THE FARMER'S ADVOCATE AND HOME MAGAZINE.

FOUNDED 1866.

VOL. XXIII. LONDON, ONT., JANUARY, 1888. Whole No. 265.

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. *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.

Terms of Subscription—$1.00 per year *in advance;* $1.25 if in arrears; single copies, 10c. each. New subscriptions can commence with any month.

The Advocate is sent to subscribers until an explicit order is received for its discontinuance, and all payment of arrearages are made as required by law.

Remittances should be made direct to this office, either by Registered Letter or Money Order, which will be at our risk. When made otherwise we cannot be responsible.

Always give the Name of the Post Office to which your paper is sent. Your name cannot be found on our books unless this is done.

Discontinuances—Remember that the publisher must be notified by letter when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given.

The Law is, that all subscribers to newspapers are held responsible until all arrearages are paid, and their paper ordered to be discontinued.

The Date on your Label shows to what time your subscription is paid.

Advertising Rates—Single insertion, 25 cents per line Contract rates furnished on application.

Address—
THE FARMER'S ADVOCATE,
360 Richmond Street,
LONDON ONT., CANADA.

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.

For the essay on *The Condition of the Canadian Farmer*, first prizes have been awarded to Thos. Beall, Lindsay, Ont., and Thos. Elmes, Princeton, Ont. The essays appear in this issue.

A prize of $5.00 will be given for the best original essay on *Soiling and Soiling Crops.* Essays to be handed in not later than Jan. 15.

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.

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

Editorial.

Investigating the Condition of the Farmer.

A large number of our subscribers will find with this issue a blank sheet, the blanks to be filled out with figures. Our object is two-fold: we desire (1) to investigate truthfully the exact condition of our farmers, and (2) to instruct our readers in the proper methods of keeping farm accounts. Both of these objects are of pressing importance at the present time, for there is a class of people in our community who have political motives in misrepresenting the condition of our farmers, and who falsify all rational systems of book-keeping for the purpose of attaining the same end.

The reader will see by the blank form that, by our method of investigation, we do not depend upon opinions, for those farmers who do not calculate closely have not a proper conception of their own condition. Our object is to get at the cost of production of the various farm products, and in order to do so, it is necessary for us to know the time expended on the various farm operations and the amount of capital invested in the different systems of farming. We shall then have a true basis for calculation.

We do not ask each subscriber to fill in *all* the blanks; all we ask is that each should fill in such figures as he *knows by personal experience or observation to be correct.* We will be obliged even for one figure, providing the farmer who places it into the blank space is sure that he is tolerably correct; but at the same time, we would like to see as many blanks filled out as possible, for the greater the number the nearer we can get at the truth. It will greatly facilitate our work if two or more farmers club together, or embrace an organized farmers' club, and send us one blank based upon the figures of the whole club. It is not desirable that the farmer should give exactly what he *has* on his farm, but rather what he *should have*—that is, what is necessary to conduct the various operations of a 100-acre farm. Also with reference to the farm buildings—we want nothing said about dwelling houses—give the buildings which you actually require, not necessarily those which you actually have. Give the selling price of the land, including the fences, separate from the cost of the buildings. We want the cost of *new* buildings and *new* implements. The cost of the buildings must include your own labor, as well as all expenditures for other labor, and the cost of raw material. The size of the farm in every case must be 100 acres.

While we will thank you all for the receipt of such information, yet you will be surprised when you find out how much you have helped yourselves by aiding us in this good work.

What is Agricultural Prosperity?—The Condition of the Farmer.

We are pleased at the receipt of a large number of ably written essays on "The Condition of the Canadian Farmer," two of which we publish as first-prize essays, each essayist taking views conflicting with those of the other.

We regret that Commercial Union should bias the opinions expressed by so many of our essayists. We are aware that many writers and orators, who are in favor of this scheme, have attempted to force our farmers into the ranks of the Commercial Unionists by disseminating the policy of discontent, and endeavoring to show that unrestricted trade with the United States is the only remedy for agricultural depression in Canada. Our policy has been to grapple fearlessly with the facts, and not attempt to soothe our adversity by false representations or glowing descriptions.

Before we can get a clear conception of agricultural depression, we must know how to define agricultural prosperity, and the truth lies in the comparison. First of all, every farmer should get a fair percentage on the capital invested, which, if we include risks, etc., should not be less than 10 percent per annum. Again, as he is not a mere laborer, but a farm superintendent as well, his wages, exclusive of board, should not be less than $500 a year. If a common laborer, boarding himself, can make $1 a day—say $300 a year—it is a reasonable estimate that a first-class laborer, who has also to share the worry and responsibilities of farm superintendent, not omitting the extra education and intelligence required for a successful manager, should be rewarded with $500 yearly. If, therefore, he has $10,000 invested in his 100 acre farm, including stock, implements, etc., he should receive $1,000 for interest, making a total income of $1,500 a year. Admitting that he should be satisfied with less during periods of depression, yet we place the above sum as a reasonable average for a number of years, and business farming should not be placed on a lower basis. A skilful and prosperous farmer should be able to stock his 100 acres up to the value of at least $10,000, but a much greater capital could be profitably employed.

We fancy we see the average farmer smiling when the sum of $1,500 is mentioned as a net income. Having now to pay market prices for all the farm products which he and his family consume, he is now exactly in the position of the town laborer earning a dollar a day, and we all

know how difficult it is for the latter to make both ends meet after paying for food, clothing, rent, fuel, education, etc. However, as the farmer is supposed to be the perfection of economy, we will suppose that he can support himself and his family on $300 a year, so that he has still $1,200 left to deposit in the bank, make improvements, or pay off mortgages. After many years of practical experience on the farm, and nearly a quarter of a century of close observation amongst farmers in all parts of our Dominion and other countries, we stake our reputation on the assertion that the average farmer makes no such sum. A large majority of them would now be contented with one-fourth of this income ; and yet we know for a positive fact that Ontario farmers are the most prosperous agriculturists on this continent. Government officials and others have endeavored to prove by Government reports that our farmers are actually rolling in wealth. It never occurs to them to dispute the accuracy of these reports. The fact that the information comes from "the farmers themselves" counts for nothing until we know the class of farmers which furnish the information. How many facts and figures emanate from the average farmers or those below them in the scale of progress? How many of them are boomers?

As will be seen from the list of questions which we put to our readers, we are endeavoring to solve the question from a more scientific standpoint. As will be seen in our last issue, we have shown that it takes an intelligent farmer to draw more than an ordinary laborer's pay and six per cent interest on invested capital in dairying and beef-growing, and in a previous issue we pointed out wheat to be unprofitable to the average grower. What then must be said with reference to the profits of the poorest and least progressive farmers? The amount of wealth destroyed by reckless farming is appalling to contemplate, and every man, woman, and child in the whole community suffers therefrom. We have already pointed out a few of the remedies ; but if we had the effrontry to tell the whole truth, we fear we could not bear the consequences. At any rate, we shall await the results of our scientific investigation.

We hope our method of investigation will commend itself to all our readers. We simply want figures—no opinions required--which will enable us to make accurate calculations as to the cost of production of all farm products. We sincerely trust that each of our subscribers will help us, and help himself, by filling out as many blanks as possible in the accompanying sheet.

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

No. V.

Having now shown that the exhaustion of fertility does not depend upon the system of farming—stock-raising, dairying, or grain-growing—that the market scales are the supreme court of appeal, that under ordinary methods of farming grain-growing is the most exhaustive method, but under the system advocated by the manure theorists, stock-raising and dairying would be more exhaustive than grain-growing, instead of maintaining or increasing the fertility, as they assert, we pass on to the next point in the issue.

The argument which the professors use against our position is that when two cows are pastured on one acre, instead of one cow on two acres, they get more manure. We shall depend upon our balance sheet to settle this question, but meanwhile we shall here make an appeal to the common sense of our readers. Granting that two cows on one acre will produce more manure than one cow on two acres, we are still confronted by the fact that if all the manure be returned, and, in addition to this, if all the milk from the cows be also poured on the pasture, there will be no gain in fertility, for nothing has been returned that has not first come out of the soil. Even if the carcasses of the animals be also returned, if the pasture produced them, there would be no gain in fertility. If therefore more milk be sold off the permanent pasture than off the ordinary pasture, the exhaustion is going on more rapidly; and the same rule works in winter as in summer management. You all heard of the boy who wanted to sell his cake and at the same time to eat it. The boy of the theory school has completely outwitted the boy of fabled renown; having sold his fertility cake, he still has it left (1) to maintain the fertility of his soil, and (2) to restore the fertility lost at a previous period. He sells his cake, eats it, and has it left for his larder. Truth is stranger than fiction.

Fortunately, we have means for ascertaining the confidence which the manure hobbyists have in their own theories. In the Experimental Farm report for 1886, page 161, we find the following paragraph:

At end of next year the Ontario Experimental Farm should be able to say something more upon the maintenance of different kinds of grasses and clovers, and how much diminution there may be in the dairy product per acre. Meantime the oldest plots have been top-dressed with ten loads of first-clsss F. Y. manure, to be followed with 200 lbs. of bone meal per acre in spring.

