which I "had a good time." Before that I had always hated to go to parties, and since that I have always liked to go. I am sorry to say I cannot tell at whose house it was. But I could tell you just how the pillars looked between which the sliding doors ran—for I was standing by one of them when my eyes were opened, as the Orientals say, and I received great light. I had been asked to this party, as I supposed, and as I still suppose, by some people who wanted my brother and sister to come, and thought it would not be kind to ask them without asking me. I did not know five people in the room. So it was that I stood sadly by this pillar, and said to myself:—"You were a fool to come here where nobody wants you, and where you did not want to come; and you look like a fool, standing by this pillar, with nobody to talk to." At this moment, and as if to enlighten the cloud in which I was, the revelation flashed upon

enjoy it as thoroughly as I enjoyed staying at home.

As it is with most things, then, the rule for going into society is not to have any rule at all. Go unconsciously; or, as St. Paul puts it, "Do not think of yourself more highly than you ought to think." Everything but conceit can be forgiven to a young person in society. St. Paul, by the way, high-toned gentleman as he was, is a very thorough guide in such affairs, as he is in most others. If you will get the marrow out of those little scraps at the end of his letters, you will not need any hand book of etiquette.—[E. Hale, in Our Young Folks.]

Fashion Notes.

Apron fronts are again a feature in skirt making.

Jerseys have come to be more popular than fashionable.

Moire silks have lately become exceedingly fashionable.

The four-in-hand is the most fashionable scarf just at present.

Stripes have superseded checks in cloths for men's business wear.

The redingote and polonaise are the favorite styles in street costumes.

A new idea in gentlemen's watch chains is a series of variegated gold squares.

Tailor-made walking suits will change but little in cut from those of last winter.

An odd brooch is a crocodile's head of turquoise, with jaw and eyes of diamonds.

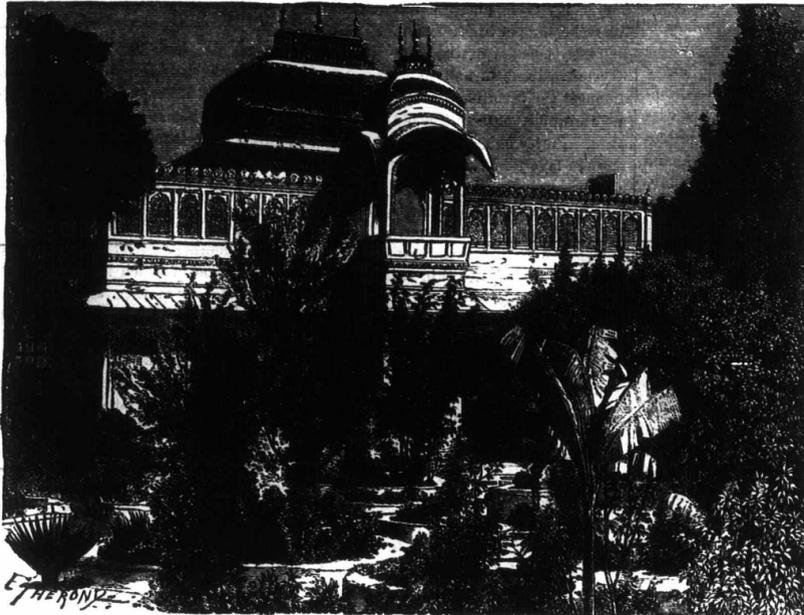
Dress suits of fine worsted material have superseded the once universal broadcloth.

"PULLED BREAD"

—AN ENGLISH EDITOR.

Pulled bread is an edible that ought to be on every American table. It is designed to be eaten with cheese, and it is delicious. Take a loaf of freshly made bread, and while it is still warm pull the inside out of it in pieces the size of your hand or smaller. Put these into the oven and bake them a delicate brown. When cool they are crisp and as full of flavor as a nut. Eat pulled bread once with your cheese and you will want it often.—[London letter in Boston Herald.]

"What other business do you follow besides preaching?" was asked of an old colored man. "I speculates a little." "How speculate?" "Sells chickens." "Where do you get the chickens?" "My boys fetch 'em in." "Where do they get them?" "I doan know, sah. I see allers so busy wid my preachin' dat I ain't got time to ax. I was a gwine ter inquire de udder day, but a 'vival come on an' tuck up all my time."



PALACE IN THE ISLAND OF JUGNAVAS.

Asleep or Dead.

The alligator of the Nile is a ferocious brute. Its usual length is eighteen feet, but a specimen caught at Siam and dissected by the Jesuits, measured thirty feet long, and four feet nine inches in the thickest part of its body. It was covered with skin which adhered firmly to the skull and jaws, and the skull was rough and uneven in many places. The eyes were small in proportion to the rest of the body, and like the jaws of all animals, the lower jaw only moves. The animal had twenty-seven cutting teeth in the upper jaw and fifteen in the lower, with many void spaces between. The distance between the jaws when opened widest was fifteen inches and a half, and could easily take in a man. From the shoulders to the tip of the tail the animal was covered with large scales of a square form, disposed like parallel girdles. The strength of the crocodile is very great. Its principal instrument of destruction is its tail. With a single blow of this it overturned a canoe, and seized upon the poor savage who was in it. The crocodile, except when pressed with hunger, seldom quits the water. Disappointed of his fishy prey, then he crawls into the ridges on the banks, as our illustration shows, and lies so motionless one would think he was dead or asleep. A dog, a bull, a tiger, or even a man, becomes a victim. With a spring it seizes its prey and goes on a bound for the water, where it immediately sinks to the bottom and quickly drowns it. The crocodile, brought into subjection or bred up young, is used to divert and entertain the great men of the East. It is often managed like a horse. A curb is put into its mouth, and the rider directs it as he thinks proper. Though awkwardly formed, it can proceed with some degree of swiftness. The natives of Africa bait a large hook on a very strong line, with a big piece of meat, which is instantly seized and swallowed when thrown into the water. It flounders and struggles until quite exhausted, then they pierce its belly, which is the tenderest part, and it dies; then it is drawn ashore. There is a powerful smell of musk about these animals, and travelers are not agreed as to what part of the body these musk bags are contained, but the most probable opinion is that the substance is amassed in glands under the legs and arms. The flesh is coarse, and even the negroes cannot digest it, but the eggs are considered the daintiest morsel in the world. The female deposits from eighty to one hundred in the sand, when she securely covers them up. In thirty days she returns, and, scratching away the sand, sets the young ones at liberty. They quickly avail themselves of their freedom, and scatter in all directions, for they run unguided to the water. By far the greater number are destroyed. The rest find safety in their agility or minuteness.

Crowded over—The cornfield.

Fault-Finding.

One of the easiest things in the world to do is to find fault, and in no place are there as many opportunities for indulging in this kind of work as in the home. There are so many little things occurring among its inmates where there is a family of any size, such as the misplacing of a garment, leaving a door ajar, uttering a thoughtless word, in fact, a great many trivial things that to people inclined to find fault will give plenty of cause. It is a disagreeable thing to find fault, anyway, to most people, yet there are some who seem to like to do it simply for the sake of finding fault. These people do not mean to be chronic fault-finders, and it never occurs to them that they are. They would not for the world be thought disagreeable, and but for this one trait, would be generally very pleasant companions. They did not acquire this habit at once; any of their friends will tell you that there was a time when they were not so; but they began by noticing every little failing or supposed failing among their acquaintances, and the habit grew with them until it appeared as part of their nature to notice and condemn every little fault, supposed or real. They are very far from being perfect themselves; in truth, they think so much

ingly offer all the help in their power when it is needed. Such people get along very well with the fault-finders, for they laugh off remarks over which most people would be inclined to feel hurt. A genial, smooth-going disposition is an excellent one to possess, and the more we have of these kind of tempers the better; but all people cannot be of easy-going disposition, in fact, a disposition of this kind is so rare that when once we have a friend of this temper we do not often care to lose him, and when once gone we feel his loss far more than many friends of older growth.