Here we have an agricultural professor, who is paid a large salary out of the pockets of the Ontario farmers, proclaiming from the stump that large herds should be kept in order to maintain the fertility of the soil, and yet, after raising four or five times as many animals per acre as the ordinary farmer, is forced to apply not only barnyard manure but also commercial fertilizers. In a recent bulletin, he values his barnyard manure at $3.50 per ton, and the 200 lbs. of bone dust at $40 per ton will cost $4, making a total of $39 per acre, or nearly 2½ times the value of the fertility removed by the milk in one season. Perhaps the learned professor will say that he did not apply this manure to maintain the fertility, but merely to get rid of the huge heap which accumulated in the barnyard. We ask the professor if he could maintain the fertility by pasturing four cows per acre.

In a previous statement we doubted whether these wild theories of the scientific professors were attributable to their ignorance or to their desire to fraudulently perpetuate our live-stock boom; but more recent investigations have convinced us that the ignorance is there—with or without the fraudulent intent. We arrived at this conclusion after perusing the reports of other agricultural professors. For example, in a report recently issued by the Agricultural Experiment Station of Wisconsin, the director, Prof. W. A. Henry, says (page 47):

In attempting to discuss an experiment like this (stock feeding), one meets with the difficulty of assuming prices for the food consumed. Some persons insist that the prices charged for the feed should be just what it cost for the farmer to raise. It would seem, however, since few can definitely set that price, the common market price should be the one assumed.

Now, Prof. Henry is acknowledged to be as honorable as he is scientific, and nobody can accuse him of fraudulent intentions. We admire his abilities and learning as a scientific professor, and yet the ignorance which he displays as an accountant is astounding. When our farmers disagree on any technical point pertaining to their calling, we undertake to settle the matter to the satisfaction of all who are not blinded by prejudice, ignorance, or partyism; if we could not do so, we would consign our business into the hands of wiser men. On page 28 of the same report, Prof. Henry says:

While selling off any agricultural product means parting with some of the fertility of the farm, which has been locked up in that product and carried off with it, there is in this operation, as in all others, a wise and a foolish method of procedure. Observation has already taught the farmers of Wisconsin that growing grain and selling it from the farm is an exhausive process, while to feed the grain and sell live-stock—or better yet, live-stock products, such as butter, cheese, or wool—is a practice much to be encouraged, because under such a system the soil maintains its fertility longer.

The inference to be drawn from the above statement, considered in connection with the statements and general tone of other agricultural writers, is that all these authorities adhere more or less tenaciously to the false theories which we have exposed. Their error arises from their inference that the same crops are grown under all systems of husbandry; whereas in practice each branch has a rotation peculiar to itself, so that the market scales, in connection with the analysis of the products sold, forms the basis of the soil exhaustion of the farm, and honest professors would mention this fact if they understood the science of debits and credits. We have shown that the system of farming in itself does not decide the soil exhaustion, and the remarks of Prof. Henry in the above quoted paragraph infer unconditionally that the system of farming by sales of only the stock or stock products produces the least exhaustion.

Another fallacy which those learned professors of agriculture fall into is that they fail to distinguish between manure and plant food, and it is only the latter which the farmer need consider in questions pertaining to soil fertility and exhaustion. By their method of thinking they adopt the motto: "The more manure, the more plant food," whereas, in the more intensified systems, "The more manure, the less plant food" (except, of course, when feeding stuffs are purchased), because the quantity of the manure produced is in exact proportion to the pressure on the market scales, so that the size of the manure heap, as well as the market scales, is a standard of the soil exhaustion. In practice, however, there is also another factor which still further increases the soil exhaustion in dairy or beef farming, viz., the larger the manure heap, the greater is the waste by leakage, evaporation, etc.

(To be continued).

Glanders is as yet an incurable disease, and as it is highly contagious and fatal when appearing in man, all afflicted horses should be killed at once.

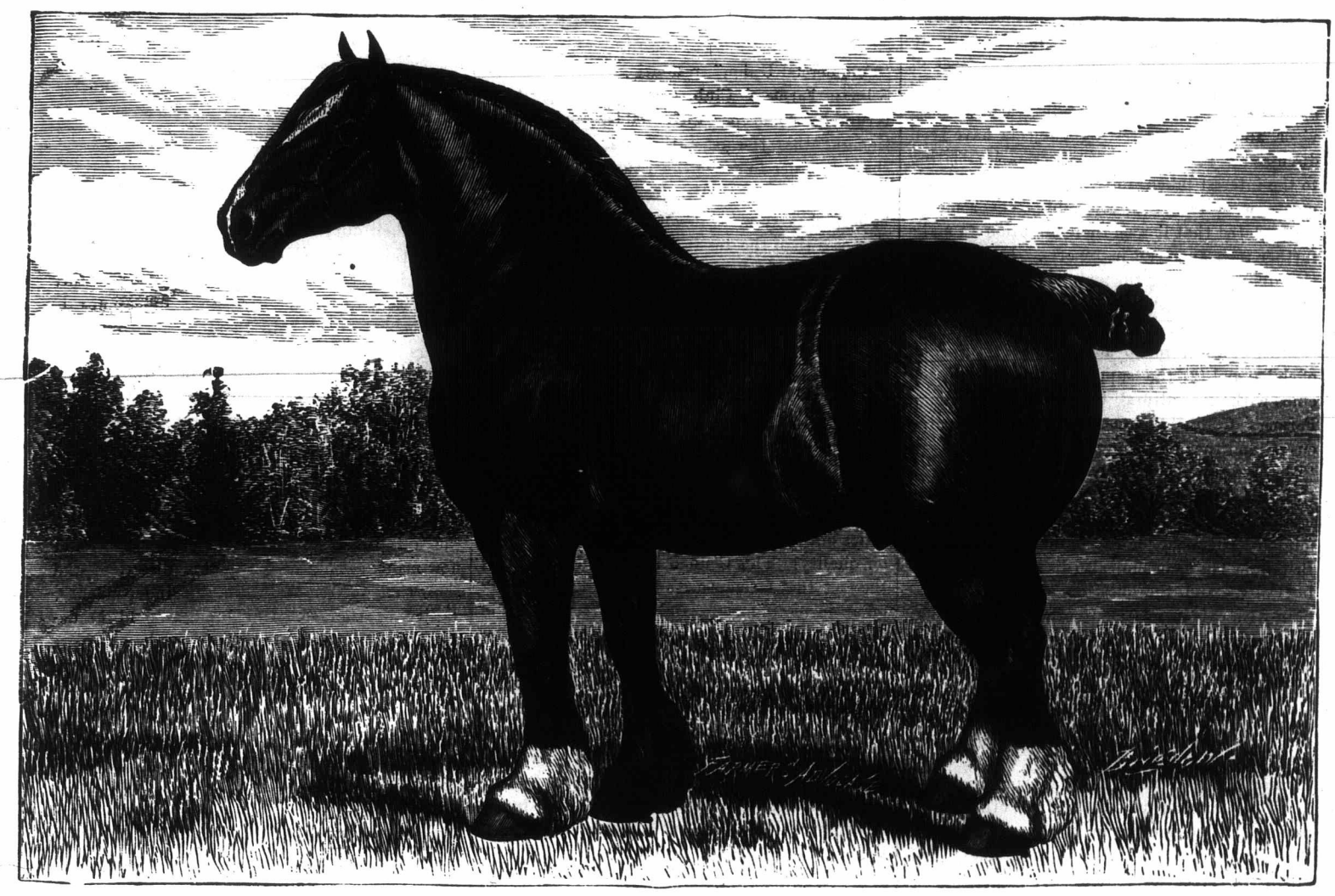
Professor E. W. Stewart, close student of animal nutrition, having calculated that skim milk to wet cut feed before mixing in bran and oil meal is worth 25 cents per 100 lbs. for cows, "Hoard's Dairyman" asks: "If that be true, what does a butter-making farmer want hogs to eat his skim milk for?"

A Noted Clydesdale Stallion.

In the accompanying illustration we present the noteworthy Clydesdale stallion, TROJAN, (5417) the property of Mr. William Rennie, Toronto, Ont.

Mr. Rennie is already well known to our readers as one of the most enterprising citizens of Canada, and his talents have not been circumscribed to one line of business. As a seedsman and agricultural experimenter he has been of immense service to the farmers of Canada, and has commanded a leading position in various departments of agriculture, especially in connection with the Industrial Exhibition.

The fact that, as a successful business man, Mr. Rennie has embarked in the importation and breeding of Clydesdales is a convincing proof that there is a large field open to all enterprising farmers who feel inclined to undertake this pursuit, and we consider it a high compliment to the Clydesdale breed of horses that he has chosen it in preference to all other breeds. He has been several years in the business, and it has flourished so much under his able management that he has erected commodious stables in Toronto, and he heartily welcomes all visitors who are desirous of inspecting his fine collection. His agents in Scotland are constantly on the look out for the finest specimens that can be purchased, and they are shipped to him here.



CLYDESDALE STALLION "TROJAN," THE PROPERTY OF WILLIAM RENNIE, ESQ., TORONTO.

Foremost amongst his present collection is Trojan, a stylish two-year-old, by Corsewell (1420); dam by sire of Darnley (222), of distinguished career. His color is a rich bay, with white strip on the face, the hind legs and one fore pastern being white. His high-arching crest imparts great attractiveness to his style; his full chest betokens a sound constitution; his muscular build and concentrated bone are unfailing tokens of strength, and his whole make-up is a marvellous combination of power and action. For his youth, he is a noted prize winner. As a yearling, and in the home of his famous race, he won honors; he secured first at the Old Monkland Society Fair, and glided off with second at the Glasgow Agricultural Society's Exhibition. This year, at the Barrhead meeting, he was awarded the gold medal for the best horse of any age, and again won first at Old Monkland. His breeder feared no competition where quality was at stake.

Amongst the other famous Clydesdales owned by Mr. Rennie may be mentioned the following: Bravissimo (4876); imported last August; foaled April 24, 1884; bay with white strip on face, near fore leg and hind legs white; fine quality and style and action; weight, 2,000 in moderate condition; sired by Belted Knight (1395); by Glenecd (363); dam Meg of Sypland (444); by Gladstone (333); sire of dam, the noted horse Lochfergus Champion (449), sire of famous Darnley (222). Distinguished prize winner as a foal; great demand for his service at Glasgow.

Belted Knight (1395); sire was a distinguished prize winner; first as a yearling at Stranreaer, and fifth at Highland Agricultural Show, Perth; second at Ayr, Glasgow, Royal of England, and Highland Agricultural Society as a two and a three-year-old.

Nell of Auchtraburn (604), dam of Belted Knight was second at Ayr, as a yearling. Meg of Sypland (444), dam of Bravissimo, is also dam of Charmer (2014) and other noted horses; won three firsts at Kircudbright, first at Dalbeattie; left fine foals in Scotland; serves this season in York county.

Real Mackay (5407); two-year-old, by "What Care I;" the sire of dam, Lord Lyon Knight of the Shire (5120); two-year-old by Knight Snowdon (2212), sire of dam, Warrior.

Star of Stewarton (5376); two-year-old; by Darnley (222); bay with black points, splendid substance, and is probably the only pure bred Darnley horse in Canada.

Gay Boy (5028); three-year-old; by Trademark (3269); bay, four white legs.

Carnworth; two-year-old; by Harold; bay, four white legs.

Amongst the fillies may be mentioned Lady Kenmuir (vol. X); yearling, by Kenmuir Prince (1459); by Prince of Wales (673); dam by Darnley, bright bay, with white legs; a typical Clydesdale.

Lady Sceldon (vol. VIII.); two-years; by Breadalbane (1078); bay.

Fanny of Roadent (vol. X.); by Maranthan (2994).

Dairymen well know that a cow when removed to a strange place is very apt to shrink her butter yield considerably. If the new owner will try the card and brush every morning for the first week, he will find it an excellent means of making the cow contented with her new home, and because he gives her pleasure she will soon become attached to her owner. This will have the effect to bring her back to her natural butter yield sooner than almost any thing that can be tried.—[Hoard's Dairyman.

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 15th ult., Vice-President Anderson in the chair. The absence of President Leitch, who was detained on account of having met with a severe accident, was deeply lamented by the members present.

COMMUNICATIONS.

Communications were read from the secretaries of several amalgamated clubs in response to questions sent them by the Council. Most of the clubs adjourned during the busy summer months, but started up again with renewed vigor, and many interesting subjects have been discussed. The reports of the secretaries relating to the interest taken in the milk-testing instruments were rather discouraging, but some of them stated that it was their intention to make further tests and send in reports. In answer to the question asking the opinions of the clubs as to the disposal of the funds in the hands of the Council, the chief advices given were: (1) The sending of a lecturer to aid in the organization of clubs; and (2) the supplying of amalgamated clubs with agricultural books. At the Selman Farmers' Club, "Commercial Union" was discussed and the following resolution was passed: "That we are in favor of commercial union with the United States, provided it shall not interfere with the legislative independence of the Dominion Parliament, or discriminate against Great Britain." The same club also discussed "Wintering Colts," and the question of feeding wheat bran with oats in relation to other relative profits was inquired into, bran being $12 per ton and oats 28c. per bushel. The question could not be determined, but many members favored the mixture, and it was stated that roller bran was sifted, the farmers only getting the hulls, which they had to put up with. The North Dawn Farmers' Club discussed the following questions: 1. "Does farming pay as well as other occupations?" Decision given in the negative. 2. "Are horses or cattle the more profitable?" Decision in favor of horses. 3. "Commercial Union." Decision held over for next meeting. The chief subject discussed at the Stockdale Farmers' Club was "Small Fruit Culture." The Secretary of this club (Mr. W. H. Phillips) stated that the reason why the lactoscope awakened so little interest amongst the members of this club was that theirs was a cheese district, and it was therefore the quantity of milk that the farmers were after, and not quality. The Granton Farmers' Club discussed the following questions: 1. "Dairying." 2. "Mixed Husbandry." 3. "The best crops for green manuring." Decision in favor of clover. 4. "Commercial Union." Decision in favor of the scheme, providing fair and honorable terms could be obtained. 5. "Wintering Stock." This club only tested one cow, by Chas. Avery, the result being 5½ percent of butter fat, and the quantity of milk was 1½ gals. at each milking. This club recommended agricultural books instead of lactoscopes.

Moved by John Kennedy, and seconded by J. K. Little, that the Maple Leaf Farmers' Club (Morris Tp., Co. Huron) be amalgamated with the Dominion Farmers' Council. Carried.

Mr. M. Black is the Secretary of this new club, and the number of members is 26.

The correspondence gave rise to a lively and lengthy discussion. Comments on the subjects discussed were first invited. It was decided that bran had a high feeding value, generally higher than oats, pound for pound, and that roller bran had a higher nutritive value than that from wheat ground by the stone process, but nothing was known about sifting out the hulls. A member stated that such subjects as "Does farming pay as well as other occupations?" were not suitable for farmers' clubs, for farmers had no facts or figures which could be relied on to arrive at correct conclusions. The members of the Council were not unanimous as to the meaning of the "Commercial Union" resolution passed by the Selman Farmers' Club, some regarding it as favorable, some as unfavorable, and others thought that the resolution was put in that shape in order to evade the issue.

VICE-PRESIDENT ANDERSON.—It is plain to be seen that we must devote our funds to other purposes than the testing of milk and the establishment of a herd-book. The experiment we made was a grand one, as we now see plainly that our farmers are not yet prepared for herd-books founded on the only sound basis, and it is questionable if public funds should be squandered for advancing any schemes of this kind. Nor is this apathy on the part of our farmers unnatural, for so long as milk is valued only by its quantity, no attention being paid to the quality, there will be no demand for milk-testers or herd-books.

J. K. LITTLE—Is the milk at our cheese factories not to be tested for adulterations, if not for quality? This Council has abundant proof of the fact that farmers are adulterating their milk on an increasing scale, and the practice should be stopped. There are now three propositions which present themselves: (1) To let things go on as they have been. (2) To appoint inspectors to prevent adulteration; and (3) to institute a system of testing at the cheese factories and dividing the profits according to the quality of the milk. The latter plan would compel farmers to pay as much attention to the quality as to the quantity of their milk; but much depended upon the cost of making the tests.

W. A. MACDONALD—The cost can easily be figured, and it is just as easy to test for quality as for adulterations. I have tested almost every known method, and I can now make three distinct and accurate tests of a sample of milk in less than ten minutes, viz., finding the specific gravity, the fat, and the total solids. My system of testing is not known in Canada. I only use the lactoscope for making rough tests in cases of suspected adulteration, as it is not accurate enough when milk is to be paid for according to quality. It has been objected that the percentage of fat is not the right standard for testing milk in the cheese factory. There is not much force in this objection, although I prefer taking the total solids as the standard for cheese, especially since there are such easy methods for ascertaining the total solids in the milk. Milk-testing in the hands of a novice would be a fraud upon our farmers. It is almost impossible to get an experienced inspector.

HENRY ANDERSON — Whatever system is adopted, the testing should be done by a competent inspector, as the cheese-makers are not independent or skilful enough. The system of testing should be thoroughly reliable, so that no patrons could raise objections to it. I am not in favor of sending out a lecturer from this Council to organize farmers' clubs, for the scheme would be very expensive, and, besides, we are getting along already beyond my previous expectations. We have amalgamated at least an average of one club at every meeting since we started organizing clubs. A good lecturer might create some enthusiasm wherever he goes, but the stimulus would be unnatural. Farmers already see the necessity for organizing, and if they do not take steps of their own accord when the opportunities are presented to them, the effects of preaching to them would not be lasting.