—[Ex.]

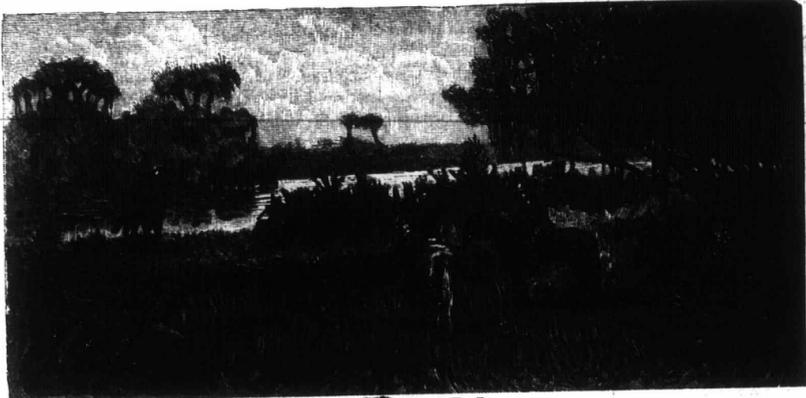
My Own Sweet Love.

It's true she writes a scrawly hand
Puts in two "t's" where one would do,
And spells dog with an extra "g,"
But not a girl in this wild land
Is half so dear, and very few
One-tenth as sweet as she to me.

Dear thing! she sometimes says "I seen,"
"They was," "I's not," or "So be you,"
"Them's yours," "They's good,"—harsh to my ears.

But she is still my lovely queen,
Whose heart-beats are to mine most true,
And will be yet for many years.

Some say that love is blind, and I
Would add that love is deaf, also,
Though grammarless, and spelling bad,
My love is handsome, sweet and shy,
The secret of our love you'd know?
She's only five, and I'm ter dad.



ASLEEP OR DEAD.

about others' imperfections that they have very little time to attend to their own. They would be grieved and hurt should their friends retaliate by noticing every little eccentricity of theirs, and, perhaps, had their friends the courage to do so, it might open their eyes to the unpleasantness of fault-finding. It certainly would be a disagreeable duty, if duty it might be called, and few people would care to do it, unless of the same stamp as the fault-finders, in which case it would do very little good.

No one likes to have his faults noticed, least of all does he like to have every slight remark made exaggerated into a fault. Everybody has faults of some kind, and most people fully realize how great or small they may be, but nobody cares to be reminded of them every little while. To be sure, there are some people who are perfectly indifferent to fault-finding. They will laugh over any reference made to their failings in a good-natured way, and haven't the least fear of what anyone may say in regard to them. They are always the most genial kind of people, smoothing over all the difficulties for others that come in their ways, for they never think of finding fault with anybody, but will

ical action due to friction, but attack the metal, the result being generally lead carbonate. Minute quantities of lead introduced into, and accumulating in, the system must rank among the causes of anemia and defective nutrition in large towns.

SUPERFLUOUS HAIR.—The removal of superfluous hair from the skin is possible both by means of depilatories and by electricity. The former are mostly preparations of sulphide of barium or sulphide of calcium, and the process by electricity is very slow, each hair root having to be killed separately.

HEALTHFULNESS OF OYSTERS.—A wealthy New York physician declares it as his belief that "the oyster is the most healthful article of food known to man."

"Mamma," said a little boy, as he left his bed and crawled into hers one night, "I can go to sleep in your bed—I know I can; but I've slept my bed all up."

He had evidently studied history.—She—"Freddie, how often have I told you not to play with your soldiers on Sunday?" He—"Yes; but, mamma, this is a religious war."

WOODEN BOWLS.

—In buying a new wooden bowl, it is well to remember that if you grease it well on the inside, and stand it near the fire, where it will soak in, it will save it from cracking.

LEAD MECHANICALLY MIXED WITH WATER.—It has been proven beyond all doubt that waters which circulate or stand in leaden pipes or vessels not only take up particles of lead through mechanical

Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES.—In my last letter I drew aside the curtain of my studio and showed you a picture, which I trust you have looked upon with some degree of interest and pleasure, and hoping that you may again have leisure to bear me company, I would show you other pictures in this novel gallery of mine.

As I have often spoken to you of the wasting of the moments, and as I wish to deeply impress on your minds the loss anyone sustains in so doing, we will draw the curtain and look first at the picture here on the right. Like the other pictures we have looked upon, the more you study it, the more you can see in it. Your first impression is that the picture before you is simply a portrait, evidently some shrewd professional friend of mine, you say; you can read that in the whole bearing of the man. You are right so far, my nieces and nephews, but you are only beginning to see the picture. Ah, your eyes brighten, my nieces. They are sharper than your brothers'; you see more now. Yes, that is my friend's home in the background—a home of luxury and culture and refinement, a home where the worrying cares of business being laid aside, he can enjoy real and true domestic happiness, a home from which he can go each morning fortified for his day's work, because he knows he has the most cordial sympathy of her who makes his home a relic of the Eden we have lost. His is the conscious and blessed knowledge that as he goes down to the battle she that carries at home is praying for his success. My nieces, can you point the moral contained in my last sentence? It is neither the luxury nor the culture, neither is it the refinement that makes such a home, though all these add their quota. It is the loving, faithful discharge of duty by her who rules queen of the household that makes that home what it is. Remember girls, it will soon be yours to fill such a place. If our picture will enable you in any way to realize the power that lies in your hands, we have not looked upon it in vain.

All the while I have been talking I have noticed my nephews have been drawing nearer. They, too, have discovered that the picture is more than a portrait. You want to know the interpretation of the next object in the background. That, my boys, is my friend at work; it is the interior of his office. It is somewhat indistinct at first, but if you study it carefully it will come out in bold relief. Do you notice the business-like manner, the concentration of attention upon any business in hand, the diligent use of every means within his reach to perfect himself in his profession? Every engagement is punctually kept, his work is planned and systematized. Work which can be done in half an hour takes just thirty minutes, and no longer. Not five minutes during his working hours but are made to count for something. He has learned what many of you, my boys and girls, have need to learn, that *time* is valuable, exceedingly precious, if we would but use it aright. It is not genius, not "good luck" that he is indebted to for his comfortable, even luxurious home, and influential position; it is the diligent use of his time and talents—nothing else—my boys and girls, that has brought to him these blessings. I am showing you no picture wrought of artistic conception. It is a picture drawn from life as I