JOHN O'BRIEN—I rather like the proposed scheme for presenting agricultural books to amalgamated clubs; but if they are given free the farmers will not appreciate them so much as when they pay for them. The question is, would we be fulfilling our duty in spending our funds in the best interests of agriculture, if we distributed agricultural books? The clubs should feel it their duty to help as well as be helped, and I think the scheme would work by requiring each club to prepare a paper, say once a year, to be sent to us for discussion and approval. The books would help them to prepare their papers and discussions, and more accurate knowledge would then be disseminated, thus benefiting the whole agricultural community by our funds.

W. A. MACDONALD—We can accomplish no tangible results without a policy or platform, and it is time for us to adopt one—some grand principles which will thrill our farmers. With the aid of our amalgamated clubs, we should now make a bold strike in this direction, and show that we are not lacking in independence, ability, or courage. Our funds should be devoted to the carrying out of our principles.

Further discussion was postponed until the next meeting of the Council.

WINTERING STOCK.

The following paper by Jos. Martin, sent by the Secretary of the Granton Farmers' Club, was next read and discussed. It was discussed before that club, and the members pronounced decision in favor of statements made. The Secretary of the Council remarked that the paper was published in a local paper in Clinton, and thought that all the clubs should be encouraged to get their meetings reported in the local press:—

There are several things which require close attention during the winter months, such as food, regularity, cleanliness, warmth, ventilation and gentle treatment. Now, if you want cattle to thrive, you must see to these things, for if not properly seen to, you may expect that it will cost considerably more than if they were properly seen to. First, I will take the wintering of calves; it is the growth of bone and muscle that is wanted and not the laying on of fat. Clover hay, chaff, ground oats, bran and roots must be fed in sufficient quantities to maintain a healthy growth. Now, if fed with these things they will grow rapidly and will be in good order to turn them out to pasture in the spring. Now I will take the wintering of fattened cattle. The food most suitable during the growing period is not equally as good for fattening; the object then was to procure bone and muscle principally, now fat is mainly wanted, therefore, peas, corn, flax seed or oil cake is good for fattening purposes.

It is not very easy to say which of these is the best to feed, or to lay down any cast iron rule, as values vary greatly in different places and at different times; 5½ lbs. of pea meal, 4½ lbs. ground oats, 2 lbs. bran, 40 to 60 lbs. mangels or turnips and clover hay fed daily to a well-bred bullock will increase his weight at the rate of from 2 to 2½ lbs daily. The meal and bran should be mixed and divided into three feeds, and when fed should again be mixed with cut straw or hay, mangels or turnips, fed morning and night, and all the hay that will be eaten at night. Roots are a great aid to digest more solid food, tending to keep the bowels regular and the bullock healthy. Regularity in feeding and watering is a great benefit. Cattle when fed at the same hour each day lie down quietly after each meal to rest, and as each feeding hour comes around they are up and at their feed with keen appetites; when the feeding is done irregularly, they are always uneasy; upon a door opening or hearing any one moving they become restless, as they expect to be fed, and so by their restlessness the natural waste is increased. While sufficient to satisfy the appetite should be given, anything like overfeeding should be guarded against, as the food is wasted, and an overfed beast takes several days to get into proper shape, thereby you are out of pocket, and the beast loses flesh. Every farmer should notice at every feeding hour how each bullock has disposed of the meal before, and increase or decrease the food if necessary. I believe they should be fed five times a day, the first at 6 in the morning and the last at 8 at night, and the other three at equal intervals during the day. They should be turned out before the noon feeding hour to good water, except in severe weather, and allowed a half an hour's exercise, as it prevents them from getting stiff or crippled and will keep them in good trim for shipping. Cleanliness is also important, as it promotes rest and quietness, and they will fatten much quicker, according to the amount of food consumed; with the hinder parts clothed with manure, and lice on their body, how can a bullock lie down at ease. When not feeding they will be on their feet licking and rubbing and trying to free themselves from that dirt, thereby causing a loss of flesh. Feed boxes should be kept clean, for if meal and other foods are allowed to gather and ferment, it taints the food, which is then refused. Warmth—If cattle in their stalls feel the effect of every chilling wind that blows, a large portion of the food consumed, which should be stored up as fat, goes to restore to their bodies the heat extracted by the cold surrounding air. It is much cheaper to have warm stables than to keep up heat with expensive food. Now then it is possible to have them too warm and badly ventilated, Ventilation—Animals require plenty of pure, fresh air to keep them healthy. Having warm stables the impure air should be allowed to escape and fresh air allowed to enter in such a way as to prevent a current of air from blowing directly on the cattle. Gentle treatment is necessary, as cattle subjected to kicks and blows are always more or less excited, which hinders them from fattening. A good feeder will soon gain the confidence of his cattle, as they learn to expect from his hands food and kind treatment, and fall into that quiet restful condition that is conducive to the laying on of flesh.

Mr. Martin's paper created a short but animated discussion. The leading objection raised against his views was the lack of proper distinction between bone and muscle forming foods and those designed to produce fat and heat. It was stated the feeding stuffs distinctly designed for producing bone and flesh were oilcake, bran, and peas, while corn was specially a fat producer, oats being a medium between these extremes. Some members objected to feeding five times per day on the ground that it made too much labor, while others held that there was little or no extra labor or expense where the farmer had stock enough to engage the exclusive attention of himself or his hands. Feeding four or five times a day was not objected to on any other grounds save that of labor and consequent expense. The paper was unanimously received, and the writer was congratulated upon the general soundness of his views.

FENCES OR HERD LAWS?

Vice-President Anderson read the following paper on the above subject, the discussion of which was the programme of the day:

In the July number of the ADVOCATE there was an estimate, taken from a report of the Fruit Growers' Association, of the cost of fences, by which it was calculated that the average annual cost per acre of fencing a 100-acre farm into 10-acre fields, would be for a straight post and rail fence, $1.87, and for a common snake rail fence, $2.10 per acre.

This was evidently an extravagant estimate, and the editor reduced the cost by a calculation in the same article to about one third of their figures, that is, 78 cents per acre per annum to make and maintain a common rail fence.

By my calculation, a first-class post and board fence, or a wire fence with six wires and iron posts and braces, can be built and kept up for considerably less than his estimate for a rail fence. The owner of a 100-acre farm would have to make 820 rods of fence, with the owners of the adjoining lands making half of the line fences, to divide his land into nine fields, which is all that would be required, and far more than is generally used.

Either a wire fence with six wires and iron posts, or a board fence with cedar posts, can be built for $1 per rod, and it is safe to assume that either of these fences would last for at least 25 years. An annual payment of $64.15 would repay the whole first cost, $820, with six percent per annum interest in the 25 years, that is, 64.15 cents per acre per annum. And in my opinion, wire fences would be little worse at the end of the time. I may mention that I began putting wire fences on my farm about seven years ago, and as fast as the rail fences were done, I have been replacing them by wire ever since, and I am satisfied that a wire fence with six wires, iron posts and a bank underneath, is the best and most durable fence that has yet been introduced.

I have thus shown that to keep a farm well fenced into convenient fields, the cost would not exceed 65 cents per acre per annum, or $65 for the farm. But how much of this we might save if we had a herd law strictly enforced is another question. To answer this, we may safely assume that if all boundary fences were removed, every farmer of 100 acres would certainly need enough movable fence to enclose two separate 10-acre fields, with more or less to fence a lane to the buildings, or to water—say 320 rods for the two fields and 80 rods for the lane, equal to 400 rods. The annual cost of making and maintaining 400 rods at the same price as a permanent fence, would be $31 per annum, so that all that could be saved if the movable fence was as cheap as the other kind, would be $34 per annum, while it is probable that a movable fence would cost more than a permanent one, and would not likely last half as long; so that I conclude that all the money we could save in fencing by a herd law, is scarcely worth taking into account, unless our farmers adopted the soiling system of feeding, and did without fences altogether, which they are not likely to do.

A correspondent in the November number of the ADVOCATE recommends the abolishing of road fences, not so much for the saving of expense as for improving the appearance of the country, and to prevent snow drifts that obstruct travel and smother crops by piling the snow by the fences, and freezes them by leaving the open fields bare. These, no doubt, are very important and desirable objects, but I believe they can be just as well secured by wire fences, as they are a complete preventative of snow drifts, and they can scarcely spoil the appearance of the country, as at a little distance they are invisible. I feel thankful that wire fences were invented, and that there is an inexhaustible supply of material, otherwise when timber became scarce, a herd law would have to be enforced by a necessity it would be impossible to evade—we should have nothing to make fences with.

We know by experience that it is useless to pass laws interfering with individuals' business or habits, until by common consent they are considered necessary, and are supported by the general opinion of the public. In the township of Westminster, and I believe in most other townships of Ontario, we have had for many years a stringent law forbidding all kinds of live stock from running at large on the roads, and making their owners liable for any damage they may do, whether the premises were fenced or not. But in three wards out of the four in Westminster it has almost been a dead letter. As long as animals on the roads did no harm, they were not disturbed. Farmers had to keep up fences for their own stock, and if it was any benefit to a tradesman or a poor person to keep a cow on the road, they were welcome to it. But in the other ward that includes London South, where nine tenths of the people have no cattle and where animals running at large did a great deal of damage to gardens and sidewalks, there it was felt to be a necessity, was supported by a large majority, and has been strictly enforced.

Circumstances alter cases. In cities and towns no doubt it is expedient and necessary to confine cattle and abolish fences, and the plan is said to work well on the wide prairies of the West; but in my opinion, the farmers of Ontario will have to continue fencing as they are doing at present, as the vast majority would consider that the trouble of shifting movable fences and the loss of pastures in the stubbles would more than counterbalance the small saving effected by dispensing with road and line fences.

DISCUSSION.

A MEMBER.—Mr. Anderson forgot to mention the value of the road to the farmer when brought under cultivation or planted to trees. The correspondent referred to by Mr. Anderson mentions that the State law of New York permitted the farmer to cultivate the road and grow crops on it just the same as if it were his own land, which would be an immense gain, especially to the owners of corner lots. This would check the growth of weeds on the road sides.

In answer to an inquirer, Mr. Anderson here explained our herd law, and said that township councils had the power to pass laws regulating the roaming of stock on the highways. It was not necessary to pound the stock, for the owner could be fined before a magistrate after giving due notice.

JOHN KENNEDY.—It is the experience of farmers in my neighborhood that wire fences ruin horses and colts, and many are opposed to the construction of such fences. Where wire fences are found, the snow piles up in the middle of the road, instead of remaining in banks on the road sides, as in places where other fences are constructed.

J. K. LITTLE.—My observations coincide with Mr. Kennedy's; but I am of opinion that the time must come, sooner or later, when our fences must be abolished, and the soiling system established.

HENRY ANDERSON.—Wire fences leave the snow level all over the country, and it is only found piled on the road when the snow-fall is heavy. I believe in building wire fences with high banks under them. In my neighborhood I only remember hearing of one mare that got hurt by a wire fence, which happened when she was playing with other horses.

SHOULD OATS BE GROUND FOR STOCK.

A member stated that he was waiting for an opportunity of referring to the portion of Mr. Martin's paper which spoke of feeding "ground oats." He would like to know the opinions of members of the Council as to whether oats should be ground or not.

The practice and opinions of members differed on this question; but the idea was generally con-

curred in that every effort should be made to teach calves to masticate their food as thoroughly as possible, and if they could be taught to do so, or if thorough mastication came natural to them, it was better to feed all the grain unground, it being then better digested than when ground grain was swallowed without sufficient mastication.

At the next meeting of the Council, Mr. John O'Brien will read a paper on "Winter Care of Manure."

The Farm.

How to Judge Soils.

In recent issues we explained how to judge soils so far as their physical properties are concerned, pointing out the effects of variable quantities of humus, clay, sand, and lime. We showed how the humus, or the vegetable portion, which contains the nitrogen and builds up the protein constituents of plants, can be judged by the dark color which it imparts to the soil, the more decomposed vegetable matter the darker the color. The other constituents which form the great bulk of the soil are clay and sand; although what is ordinarily termed sand also embraces minute fragments of various rocks.

The next point to be considered with reference to pure clay and sand is that they in themselves are not plant food. Pure sand is known as silica, and plants can flourish without it. Clay is a chemical union of sand and alumina, and does not find its way into the plant at all.

Now, the best way to get at the quality of a soil is first to find out what constituents are necessary for the growth of the plant, and then to analyze the different rocks from which the soil has been derived, to see if they contain all the mineral constituents necessary to build up the plant structures. This plan answers very well where the soil is made from the underlying rock, but most soils also contain substances which have been washed upon them by the waters of many ages, and this makes the judging of such soils very difficult by farmers who do not understand geology, mineralogy, chemistry, and physics. Even those who have a knowledge of these sciences cannot always tell by examining the soil whether it is fertile or not, but they may often arrive at practical conclusions, and they know how to test the soil in order to find out what constituents it is most deficient in. By making these tests, the cheapest way of keeping up the fertility and productiveness can be ascertained.

The part of the soil which has been derived from the rocks is called the inorganic or mineral portion, in order to distinguish it from the organic or vegetable portion. The inorganic constituents of soils are the following: alumina, lime, phosphoric acid, sulphuric acid, potash, oxide of iron, magnesia, silica, soda, and chlorine. All these substances, except the last three, are essential to the growth of the plant, and the productiveness of a soil is based upon the substance which exists in the minutest quantity, so that if this be applied, the productiveness of the soil may be increased just as effectually as if an application of them all had been made. Soda and chlorine in chemical combination form common salt, which the plant can get along without, as it can also do without silica. There are also minute quantities of other substances in most all soils, but they are too unimportant to be considered here.

Soils may be classified in various ways, but no classification has been found to be of much practical use to ordinary farmers. However, we shall do the best we can to make the subject plain. A loam is a soil which contains 40 to 60 percent of sand; if it contains 80 to 100 percent of sand, it is called a sandy soil, and if it contains 1 to 20 percent of sand, it is called a clay soil. The sand may be separated from the clay by putting a sample of the soil into a bottle or other suitable vessel, and after pouring in a quantity of water, the vessel is shaken. In a short time the sand and heavier particles of rock will sink to the bottom, and the floating clay may be poured into another vessel. If all the clay is not now removed, the process may be repeated. After settling, the water may be poured off, and when dry the percentages of clay and sand can be easily measured. The organic matter may be burnt out by heating the soil.

This process is very simple, but it must not be forgotten that the soil would be utterly barren if it contained nothing but pure sand and clay; it is the rocky fragments which the soil contains that makes it fertile in mineral constituents, and it is important to know where these minute particles of rock came from. As many farmers know the geological names of the stones found in their neighborhood, we will mention the leading ones here and give their chemical analysis, so that they may be able to form a good idea as to the fertility of their soil in certain constituents of plant food. This they can do by comparing the analysis of the stones with that of the plants:—

TABLE SHOWING THE ANALYSIS OF ROCKS:

Names of Rocks, / Names of Chemical Constituents.	Dolerite.	Granite.	Gneiss.	Micaschist.	Porphyry.	Trachyte.	Hornblende.	Augite.	Metaphyr.	Basalt.	Limestone (Sturtian).
Silica	% 48.2	68.6	67.3	79.5	75.2	64.2	42	49	58.2	45.9	.....
Alumina	10.2	14.4	16.1	13.4	10.9	17.	14	6	15.1	16.2	.....
Iron (ferrous oxide)	13.6	5.0	4.5	3.9	3.2	6.7	18.	15.	14.7	13.	2.3
Lime	14.6	3.9	3.9	.7	.7	.5	12.5	12.	4.6	10.3	96.1
Magnesia	7.4	.4	1.5	1.0	.4	.2	12.	17	1.5	6.3	1.3
Potash	3.7	2.8	5.1	4.7	3.1	4.4	.....	.....	1.7	1.2	.....
Soda	1.0	3.4	3.0	.4	4.0	5.1	.....	.....	3.0	3.6	.....
Water	1.9	1.1	.4	.8	.7	1.0	.....	.....	1.6	2.4	.....
Phosphoric Acid	.03	.58	.78	.....	.....	.55	.....	.....	.3	1.11	.8

The above rocks are from European sources, and the same rocks in different countries present slight variations in their composition. Granite is a crystalline mixture of felspar, with quartz and mica, and varies materially in composition; sometimes large percentages of potash are present, and sometimes the potash is replaced by soda. There are also felspars containing large proportions of lime as well as soda. Gneiss merely differs from granite in its laminated structure. As will be seen in the table, the percentage of one of the most important constituents, phosphoric acid, is very small, which is the cause of phosphate fertilizers, often giving marvellous results. Limestone (carbonate of lime) also varies materially in its chemical composition; several qualities have no phosphoric acid at all, and some contain a good deal of silica. The form in the above table is the carbonate of lime (90.1 per cent.)

The soils formed from rocks, when there is no admixture with other soils, are called *sedentary*, or weathered soils. The crumbling of the rocks is produced by the action of the weather (water, gases, frost, etc.), and being sedentary or remaining still, the soil partakes of the nature of the underlying rocks. There is also another class of soils called *alluvial*, which are often found in the valleys, and are built up by washings, by water or ice, from higher lands. These soils are, therefore, of a mixed character, and their composition and fertility naturally depend upon the various rocks from which they have been derived.

From the foregoing investigations soils have received the following classifications:—

CLASSIFICATION OF SOILS.

I.—SEDENTARY SOILS:

A. From crystalline rocks:

1. Felspar soils (composed of granite, porphyry, trachyte, etc.)
2. Augite and hornblende soils (composed of basalt, dolerite, melaphyr, etc.)
3. Mica and quartz soils (composed of mica-schist, gneiss, quartz-rock, etc.)

B. From aqueous rocks:

4. Sandstone soils.
5. Shale soils.
6. Limestone soils (composed of limestone, chalk, dolomite, etc.)

II.—ALLUVIAL SOILS:

7. Gravelly or mixed soils.
8. Sandy soils.
9. Clay soils.
10. Loam soils.
11. Lime or calcareous soils.
12. Marl soils (lime and clay mixed.)