know it. The friend whose portrait you look upon started in life with nothing save an ordinarily vigorous intellect and good health. He used these diligently, and he is to-day a power for good in the community where he is known, because he has not forgotten that he is but a steward of the Lord of the vineyard, and that where much is given much is required. His success is not exceptional (although I must admit his faithfulness to the giver of it is, for often as men grow in temporal prosperity they decline in that which is of infinitely greater value, their welfare in those matters of eternal moment). He has done only what scores of others have done, and what hundreds may do if they will only apply the same principles of diligence, honesty and clear-sightedness. Lest you should misinterpret my statements, let me tell you that I have not shown you this picture to allure you from the farm. No, no, my boys and girls, too much of the intellectual cream of our country homes is being sent into the city, and it is telling most unmistakably on the social and material welfare of our farmers. I firmly believe that on the farm homestead a man can live more independently, with more freedom and less worry, and withal nearer to God than in any other calling in life, provided he will apply himself during his working hours as diligently as does an ordinarily successful professional or business man, and use his head, as well as his hands, in his work. Unless you have been "behind the scenes" you have no idea of the intense application of men who succeed in the professional and mercantile world. See the luxurious homes, the rich dress, the costly equipage, and all the exterior glitter that is, without a doubt, dazzling to the eye, and calculated to produce wrong impressions, but let me tell you that evening after evening, when others are enjoying the comforts of home, or seeking recreation in one of the many forms which life in a city offers, these men are poring over their books, or studying out the best way to make an investment pay a handsome per cent. My object in showing you the picture is to enable you to see more clearly the elements essential to success in any calling in life, and the results which naturally enough "do either accompany or flow from" (if I may be permitted to use the "form of sound words" in this connection) the diligent use of these elements. In contrast to keen business life, but with all kindness, I wish to call your attention to the way some of our farmers do business. I have heard the editor of an agricultural publication—not the FARMER'S ADVOCATE, however—say that it took some farmers from one to two hours to subscribe for a paper, and from my own experience I can testify to the truth of his statement. A farmer comes into an office, he knows the editor, and on the strength of that acquaintance he has to relate his experience at the market that day, to dwell on the poor crops and general lowness of prices; he gives a kick to the "Model Farm" and a lift to "Commercial Union," or *vice versa*, as best suits his judgment in the matter. Not unfrequently he has to bemoan the deplorable state of the politics of the country, which has brought about such a state of affairs, and to denounce emphatically certain legislators upon whom, in his eyes, rests the blame of these poor returns to the farmer, quite overlooking the fact that were he and his brothers in his calling to unite every legislator in the country could be made to bow the knee to them. Oh, farmers and farmers' sons,

why will you keep your eyes closed to the fact that the land is yours if ye will but go up and possess it! I wax warm as I think of your privilege yet unused. But I must come back to the farmer who has not yet subscribed for his paper. As he rises to go he remembers he came to pay his subscription, and with the remark that if times get any harder he must give up his paper, he pays the proverbial "dollar," shakes hands with the editor, and his business then being done, takes his departure. I am writing in all candor. I hope none will think that I write in contempt, though it may indeed seem like that, but far be it from me to do so. I write thus frankly because I want to see my nephews and nieces, when they become the farmers and farmers' wives of our country, take their places socially and intellectually with their professional brothers and sisters, and this they will not do in the present state of things. I appeal to you, my nephews and nieces, and ask you to take observations and say if I have not written facts as we generally find them. There are, indeed, some exceptions. If people engaged in professional or mercantile life did their work as many of our farmers do, they would literally starve. Mother Earth will yield enough to even the most indifferent of her workmen to provide food and clothing at least, a thing which can be said of no other calling. I have said that farmers in general waste time regardlessly, and in proof of my statement I refer you to every-day life around you. How is a rainy day generally spent on a farm? What is done during many of the short days and long evenings of winter? Let the "corner store" or the blacksmith shop answer, and let me tell you, all these things count on the lebit side of the farmer's cash account.

I would fain write more on this all-important subject, but the letter is already very long. If I find you are still interested in my gallery, we shall again gather in my studio to draw the curtain from another and have a friendly chat.

UNCLE TOM.

POURQUOI?

'Tis true we use now many words
With meaning not quite plain;
But "why," when constantly screamed out,
Will drive a man insane.
We know that certain wrongs exist,
We know that men will lie;
But, dear me! what a fool I'd be
If I tried to tell you—why?

A prattling child, a fair-haired boy,
We like his smiling glee;
There's sunshine in his merry laugh;
You take him on your knee;
He's one interrogation point,
You leave him with a sigh;
By Jove! 'tis childhood, sure gave birth
To that everlasting—why?

A man boasts of wondrous will,
And proudly goes ahead,
He feels his strength, enjoys success,
And swears he'll ne'er be led.
He takes unto himself a wife;
She's timid, gentle, shy,
Yet from time to time he has no will—
But she alone knows—why?

We know of men in our land,
Born freemen of the soil,
With blessings won by freedom dead,
Brave, hardy sons of toil,
Yet their descendants forget all,
Their country oft deny;
They want to be quite English, but
The Lord alone knows—why?

Committees often gravely sit
And try from day to day
To find the meaning of a word—
It's "boodle," so they say.
Yet politicians calmly smile,
And to each query cry:
"My mem'ry is completely gone,
But I really can't tell—why?"

When earth and sky created were,
'Twas on a wondrous plan,
And Nature smiled, when from the dust
Sprang up a noble man.
But when a woman also came,
There went up one loud cry—
Why was she made? I give it up,
And ask of you—oh, why?

AUCTION SALE OF SHORTHORNS

The property of Geo. Thomson, Sunnyside Farm, Bright, Ont., on **WEDNESDAY, FEB. 15, 1888, at one o'clock p.m.** Having more stock than I can keep on the farm, will sell, without reserve, the following:—5 young Bulls, fit for service; 10 Females, Cows and Heifers, calved and to calve, bred to the Scotch-bred Bull CASHIER. Also 3 Grade Cows, all in fair breeding condition. Send for Catalogue.
GEO. THOMSON, 286-a Proprietor. **E. W. TOWN,** Auctioneer.

TO STOCKMEN!

FIRST ANNUAL SALE
 —OF THE—
BREEDERS' LIVE STOCK ASSOCIATION
 —WILL BE HELD AT—

Western Fair Grounds, London,
April 3rd, 4th, 5th and 6th.

HORSES! CATTLE!

Breeders, Farmers and others will find this an unequalled opportunity to dispose of stock, as this sale is being extensively advertised throughout England, the United States and Canada, and a number of buyers have already signified their intention of being present. Entries should be made before March 10th to insure insertion in Catalogue. For further particulars apply to
DOUGLAS H. GRAND, Manager and Auctioneer.
J. H. MARSHALL, M. P., President. 286-a

AUCTION SALE.

Having re-let my farm, I will offer for sale my **Holsteins, Horses, Cows and Implements,** on March 21st, 1888.
L. Bauer, Aldershot, Ont. 286-b

IMPORTANT AUCTION SALE.

WILL BE SOLD ON
Wednesday, March 21st, 1888,
 at Woodlawn Farm, Ancaster, three miles from Copetown Station, G. T. R.,

30 PURE-BRED BATES SHORTHORN CATTLE
 (25 Females and 5 Males.)

10 HEAD OF DURHAM GRADES, 6 YOUNG HORSES, ALSO 17 GOOD LEICESTER SHEEP.

The Cattle are a fine lot, with sound and reliable pedigrees, and well worthy the attention of the public. Sale to commence at 11 o'clock a.m. Seven months credit will be given on all sums over \$10. Catalogues will be ready about the 15th February. Conveyances will meet all trains at Copetown Station. Lunch at noon.
JOHN IRELAND, COPETOWN P. O.
WM. TEMPLAR, JERSEYVILLE P. O. 286-b

CREDIT SALE
 —OF—
SHORTHORNS

The undersigned is instructed by Mr. T. C. Patteson, to sell at
EASTWOOD, ONT.,
 —ON—

Wednesday, March 28, '88
 his whole Herd of High-bred Shorthorn Cattle.

The Proprietor having determined to devote his farm entirely to the raising of Sheep and Horses, the sale will be an **absolute dispersal sale.** Catalogues free.

T. C. PATESON, Postmaster, TORONTO, ONT.
 or **E. A. M. GIBSON,** Auctioneer, DELAWARE, ONT. 286-a

PUBLIC SALE OF SHORTHORN CATTLE

at Maple Lodge Stock Farm, on Friday, 30th March, 1888.

On the above date we will sell by Public Auction about

20 CHOICE SHORTHORN CATTLE.

The offering will include eight extra good young bulls, the balance young cows and heifers, sired by Baron Constance 5th, 2nd Lord of the Manor, Duke of Colonus, &c. All females old enough will be in calf to Duke of Colonus. Our cows are first class milkers as well as feeders. More particulars next month. Be sure you come to our sale whether you wish to buy or not. Catalogues out soon.

JAS. S. SMITH, 286-a MAPLE LODGE P. O., ONT.

THE E. B. EDDY
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Established A.D. 1354, Incorporated A.D. 1886.
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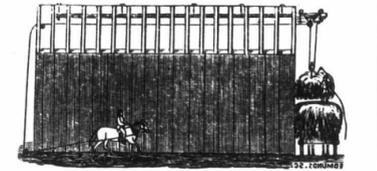
MANUFACTURERS AND WHOLESALE DEALERS IN
PAILS, TUBS, ZINC WASHBOARDS, BOX-SHOOKS, TELEGRAPH, SAFETY AND PARLOR MATCHES.

Indurated Fibre Ware,
 Light, Seamless, Tasteless, Impervious to Liquids, Indestructible, no Hoops. 282-1f

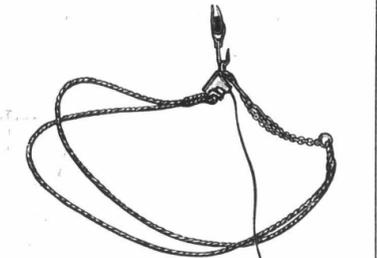
BUCHANAN'S
 —MALLEABLE—

IMPROVED PITCHING MACHINE

For unloading hay and all kinds of loose grain.



Will unload on either side of barn floor without changing car.
 No climbing necessary in order to change from one mow to another.
 Will unload a load of hay in four fork fulls.
 All cars made of malleable iron.
 All forks made of steel.
 Machines guaranteed to give satisfaction or no sale. The purchaser to be the judge.
 Responsible agents wanted in all unoccupied territory. None but responsible men need apply. Send for circulars and terms.



—THE—
COMMON-SENSE SHEAF LIFTER

Works in connection with the hay carrier, and is the most complete apparatus ever offered to the public for unloading sheaves. Leaves the sheaves in the mow just as they come from the load. Satisfaction guaranteed.

PRICE, \$5.00.
M. T. BUCHANAN, 286-d
 INGERSOLL.

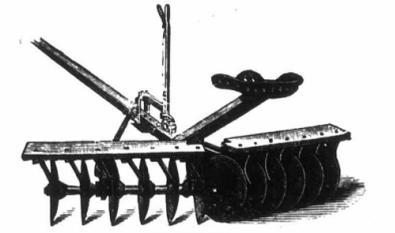


FRUIT TREES, leading sorts. **GRAPE VINES** are well assorted **BERRY BUSHES & PLANTS,** millions of. Send for Price List before you buy.
PRICES RIGHT, at the Central Nursery.
A. G. HULL, 285-a St. Catharines, Ont.



THE DAISY CHURN

was awarded the Silver Medal and First Prize over all competitors.
AGENTS WANTED in every town in the Dominion. For Price List and Terms Address
WORTMAN & WARD MFG. CO., 286-d LONDON, ONT.



—THE—
"New Model" Rotary Disc Jointed Pulverizing Harrow.

With **New Ratchet Lever and Patent Automatic Scrapers.** The only Disc Harrow that will automatically clean its discs in wet or sticky soil. The simplest, most durable, most efficient and lightest draft Disc Harrow made. Agents wanted in all unrepresented territory. Write for circulars.

J. F. MILLAR & SON, 286-c Morrisburg, Ont.

Notices.

Our readers will find in this issue the advertisements of the leading seedsmen in Canada and the United States; also a number of fruit growers. We do not think there is another paper in America that carries the advertisements of such reliable firms. Our readers would always do well to refer to our columns before purchasing seeds, stock or implements.

Mr. Wm. Rennie, of Toronto, has just advised us that he has sold the imported Clydesdale stallion Trojan 6417, whose illustration appeared in the Jan. No. of the FARMER'S ADVOCATE, to W. B. Robertson, Esq., of Charlottetown, P. E. I. We congratulate Mr. Robertson in taking such a good horse into his country. Mr. Rennie has also disposed of Bodyguard, vol. x., to Mr. Jas. Wad, jr., Oakwood, Ont.

We will again call attention to the advertisement of Mr. T. D. Hodgins, the large importer of Cleveland Bay and Yorkshire Coach horses; also Thoroughbred race horses. The breeders throughout the country will find it to their advantage to see this stock, which are all fit for service, the youngest of which is now rising three years. Notably amongst them is the Duke of Salton, bright bay, coming three years; this colt got first prize in his class at Toronto exhibition last Sept., and also secured the diploma and silver medal for best carriage stallion of any age in his two-year-old form, at the same place. Another in this gentleman's stable worthy of inspection is the dark brown stallion, The Marquis, imported last fall. He certainly is one of the best of this class of horses that has been imported. The Thoroughbreds are Newcourt, by the Miser, and Albert, by Albert Victor. They are certainly the right stock to get—army horses, which are in such good demand; also to sire first class hunters.

Messrs. D. M. Ferry & Co. make the growing and sale of Onion Seed a leading specialty, and give so much information on onion culture as to make their Annual of permanent value to all onion growers and gardeners. The Annual can be had for the asking. Address D. M. FERRY & Co., Detroit, Mich.

We desire to call our readers' attention to the advertisement of the Breeders' Live Stock Association. This association has been formed by many of the leading farmers and stockmen in this vicinity. Their intention is to hold a large sale annually, or oftener, if thought advisable, thus giving purchasers an opportunity to select from a large number, and also foreign buyers a choice of purchasing in car lots. The management of the sale has been placed in the hands of Mr. D. H. Grand, who has been very successful in conducting many large sales throughout America. The sale will be well advertised in the English, American and Canadian papers.

Stock Sales.

Our readers will find in this issue a large number of first-class stock sales advertised. First, is Mr. D. T. Rogers, of Cayuga, Ont. He will sell, on March 9th, in the city of Guelph, about 25 head of Jerseys, consisting of bulls, cows and heifers. Catalogues ready March 1st.

Mr. T. C. Patteson, of Toronto, will dispose of his entire herd of Shorthorns, at Eastwood, on March 28th.

Mr. Jas. S. Smith, Maple Lodge, Ont., will have a public sale on March 30th, will offer 20 choice Shorthorns, 8 extra good young bulls.

Parties desiring to purchase first-class Shropshire Sheep should attend Mr. Thompson, jr.'s, sale at Mohawk, Ont., on the 22nd inst.