In vegetable soils, or in soils containing a large percentage of decomposed vegetable matter, there is a practical way of testing its condition. A moist specimen of the soil is taken, and a piece of blue litmus paper is brought into contact with it. If the blue paper turns to a reddish tinge, the soil is acid, and the acidity should be corrected by the application of alkaline fertilizers. Such soils require lime or marl before profitable productions can be expected.

Testing soils by chemical analysis is a slow and expensive process, and very seldom practical results are attained. The quantity of certain constituents may be small enough to escape the skill of the analyst, and yet large enough to produce satisfactory crops. Another method, which is gaining popularity, is to let the crop make the analysis. If the normal percentages of the various mineral constituents of the plant be known, then by analyzing the plant the soil is found to be deficient in those constituents which are below the normal standard.

A great deal is said about the dairy cow, but we seldom hear anything about the dairy hog. The hog is getting to be such an important adjunct to the dairyman that the feeding of swine from the refuse of the dairy is a most important item in farm economy.

PRIZE ESSAY.

The Condition of the Canadian Farmer.

BY THOS. ELMES, PRINCETON.

The farmer is the connecting link between the Great Creator and all mankind. The great law was laid down at the beginning that life should only continue by the cultivation of the soil, and consequent toil of the husbandman. All pursuits in life sink into insignificance compared with this.

This is the high position in which the farmer is placed; but to come more directly to the farmers of our own country, we find, perhaps, they are more favorably situated than in any other part of the world. Here we have the richest of soils, where the farmer can produce all that is conducive to the sustenance, comfort and well-being of the human race. Around us are thrown the greatest bodies of fresh water upon the face of the globe, in whose lap we lie, safely shielded from tornadoes, pestilential diseases and famine. Our bread is certain, and water is sure.

But we also find the farmer surrounded by enemies from nearly all other classes of society, who form themselves into rings, associations, and combinations, which is a direct injury to the farmer. This he passively allows, not because of his weakness or inability, but simply on account of his docility. The farmer is born a king, but made a slave. He is as the lion, who, after securing his hard earned prey, allows the mice and rats to run over him, gnaw off his mane, obliterate all traces of his nobility, blind his eyes with dust, and then rob him of his food, leaving him hungry, bare and desolate. The farmer is deluded by the oratory of the politician, swindled by the oily tongue of the merchant and agent, robbed by railway and other combinations, burdened and oppressed by direct and indirect taxation, until endurance has long since ceased to be a virtue.

Were all this on account of his weakness or inability to withstand and resist, there might be grounds for sympathy, but we find he is a power that it would be impossible to resist if the agriculturists were united and made to stand for their rights. But we find they are isolated and disorganized, and take no interest in each other's welfare; consequently are governed, deluded, swindled, robbed and made mere serfs of the soil, and lion providers for all other classes of society; in fact, as has been quaintly said:—

Lives of farmers oft' remind us
Honest toil don't stand a chance,
The more we toil we have behind us
Bigger patches on our pants.

Let us look a moment at a very few of the schemes adopted to bleed and delude him. First comes the politician, usually a trained lawyer from some of the leading cities, with his oratorical wind, Grit or Tory, who is as ignorant of the resources of the country or its requirements, or how money is honestly made, as the farmer's dog. But if he has plenty of wind and brass, he is sure to be elected. He then marches to Parliament, where he is immediately surrounded by corporations, associations, monopolies and combinations, ever ready with their bribes or political support, and, as a natural consequence, their desires are granted. Then immediately, of course, the farmer is compelled by Act of Parliament to pay heavy bonuses to railways, and after building the roads, obliged to pay exorbitant rates for the transportation of his produce. Then comes monopolies, associations, rings, etc., who combine to make him pay exorbitant prices for whatever he may be compelled to purchase, and reduce as low as possible all he has to sell, by rates, commissions and other schemes. For instance, does a farmer wish to purchase say a machine of any kind, manufacturers have their associations, which control the price of their productions. After this there is from 20 to 50 per cent. added for agents' fees; in fact, farmers of Ontario alone are supporting a vast army of agents of different kinds, paying them large salaries, providing them with every luxury, simply to sell them, in many instances, something they do not require, or by their oily tongues delude them to their ruin by some fraudulent scheme.

Then in relation to whatever produce he has to sell, he has nothing whatever to say in regard to price, but must simply take whatever is left after all commissions, rates, storage, cartage, etc., have been deducted, or has been decided to be left, by associations and rings.

We live in an age of rapid advancement, which also has its disadvantages to the Canadian farmer. Steamships are building and running to every part of the world. The railway engine is rushing into the interior of every country, flooding the markets of the world with products of the Canadian and American farmer. This competition is likely to continue, and, indeed, increase. But the Canadian farmer has nothing to fear, as he has a great advantage in situation, being placed in the very centre of the best markets of the world, has a rich soil and fine climate, and has the great thoroughfares of the world's commerce at his very door.

But with all these advantages, still he lacks one thing, viz., a thorough knowledge of his calling. He is expected to extract enormously from his soil, and still retain its fertility.

What has he to fear from the vast products of India, Russia or any other country, which are but second class now, and are sure to deteriorate? What has he to fear from Australia, America, Mexico, South America, &c., if he produces a high grade of stock at the least possible cost, as the best will always secure ready sale at highest prices, while the low, poor grades from these countries must always be a drug? But this overproduction has its bright side; it has affected all the products of every clime, and what matters it if the farmer receive 50c. or $1 for his wheat or products if for his 50c. he receives $1 worth of tea, sugar, cotton or manufactured goods? But if we have a reckless spendthrift Government, overwhelming the country in debt and are obliged to meet all importations as they enter the country and impose a duty of 25 to 60 percent, it puts a different face upon it, and the farmer suffers severely from over-production. We find the farmers form a majority of the population of this country, and as regards value of property held by them, all other business sinks into insignificance. Therefore, the farmer should control, to a very large extent, the government of the country. But we find the minority rule, and he is practically left without a voice. Our national indebtedness is rapidly increasing, which simply means the lands of this country are mortgaged to that extent. Capitalists and men with large salaries and incomes can avoid fair taxation, but the assessor is sure to find the full value of the farmers' property, consequently it pays more than its share of direct taxation; he also suffers heavier than any other class of society from indirect taxation.

Does the farmer suffer all this because he lacks intelligence? I say emphatically no. It is granted on all sides the farm has produced the greatest intellects of any country. The pure air, the health-giving breezes, the pure water gushing from the hillside, the fresh upturned earth, all combine to produce a sound body and strong intellect; and as the farmer walks abroad in the great laboratory of nature learning daily from the actual and real spread before him, unfolding their unsearchable grandeur and beauty, we find his mind involuntarily expanding and his intellect strengthening.

The present and future peace and prosperity of our country lies directly in the hands of the farmer; to him all eyes must turn in this the day of adversity; but he must awake to the position into which he has fallen by his neglect to use his intellect and educate himself in his calling, unite and organize to annihilate all robbers and spoliators of his and his country's rights, extricate himself from the political mire which has almost swallowed him and his country, make all spoliators of whatever stripe tremble, exalt the heads of honesty, industry and economy; let all political dissensions which have divided in the past be forgotten, and only return when they shall no longer be an attack upon the very existence and prosperity of the country, and he has then nothing to fear. The future is bright, and peace, prosperity and advancement are sure to follow.

Mr. Henry Thompson, M R.C.V.S., says in his "Remarks on Chemical Manures," recently published:—"On light, sandy lands, clover-sick soils, and lands where potatoes are growing to a great extent, kainit, or potash, are almost invaluable, while their effects are simply marvellous. A dressing has almost the same effect as a dressing of common salt to ward off disease in stock, while it acts beneficially as a manurial agent as well." Kainit is said to be the same natural solvent of silica, an element of great moment in the growth and support of straw. We had many illustrations of this last season; for, on old lands long under the plow, which were timeously and judiciously dressed with this salt, the quantity of straw was not only abundant, but, what was still of greater importance, it had stamina enough to bear its own weight and its crowning fruit of golden ears of grain."

Mr. J. J. Thomas, veteran and still watchful observer of pomological movements, gives, through the Country Gentleman, a suggestive reminder about old fruits that stay, despite the many and persistent efforts to crowd them out with new varieties: "Baldwin among apples still heads the list in several Eastern States; every attempt for fifty years to supersede it has proved a failure; Rhode Island Greening closely follows it. At the West, Ben Davis, a fruit of poor flavor, has a corresponding position. Bartlett among pears (a foreigner) has no equal for popularity in early autumn. Early Crawford holds a similar place with peaches, although hardly equal in delicacy of flavor to the finest white-flesh varieties. Lombard heads the productive plums. Attempts were made for nearly twenty years to displace Wilson strawberry, and it is only of late years that in some localities Crescent and Downing have taken its place, while the popularity of Sharpless is only local. The Concord grape still holds its position."

Interesting News from the Maritime Provinces.

[BY A NEW BRUNSWICK CORRESPONDENT.]