Mr. George Thomson, of Sunnyside Farm, Bright, Ont., will dispose of a number of his Shorthorns on February 15th.

Messrs. T. & A. B. Snider, German Mills, Ont., will have an extensive sale on the 14th of March. Their entire herd of Shorthorns will be disposed of, 18 of which are descendants of the Cruickshank herd. They have a number of noted animals, and should realize good prices. They will also sell a number of imported Percherons and Canadian beed stallions.

Messrs. Jno. Ireland, of Copetown, and Wm. Templer, of Jerseyville, will have a joint sale on the 21st of March. They purpose disposing of thirty head of pure Shorthorns, Bates' blood, with first class pedigrees, a number of Durham grades, 6 horses, and 17 Leicester sheep.

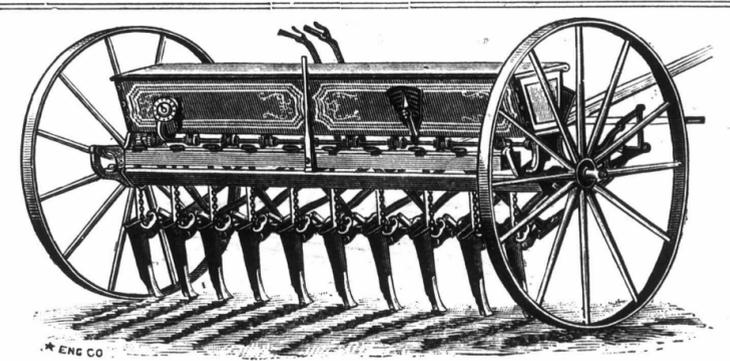
Mr. Arthur Johnston, of Greenwood, Ont., writes to say: "My young bulls and heifers are now safely quartered in their stalls at Greenwood Farm, looking none the worse for their experience of Quebec weather and the trip from Quebec. They have improved immensely since landing in quarantine—indeed they have far exceeded my most sanguine expectations in their improvement. Mr. Gofield's feed comes unrighteously high, but it does good work. I don't think I have any need to boast of my young bulls—they only need to be seen—big, fleshy fellows, thick and low set; all red but two. I want all my friends to see them."

NATURAL GAS.—Messrs. Peterson & Sons, of the Sarnia Portable and Traction Engine Works, Sarnia, Ont., write:—In November last we commenced the sinking of a test well in our shop yard. The well was sunk to a depth of about 700 feet. A good supply of gas was struck at 335 feet, and also a further supply of gas and oil at 520 feet; and a very strong vein of mineral salt water at 685 feet. We have shut off the mineral water, and are now using the supply of gas in our works, the gas being conveyed through a pipe from the well to the furnace, and there regulated as required.



LOVETT'S GUIDE TO FRUIT CULTURE

For 1888 is even more beautiful and instructive than ever. It is an elegantly printed book of 70 pages, embellished with over 300 engravings and gives honest descriptions (telling the defects as well as the merits) of all new and old varieties of Orchard and Small Fruits worthy of cultivation, and plain practical instructions for planting, pruning, and their culture. The different grades with exceedingly low prices are figured, enabling even a novice to determine the best size of Trees and Plants to order. Illustrations in natural colors are given of MONMOUTH and GANDY STRAWBERRIES, ERIE, and EARLY KING BLACKBERRIES, GOLDEN QUEEN, and JOHNSTON'S SWEET RASPBERRIES, SPAULDING, BOYAN, OGDON, KEZLEY'S, JAPAN, and MARIANA PLUMS, LAWSON PEAR, DELAWARE WINTER APPLE, MERRICK'S QUINCE, etc. Guide by mail with colored plates, 10c.—without plates, 5c. Price Lists free. With each Guide is sent a Price List of Trees and Plants by mail. All who mention paper will receive a copy of ORCHARD and GARDEN gratis. **HALF A MILLION PEACH TREES.** The largest stock of Blackberry Plants in the United States. An immense stock of Apple, Pear and Nut Trees, Grape Vines, Strawberry and Raspberry Plants, etc. **J. T. LOVETT CO., Little Silver, New Jersey.**



NOXON'S NEW STEEL HOOSIER DRILL

—MANUFACTURED BY—

NOXON BROS. MFG. CO., INGERSOLL, ONT.

THE ONLY DRILL made in which the depth of the hoes can be instantly changed to suit varying conditions of the soil without stopping the team.

THE ONLY DRILL made which will sow all kinds of grain even; can be changed from Drilling to Broadcasting in less than one minute's time. When used with broad cast teeth it will do work equal to any cultivator.

THE ONLY DRILL made which commences to sow the instant the horses start. Handiest, Lightest, Strongest and Simplest Drill manufactured. Examine the New Steel Hoosier Drill and be satisfied that it is the best Drill made.

We are the owners of all patents on this Drill, and the only manufacturers of the Hoosier Drill in Canada.

HUDSON BAY CO.

FARMING and GRAZING LANDS FOR SALE.

This Company has For Sale Land in every Township in Manitoba and the North-west Territories. Their Title is Direct from the Crown.

PRICES MODERATE. TERMS OF PAYMENT LIBERAL.

These Lands have been Surveyed by the Government, and Inspected and Reported upon by the Company's Agents. The Government Township plans can be seen in the Company's Office, No. 203 Main street, Winnipeg. There are no Conditions, but a Deed will be given on full payment being made.

COAL LANDS.

The Company also own Lands in all the Coal Bearing Districts.

TOWN LOTS.

Lots for Sale in Winnipeg, Rat Portage, Portage la Prairie, West Lynne, Edmonton, Fort Qu'Appelle, Prince Albert and Newdale.

Full Information can be obtained on application at the Company's Office. Maps, &c., sent to any address.

C. J. BRYDGES, Land Commissioner.

Winnipeg, 1st Dec., 1887.

296-a

PILES! PILES!

\$5 to \$8 a Day. Samples and duty FREE. Lines not under the horses' feet. Write 255-y BREWSTER'S SAFETY REIN HOLDER, HOLLY, MICH

READ THIS STATEMENT.
PORT CREDIT, Ont., Feb. 9, 1884.

MR. LUMBERS:
Dear Sir,—I take pleasure in recommending your SURE CURE FOR PILES. When my husband came home with the remedy I was suffering greatly. I used it according to the directions, and I am now cured. I used only one package.
Yours truly,
MRS. WM. NAISH.

LUMBERS' SURE CURE FOR PILES.

Ask your Druggist for it. Price \$1.
This medicine will be sent free to any address on receipt of price, by the proprietors.

W. LUMBERS, Sr. & SON,
288 Carlton St., Toronto, Ont.
Send for our little book containing symptoms cause and cure of this disease.

AT FREQUENT DATES EACH MONTH

Burlington Route
FROM CHICAGO, PEORIA OR ST. LOUIS

CALIFORNIA EXCURSIONS
WITH CHOICE OF ROUTES; VIA DENVER, COUNCIL BLUFFS, OMAHA, ST. JOSEPH, ATCHISON OR KANSAS CITY.

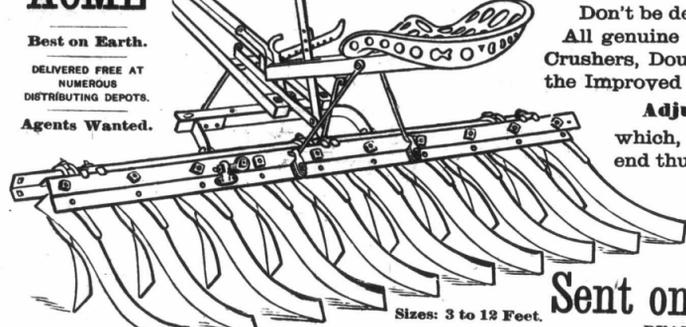
For dates, rates, tickets or further information apply to Ticket Agents of connecting lines, or address
PAUL MORTON, Gen. Pass. & Tkt. Agt., Chicago, Ill.



WANTED—Choice samples of Timothy, Red and Alsike Clover, etc. Correspondence invited. 258-a

2nd-HAND MACHINERY.—Descriptive Catalogue sent free on application. Address H. W. PETRIE, Brantford, Can. 258-y

"ACME" Pulverizing Harrow, Clod Crusher and Leveler.



Best on Earth.
DELIVERED FREE AT NUMEROUS DISTRIBUTING DEPOTS.
Agents Wanted.

Don't be deceived by worthless imitations. All genuine bear Trade-Mark, have Steel Clod Crushers, Double FLEXIBLE Gang Bars and the Improved Style also has
Adjustable, Reversible Coulters, which, when worn, may be turned end for end thus giving double the amount of wear. Works the entire surface of the ground. No other Harrow combines these points.
Illustrated Pamphlet Free.

Sent on trial to any responsible Farmer in the U. S.
DUANE H. NASH, Sole Manufacturer,
MILLINGTON MORRIS COUNTY, NEW JERSEY.
—Be sure and mention this Paper.—

THE LITTLE MAXWELL STEEL BINDER.

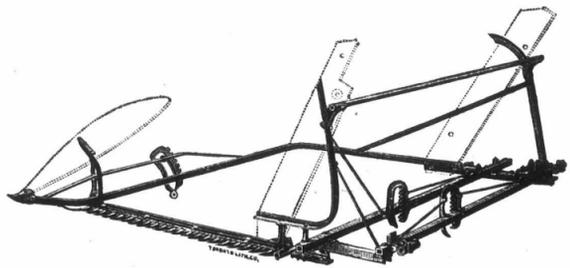


FARMERS!

If you want a binder you cannot do better than buy a "MAXWELL." It will bear the closest inspection; compare it with others and you will be convinced of its superiority. For handling down and tangled grain it has no equal, and the ease with which it is operated in every condition of ground and grain, has been the cause of remark by all who have used it. Any one who can drive a team can operate it.

Examine carefully the Frame of the "LITTLE MAXWELL." It is constructed entirely of steel and malleable iron, and is the strongest, stiffest and simplest Frame in the world.

Send for Circular, and mention this paper. Address



DAVID MAXWELL, - - PARIS, ONT.

BOUND VOLUMES

—OF THE—
Farmer's Advocate for 1887

ARE NOW READY. PRICE \$1.60.
We have also a few volumes of 1884 and 1885 left.
Price \$1.60. Address
FARMER'S ADVOCATE OFFICE, London, Ont.

ASK YOUR DEALER FOR
STEELE BROS & CO'S
SEEDS.
FOR SALE BY
ALL LEADING MERCHANTS
ILLUSTRATED CATALOGUE MAILED FREE
ADDRESS
STEELE BROS & CO.
TORONTO, ONT.

THE NEW REVERSIBLE
CORBIN DISK HARROW
NO. 30 BETTER THAN EVER.



THE CORBIN Harrow has a habit of leaving all competitors behind. The record shows that it led them all the past season. But we are not content with merely whipping our competitors, we now proceed to beat our own record.

THE NO. 30 is a new Disk Harrow tested and perfected the past season. It turns the soil either toward the tongue or away from it. It is the only Disk Harrow that can be used in hopyards and vineyards. It is also arranged so that one gang will run ahead of the other. The centre disks being only 5 inches apart, it leaves no centre ridge, and all the ground is cultivated. It is pronounced a grand improvement. See Mr. Weld's opinion, page 18, of January issue.

The farmers of Canada are learning that the CORBIN HARROW is a practical necessity on the farm. To those who are still unacquainted with its merits, we may say that it is strongly recommended by Prof. Wm. Brown, of Guelph, Mr. Wm. Weld, of the Advocate, and Mr. Thos. Shaw, of the Live Stock Journal.

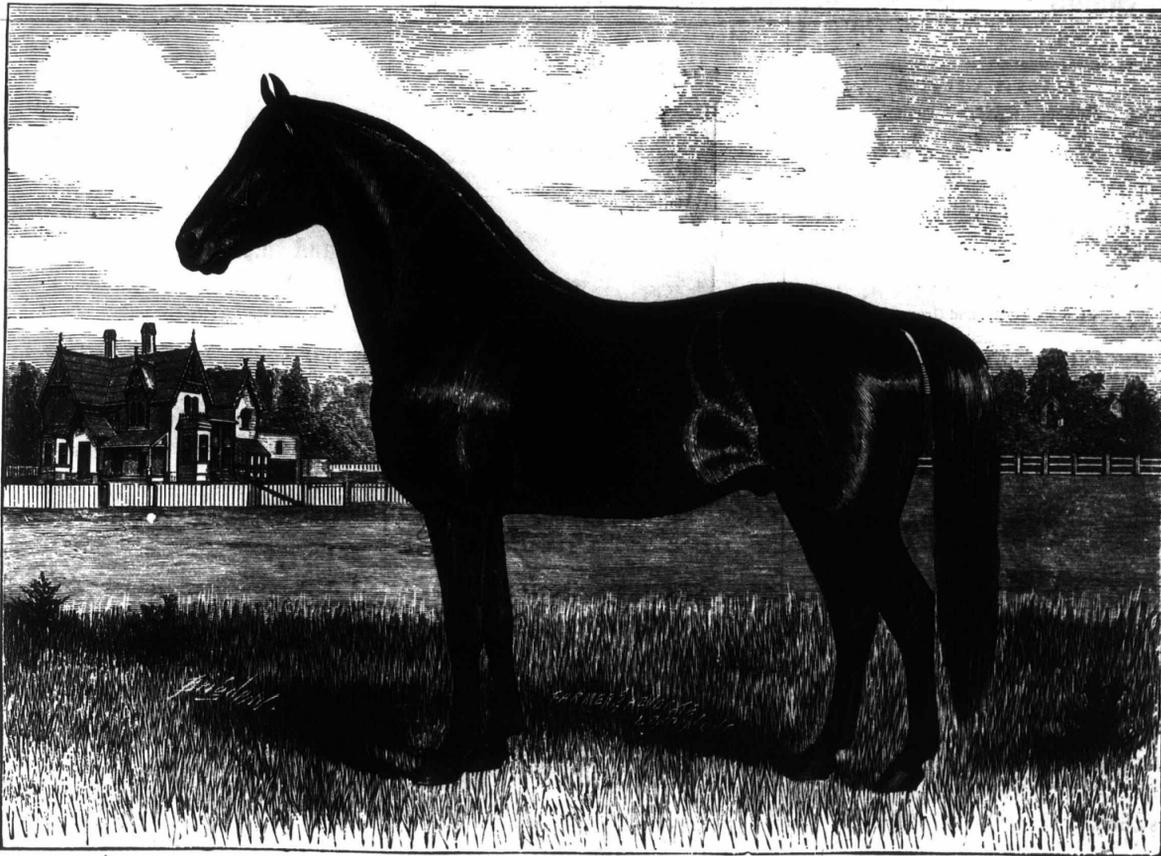
We invite inquiry from thinking, thoroughgoing farmers. Full particulars by mail on application. Drop us a card.
St. Lawrence Manufacturing Co.,
PRESOOTT, ONT.