This is likely to be one of the most prosperous years in the history of New Brunswick. Business in all lines seems to have been prosperous, some, of course, more than others, and there is a general feeling of confidence in the future. The crops were quite up to the average, and the demand for the surplus is better than for many years. This is particularly the case in potatoes and hay. These products are being bought up at good prices, and a large amount of money is being left in the hands of the farmers.

Prince Edward Island, too, has had a fine crop, and is hard at work getting as much of it as possible marketed before the Gulf is frozen up. If the little island could only have communication all the year round with the main land, her advancement in material wealth would astonish the world. With her splendid fisheries and great agricultural resources, she could outstrip easily her sister provinces, if her business year continued twelve months; but as it is only a little over six, she is very heavily handicapped. The promoters of the scheme to make the year twelve months by the building of the Subway, are in good spirits, and are confident that in less than five years they will have the island anchored to New Brunswick by the proposed tunnel.

The drouth in Nova Scotia shortened the hay crop very much, and lessened some of the other principal crops in the eastern part of the Province. So that agriculturally, taken as a whole, Nova Scotia is not favored as the other Maritime Provinces, but trade generally is good. The coal mining industry is very prosperous, the Springhill Mining Co. having taken out more than half a million tons this year; and they have had orders to the amount of fifteen thousand tons a month more than they could supply. They propose to increase their output to a million tons a year as soon as they can accomplish it.

The venture of the N. B. Government in importing 16 stud horses for breeding purposes, to be kept by the Government and their services sold yearly by public auction for the improvement of the breed of horses, will no doubt bring about a great change for the better in the horse stock of the country. Clydesdales, Percherons, Shires, the Cleveland Bay, Coach Horse and the Thorough-bred were all represented in the purchase. One of the selections has turned out to be a trotter of the "first water." Whether he is more valuable for that, is a question on which there may be a difference of opinion.

New Brunswick has not had any Provincial Exhibition since 1883, and that was Dominion rather than Provincial. The laws relating to the matter up to last year provided that such an exhibition should be held every three years; but instead of holding the exhibition in 1886, which was the turn, the Government, in response to a request from the Board of Agriculture, used the money for purchasing the horses, thinking the interests of the farmers could be better served in this way than in holding an exhibition. At present there is a movement on foot for the counties of St. John, Kings, Albert and Westmoreland to unite and hold an exhibition either in 1888 or '89, in Sussex, to be followed by one in each of the other counties included in the movement. If such an exhibition is held next year, I think I can assure you, Mr. Editor, that you will be one of the invited on the occasion. I am glad to see you have got back safe and sound after your thousands of miles of travel.

Lessons from Last Summer's Drought.

In making calculations for next season's work, a reasonable allowance should be made for the possibilities of a repetition of last summer's drought. The first question which naturally arises is, if we prepare for a drought, what will be the result if the season turns out to be wet? Let us examine how far a preparation for drought would also be beneficial in a favorable, or even a wet, season. In a full treatise on the subject, the effects of drought in each department of husbandry should be considered separately, but a few general observations, more or less advantageous to all branches of farming, will facilitate the discussion.

All our farms receive pretty much the same quantity of moisture from above; but there are enormous discrepancies in the quantities brought to the surface from below. In coarse subsoils, almost the whole dependence must be placed in the refreshing showers, while in a deep, fine, well-drained subsoil, the supply of moisture supplied by the rain need not, to any appreciable extent, be relied on. A rich soil, other conditions being equal, withstands the drought better than a poor soil. This is a matter for very serious consideration, because the results of drought being largely caused by the removal of our forests, the policy should be to plant trees in a portion of our farms, and cultivate the remainder more intensively. It is contended that our annual rainfall is the same as in former years; but this does not alter the fact that the rain is more unevenly distributed over the seasons. Drought creates a tendency to diversify our husbandry; but this in itself is not a desirable tendency, for in our various sections, nature calls for specialties, and when her voice is not heard, there is a great loss caused by a lack of a division of labor. This loss is further enhanced by the fact that in a mixed system of husbandry, large sums are squandered in maintaining a complete set of improved machinery for all the branches of farming followed.

There are two methods for artificially retaining the soil moisture in a dry season; (1) by mulching, and (2) by a constant stirring of the soil. The latter method, however, is only a form of mulching, for by stirring the surface soil a coat of dry soil, which is nothing more or less than a mulch, is provided, and the moisture is thus prevented from escape just in the same manner as by a covering of straw or manure. Of all the methods for regulating the soil moisture, drainage is the most effective in land which requires it, and the exceedingly great value of drains lies in their power to remove surplus water in wet seasons, as well as supplying moisture during periods of excessive drought. Tender varieties succeed better when planted on a declivity sloped from the sun.

In grain growing, evaporation can only be checked by top-dressing, while in root or corn crops, the same results may be obtained by thoroughly and constantly stirring the surface soil. Light and early seeding is beneficial, for then the roots have a chance to grow strong and deep before the dry period arrives, and are thus in a better position to obtain moisture and nutriment. Root and other hoe-crops should be thinned out more thoroughly than in wet or moderate seasons. Don't permit the weeds to drink the small quantity of moisture that should support the growing crop. Plowing at the right season, depending upon the character of the soil, has some influence, but it is more important to plow and cultivate at such seasons as will be most destructive to the weeds. However, it is fast getting to be of greater importance to plow at such times and in such a manner as will destroy the most insect pests which hibernate in the surface soil, but those farmers who won't learn the best time to plow for the eradication of weeds will never know when to plow for the destruction of injurious insects. As we pointed out in a recent issue, the earliest seeds come from the north, and it is desirable to have early maturing varieties in order to snatch an early harvest from the drought. Don't neglect to harvest the hay early. Sow millet and other good soiling crops, and be as saving as possible of such feeding stuffs as usually go to waste.

On the dairy or stock farm, there are also many precautions necessary. Chief amongst them is an abundant supply of pure water, which may be obtained by reading an article on the subject published in our November issue. Spread manure over the pastures in winter in order to enrich them, thus giving the grass an early start and providing a mulch, whereby the effects of the drought can be largely evaded. Do not turn out the stock too early in spring; thereby, especially when you overstock your pastures, the grass will become weakened and cannot resist dry weather. Do not overstock even when the season advances, and do not overgraze in the fall. Do not invest too heavily in thoroughbred stock, for they cannot successfully withstand the vicissitudes of droughts. Dispose of all inferior stock, for you may gain more by doing so than you lose by the dry weather.

But you may again ask: What if the season turns out favorable or wet? If you read the above precautions over again, you will find that there is scarcely any one which would prove disadvantageous in any kind of a season other than that subjected to drought, although some of the preparations may be a little more costly. At any rate, if you always prepare for a drought, you will gain far more in any given series of years than you can possibly lose.

The remark of Hon. Harris Lewis, that there is more difference in the cows of any of the breeds than in the breeds themselves, and a greater difference in butter-makers than in the cows, conveys a great deal of truth which it were well to heed.

The number of sheep in the United States rose from 19,000,000 in 1840 to 51,000,000 in 1884; but declined to 45,000,000 in 1887. The marked decline occurred mainly in the western and southern States, notably in Texas, and is attributed in great part to the decline in the price of wool since 1884.

Commercial fertilizers, says Prof. Alvord before the American Assocation for the Advancement of Science, have come so much into use, and the demand for animal fertilizers is so great, that the entire production of agriculture for a year is held at hardly twice as much as its value would be for fertilizing purposes. Four million tons of nitrogen, worth $1,440,000,000; 3,000,000 tons of potash, worth $300,000,000; and 2,000,000 tons of phosphoric acid, $540,000,000, are annually taken from the soil by farming operations. The wheat export annually (3,000,000) equals 2,000,000 tons of flour. Were wheat flour sent in place of this grain, the breadstuff going abroad would be of the same value, while the plant-food exported would be less in value by $12,240,000 per annum, and the cost of freight upon 1,000,000 tons would be nearly saved.

PRIZE ESSAY.

The Condition of the Canadian Farmer.

BY THOS. BEALL, LINDSAY, ONT.

Now, when the policy of discontent is being so industriously disseminated amongst the farming class, it seems a fitting time to enquire into the condition of the Canadian farmer. If the farmers—about six-tenths of the population—are in the condition described by the advocates of commercial union, viz., that their lands are so impoverished that the best of our farmers can only realize from 2 to 2½ percent on their investment, and that their farms are so heavily mortgaged as to be past redemption, and nothing but absolute ruin stares them in the face—then, indeed, are they in a pitiable condition; and as the farming class is also said to be the "back-bone" of our country, and as the back-bone of a country is understood to be a vital necessity to its stability and well being, it follows that our country must be in that state so pathetically described by our pessimists as "helpless and hopeless."