OUR
MANUAL OF EVERYTHING FOR THE **GARDEN**



is this season the grandest ever issued, containing three colored plates and superb illustrations of everything that is new, useful and rare in Seeds and Plants, together with plain directions of "How to grow them," by PETER HENDERSON. This Manual, which is a book of 140 pages, we mail to any address on receipt of 25 cents (in stamps.) To all so remitting 25 cents for the Manual, we will, at the same time, send free by mail, in addition, their choice of any one of the following novelties, the price of either of which is 25 cents: One packet of the new Green and Gold Watermelon, or one packet of new Succession Cabbage, or one packet of new Zebra Zinnia, or one packet of Butterfly Fanny (see illustration), or one packet of new Mammoth Verbena, or one plant of the beautiful Moonflower, on the distinct understanding, however, that those ordering will state in what paper they saw this advertisement.

3 Natural Size.
PETER HENDERSON & CO., 35 & 37 Cortlandt St., NEW YORK.



T. D. HODGENS, —IMPORTER OF— **Cleveland Bay, Yorkshire Coach and Thoroughbred Horses**
also Trotting Stock and Drivers of all ages for sale. Address 860 Waterloo-St., London, Ont.

TREES
FRUIT AND
ORNAMENTAL
ROSES
Grape Vines.

SPRING PLANTING.
We offer the largest and most complete general stock in the U. S., besides many novelties. Catalogues sent to all regular customers, free. To others: No. 1, Fruits, 10c.; No. 2, Ornamental Trees, etc., illustrated, 15c.; No. 3, Strawberries; No. 4, Wholesale; No. 5, Roses, Free.

ELLWANGER & BARRY,
Mt. Hope Nurseries, ROCHESTER, NEW YORK.

ESTABLISHED 1866.

KEITH'S

Gardener's Assistant and Illustrated Catalogue of Garden, Agricultural and Flower Seeds

NOW READY
and will be mailed free on application to any address.

Clover and Timothy, Orchard, Blue and Red Top Grasses, Flax Seed, Tares, Seed Wheat, Oats and Barley, &c., &c.

Correspondence solicited from buyers and sellers.
GEO. KEITH, Seed Merchant,
124 King-St. East, Toronto.

1850-1888
BRUCE'S
GENUINE
Garden
AND
Field
Seeds
for 1888.

SEEDS Our Descriptive and Priced Catalogue for Spring Trade is now ready, and will be mailed free to all applicants, and to customers of last year without solicitation.

Market Gardeners
Will find it to their advantage to sow our Seeds.

JNO. A. BRUCE & CO.,
Hamilton, Ont.

RELIABLE SEEDS

FOR THE
Farm & Garden.

Our Illustrated and Descriptive Catalogue FREE! Every Farmer and Gardener should send for one. Address,

J. A. SIMMERS,
Seed Merchants and Growers,
Toronto, Ont.

Over 6,000,000 PEOPLE USE
FERRY'S SEEDS
D. M. FERRY & CO.
are admitted to be
The LARGEST
SEEDSMEN
in the world.
D. M. FERRY & Co's
Illustrated, Descriptive, Priced
SEED
ANNUAL
For 1888
Will be mailed
FREE to ALL
applicants, and to
last season's customers
without ordering it.
Invaluable to all. Every one
using Garden, Field or Flower Seeds should send for it.
Address D. M. FERRY & CO., Windsor, Ont.

SEEDS

RENNIE'S Seed Catalogue, containing description and prices of all the best, new and standard varieties of
VEGETABLE AND FLOWER SEEDS
will be ready in January, and will be mailed free to all who apply by letter. Every Farmer and Gardener should have a copy before purchasing Seeds for the coming Spring. Send for it. Address—
WM. RENNIE, TORONTO, ONTARIO.

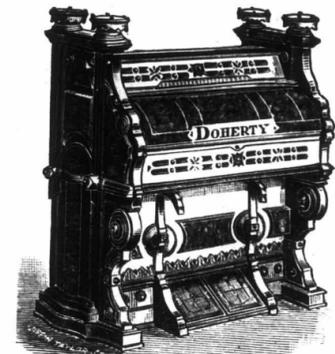
ONTARIO PUMP Co.

(LIMITED.)

TORONTO, ONTARIO,

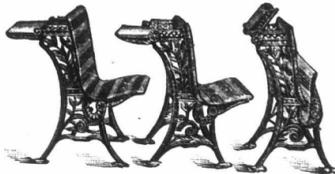


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WIND MILLS,
FEED GRINDERS,
HAYING TOOLS,
IRON & WOOD PUMPS,
AND A FULL LINE OF
Railway, Town, Farm and Ornamental Water Supply
Materials.
Geared Windmills for driving machinery, pumping water, &c., from 1 to 40 horsepower.
Send for Descriptive Catalogue.



The "DOHERTY ORGAN"
maintains its supremacy over
all others.
BUY THE BEST.

THE BENNET FURNISHING CO.
London, Canada.



MANUFACTURERS OF
SCHOOL, CHURCH, HALL & LODGE
FURNITURE.

Send for illustrated catalogue and price list.

LEARN TELEGRAPHY. The best paying profession practically taught and situations guaranteed. Catalogue free
SHERMAN TELEGRAPH CO., Oberlin, O.

BRICK AND TILE **MACHINERY**
AND **CLAY CRUSHERS.**
BEST IN THE WORLD



Address
J. W. PENFIELD & SON, Willoughby, O. P. O. Box 6.

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Business
NEWARK, N. J. Open all the year. Best course of Business Training; best facilities; pleasantest location; lowest rates; shortest time; most highly recommended. Write for catalogue and be convinced.
H. COLEMAN, Pres't.

CANADA BUSINESS COLLEGE.
HAMILTON, ONT.
TWENTY-SIXTH YEAR.

Best equipped and most successful Business College in the Dominion. Over 250 students past year. Offers unequalled advantages to farmers' sons and others desiring a business education. For handsome illustrated catalogue write.
R. E. GALLAGHER, Principal.

WANTED

Reliable parties to introduce the
Hartsfeld Automatic Continuous and Improved Economical Coke and Charcoal Ovens

Of any capacity. Also, latest improved portable reduction works and prospecting hand-power diamond bit rock drill that will bring up a solid core 500 feet.

New Water Jacketed Cupola Furnace.

Keim's New Water Jacketed Cupola produces superior castings with a saving of a laborer and four percent of a saving in metal and fuel. It is especially adapted for the use of stove, brass and iron foundries, also for the treatment of phosphor-bronze, copper and bell metal. It is so constructed that it requires little if any repairs, and the bottom need not be dropped for months. Estimates furnished for portable reduction works, for the smelting of gold, silver, lead and copper ores. Assaying and Analyzing promptly attended to by the best of chemists.

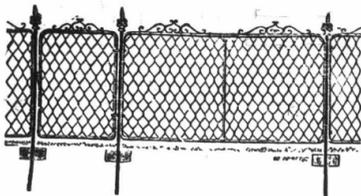
Your correspondence is solicited. Send stamp.
THE HARTSFELD FURNACE CO., (Limited)
Box 459, Cincinnati, Ohio.

ST. CATHARINES Business College

is unsurpassed as a school of Business Training. Young men fitted to take and hold first-class positions as Book-keepers, Shorthand Writers and Telegraph Operators. Students of fair education and some experience preferred, but those who are younger and less experienced are also received, and are guaranteed advantages that are unexcelled in any other college.

CATALOGUES FREE.

W. H. ANGER, B. A., PRINCIPAL.



WIRE FENCING OF ANY KIND.—Price from 50 cents per rod upward. Send to E. C. JONES, 47 King William street, Hamilton, Ont., for circular.

THE RACER. THIN BACK, LANCE TOOTH, CROSS-CUT SAW.



It stands without a rival and is the fastest cutting Saw in the world. It has beaten the best Canadian and American made Saws 33 1/2 percent in every contest. Its superiority consists in its excellent temper. It is tempered under the Secret Chemical process, which toughens and refines the steel. It gives a finer and keener cutting edge, and will hold it twice as long as by any other process. We have the sole right for this process for the Dominion of Canada. None genuine that are not like the above cut, with registered Trade Mark, with the words "The Racer," and the Maple Leaf with our name. Price \$1.00 per foot.

CAUTION.—Beware of Counterfeits. There are inferior Counterfeits on the Markets. They are intended to be sold at a high price upon the reputation of this Saw. We will send to any address a Saw exactly like any Counterfeit, warranted equal in quality, or no sale, at 60c. per foot. Therefore do not be humbugged into paying a first-class price for a second-class saw. A fact to bear in mind that if the material and temper are not of the very best quality the shape of the teeth amounts to nothing. A saw, like a knife, will not cut fast without it will hold a keen cutting edge. We have cut off a 14-inch sound basswood log in eight seconds with this saw. Manufactured only by

SHURLY & DIETRICH, Saw Manufacturers; GALT, ONT. Mention this paper. 264-c



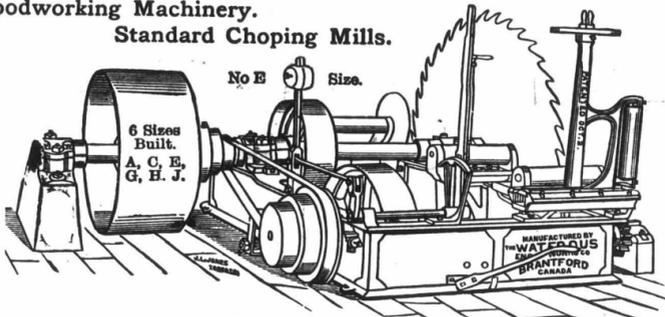
The excellent record of this Engine as the years roll on has brought it so prominently in favor that the supply has not been equal to the demand, but we guarantee a full supply for 1887. AGENTS WANTED IN SOME LOCALITIES

It is licensed by all Insurance Co's and has proved itself to be the most durable.

The Engine for the Northwest is made to burn either coal, wood or straw. Farmers, procure a Genuine White Threshing Engine at the Forest City Machine Works, London, Ont., Can. GEORGE WHITE, Proprietor and Manager H. B. WHITE, Supt. of Machinist Dept. A. W. WHITE, Supt. of Erecting Dept. HUB. J. WHITE, Secretary-Treasurer. F. J. WHITE, Assistant-Secretary. The engines may be seen at Van Tassal's foot bridge warehouse, Belleville. 255-v

SAW-MILL MACHINERY OUR SPECIALTY.

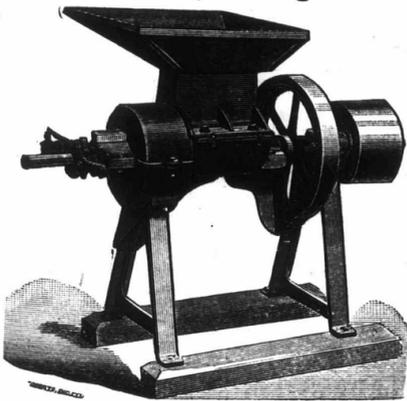
Heavy Stationary Mills. Portable Mills. Shingle Mills. Portable Engines. Planers. Matchers. Woodworking Machinery. Standard Chopping Mills.



Send for SPECIAL CATALOGUE, stating particular machinery wanted.

WATEROUS ENGINE WORKS CO. BRANTFORD AND WINNIPEG.

The John Abell Engine and Machine Works, Toronto



THE "DUPLIX" CORN & FEED MILL

Why the "Duplex" should be bought in preference to all others:

- 1st—Because it is a Duplex Mill, and having double grinders, is capable of doing much more work than any other mill the same size.
- 2nd—Because it is the only Mill in the world that grinds on both sides of the revolving burr at the same time.
- 3rd—Because it is the most perfect in construction, the strongest and most durable.
- 4th—Because it produces better meal; does not heat by long running, having no toe to get hot.
- 5th—Because the grinding rings cannot be injured by the Mill running empty, and if broken by accident can easily be replaced.
- 6th—Because it has a positive face feed, gradual reduction plates, a continuous frame; and because it is the only Mill that grinds ear corn and all small grain with equally good results.

Having secured the patent of the above Mill for the Dominion of Canada, I am now prepared to supply the "Duplex" Corn and Feed Mill.

For further particulars address JOHN ABELL, Toronto. 263-tf

THE INTERCOLONIAL Railway of Canada.

The Royal Mail, Passenger and Freight Route between Canada and Great Britain

DIRECT ROUTE BETWEEN THE WEST AND ALL POINTS ON THE LOWER ST. LAWRENCE AND BAIE DE CHALEUR.

New Brunswick, Nova Scotia, Prince Edward Island, Cape Breton and Newfoundland.

NEW AND ELEGANT BUFFET SLEEPING AND DAY CARS RUN ON THROUGH EXPRESS TRAINS.

Passengers for Great Britain or the Continent, by leaving Toronto by 8.30 A. M. train Thursday, will join outward mail steamer at Halifax a. m. Saturday. Superior Elevator, Warehouse and Dock accommodation at Halifax for shipment of Grain and general merchandise.

Years of experience have proved the Intercolonial in connection with Steamship lines to and from London, Liverpool and Glasgow to Halifax, to be the quickest freight route between Canada and Great Britain.

Information as to Passenger and Freight Rates can be had on application to ROBERT B. MOODIE, Western Freight and Passenger Agent, 93 Rossin House Block, York Street, Toronto.

Railway Office, D. POTTINGER, Chief Superintendent. Moncton, N.B., Nov. 22nd, 1887. 253-v

J. H. TENNENT, VETERINARY SURGEON

(Late of the firm of Rudd & Tennent.)

Calls from a distance by telegraph and otherwise promptly attended to. Communications concerning Horses or Cattle answered free of charge.

OFFICE—King street, opposite the market. RESIDENCE—Cor. King and Wellington streets.

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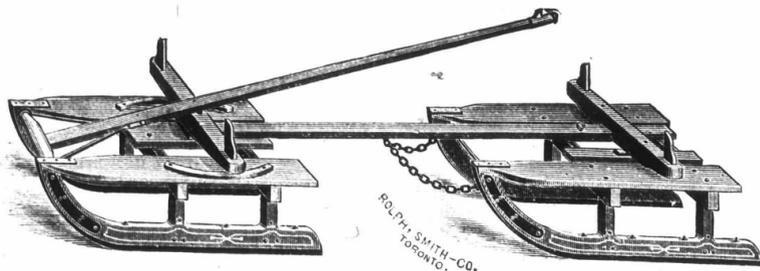
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