That such statements are not only utterly untrue, and that instead of being hopelessly and helplessly in debt, they are a wealthy and a money-making class, can be shown by reference to the Report of the Bureau of Industries for 1886, lately published. From it we learn that the area of assessed farming lands in this Province is 21,758,795 acres, about one-half of which is cleared; that the value of the land, cleared and uncleared, with the buildings thereon, is $831,758,040, and with the necessary stock and implements for working the same added thereto, gives a total of $989,497,911; that the rural population numbers 1,144,520 persons; that the value of the crops grown in 1886 was for wheat, barley, oats, rye and peas, $58,000,683; for corn, buckwheat, beans, hay, clover, potatoes carrots and turnips, $52,763,943; for wool, eggs, cheese and creamery butter, $8,185,493; from the sale of surplus horses, fat cattle and sheep, $9,158,013, making a total of $128,108,132.

From the foregoing figures it is easy to find the extent and value of the average farm, by which any owner may compare his standing and see at a glance whether his circumstances are above or below that of the average owner.

The area of the average farm is nearly—not quite—100 acres, one-half of which is bush land. The value of this farm with buildings is $3,822. The live stock and implements supposed necessary for working the farm, $725, or a total of $4,547. This farm yields products to the value of $588.76 annually, almost 13 percent on the total value. Therefore, supposing the farm, implements and stock to be mortgaged for the full value of the investment, the owner receives sufficient produce from the 50 acres of cleared land to pay the interest on the whole amount and have a balance of $270 on hand. But this is not all the revenue derivable from our average farm. A considerable amount is annually received from the sale of fatted pigs, poultry, honey, fruit and home-made butter, besides fire-wood and timber from the wooded portion. The farm, too, is always increasing in value. The increase from the year 1885 to 1886 was 3.17 percent.

Let us now sum up the value of the products of our average farm. Value of the products as given above, $588.76; the natural rise in the value of the farm of 3.17 percent, or $144.14, and the value of the extras, which may be set down at the very low estimate of $100, and we have a total of $833, or over 18 percent on the investment—a very large advance on the percentage given by the Chairman of the Farmer-Legislators at a meeting held by them in the Parliament Buildings at Toronto last spring, who then assured his brother farmers "that with the best of management not more than 2 percent could be realized on farm investments." And it must be understood that the figures given above are compiled, mostly, from the voluntary information given by the farmers themselves.

The statements made by our professional and paid agitators, and promulgators of discontent, respecting farm indebtedness secured by mortgage, are as untruthful as those respecting the unprofitableness of farming. At almost every public meeting during the past summer some zealous disciple of this new doctrine would descant on the enormous evils resulting from the wholesale mortgage of farm property, which they variously estimated at from one-quarter to four-fifths of its total value, and that the interest paid thereon was sent out of the country, and would result at an early date in our country's absolute ruin. The discrepancy in the proportions given of this mortgage indebtedness is sufficient to show that such ranters knew but little of the subject, and cared less. One of the most modest of these croakers of evil assures us that three-fourths of all our farm lands are mortgaged for at least one-half their value, which means that the indebtedness secured by mortgage amounts to $311,909,265, the annual interest on which at 7 percent would be $21,833,649, or almost exactly $2 on every acre of cleared land. The laws, usages and practices prevailing in this country respecting mortgages, precludes the ultra inquisitive person from ascertaining the true inwardness of his neighbors' private affairs; yet sufficient data exists whereby an approximate estimate may be made of the collective farm mortgage debt of the Province. Money secured by mortgage is obtained from two sources. From some one or more of our numerous loan and building societies and from private individuals. The total amount invested and secured by mortgage as per government returns, by all the loan and building societies up to the end of the year 1885, is $74,564,843. Now suppose the amount advanced and secured in the same manner by private persons to be one-quarter of that sum, the total would be $93,206,056. It is quite probable that more than one-half of that vast sum is invested in city, town and village property. Suppose it to be one-half, then the farm mortgage debt would be $46,603,028, and the interest at 7 percent only $3,262,212, or 29 cents per acre on all the cleared land. From the same source we find that the amount of interest payable yearly by the several loan and building societies out of Canada amounts to but little over 5 cents per acre.

After careful observation for many years, I am persuaded that much the greater part of the money obtained by mortgage by the farming class has been used in underdraining the land, building more commodious and comfortable barns, stables and other outbuildings for the use of a higher grade of stock, purchasing thoroughbred stock, and also new and improved farm machinery, re-building fences, and other highly remunerative improvements, and that the farms so conducted have become more remunerative, and whose market value has increased in value to a much greater extent than the amount so invested.

Another feature of the condition of the Canadian farmers must not be overlooked. A great many of them have saved a considerable amount of money and have invested it in purchasing bank stocks, municipal and provincial bonds, stock in joint stock companies, loan and building societies, loaned on farm mortgages, or deposited it in some of the various savings banks, and I think I am quite safe in saying that if the total amount of money so invested by farmers could be known, it would much more than equal the whole farm mortgage debt of the Province.

If a person should make an extended tour through the rural portions of this Province for the purpose of judging of its agricultural capabilities, he would see on every side abundant evidence of the fertility of the soil, in the thrift, ease, comfort, and wealth everywhere abounding, well-cultivated lands producing luxuriant crops, excellent grazing lands stocked with the best thoroughbred cattle, horses, sheep, &c., farm buildings, houses, barns, sheds, &c., always sufficient for comfort, and often luxurious, extensive and commodious, and all well furnished with every appliance for the pleasure, protection and convenience of the owners and their stock; their gardens and orchards producing in plenty the best-colored and highest-flavored staple fruits to be found in any country in the world; most of the heavy labor on the farm done by machinery—in the fields by self-binding reaping machines, mowers, seeders, sulky plows, horse rakes, grain and hay loaders, &c., and in the barns, stables and outbuildings by straw-cutters, grain-crushers, turnip slicers, and nearly all threshing by horse or steam power. In most houses almost every home comfort may be found, including the sewing machine, the reed organ or the pianoforte. Churches of all denominations abound, and almost every child of school age is within easy reach of a good, free school. On Sundays, or at social out-door gatherings, such as church picnics or Sunday-school anniversaries, which are often convened during the summer months. Ontario may be seen in another light. The holiday dress is then assumed. On such occasions hundreds of families sometimes congregate, and the people seem to vie with each other as to who shall make the best display. All are as orderly and well dressed as city folks on like occasions. There, too, may be seen a fair representation of the class of horses, carriages, harness, robes, &c., kept for comfort and pleasure, and everything in excellent condition, the whole turn-out being often worth from $400 to $1,000 each. All of the foregoing and much more would have been observed by our tourist, who, bearing in mind the gloomy reports he had heard, would certainly arrive at the conclusion that the farming class of our fair Province had been greatly maligned.

Farmers! Do not countenance or support traducers of our new splendid country, and when they insult you by speaking of the poverty of your class, ask them to name some other country where farmers are equally prosperous, reminding them at the same time that you have the clearest proof that your farm property had doubled in value in the twelve years—1874 to 1885. Wait for their answer. In the meantime be thankful that you are in the enjoyment of a greater measure of peace, prosperity and wealth than the farming class of any other country in the world.

Value of Manures for Different Soils.

The farmer's profit depends, to a large extent, upon the attention which he gives to his manure heap. But there is another side to the question. Is the manure worth all the labor and pains which must be bestowed on it in order to save the fertilizing constituents? This question is worthy of investigation, although it is certain that the labor expended is a losing business when there is no profit in dairying or stock-raising. The time is now past when the keeping of stock is regarded as a necessary evil which must be indulged in order to produce manure. There are now so many cheap fertilizers in our markets that stock-raising can only be defended when there is also profit in the feeding. The study of the care of farm-yard manures is a waste of time so long as there is no direct profit, and the energy thus wasted should have been employed in the study of other methods of maintaining the fertility of the soil.

Meanwhile, in giving advice, we act on the presumption that the farmer has a certain amount of leisure in winter, so that any extra labor expended on the manure heap is a clear gain, his time not being more profitably devoted to other work; in other words, he is not under the necessity of depending upon employed labor.

There are various points which you should consider now—long before the manure is required for the crop; the richness and physical properties of the soil to which the manure is to be applied; the kind of crop to be produced; the time and methods of application; the kind and quality of the manure; the frequency of application, etc. On an undrained clay soil, the manure should be but partially fermented, for coarse manure improves the texture of such soils. Coarse manure is produced by tramping the heap solid, which disfavors fermentation, and the presence of a large percentage of moisture in the manure heap acts as a further check. Partially fermented manure is also desirable when it is intended as a mulch, or applied as a top-dressing, especially if it is intended that the fertilizing action of the manure should last three or four years, instead of one or two. Top dressed manure decomposes much more rapidly than when plowed under, so that it should be applied more frequently when top-dressed than when plowed under. On sandy soils a different system of manuring should be observed. Such soils, on account of their warmth and porosity, devour manures very greedily; but if applied in a coarse condition just before the crop is sown, they injure the texture of the soil for a time. Coarse manure should therefore be applied and plowed under some time before seeding; but if this cannot be done, the next best plan is to apply fairly-well rotted manure just before seeding, and it should then be plowed under, not top-dressed. Another precaution in sandy soils is that the applications should be made frequently, say every second year—still better, every year—smaller quantities being applied at once. If this rule be not followed, an appreciable quantity of valuable fertilizing constituents will be washed deep into the subsoil and lost. On loamy soils, the manure may be applied almost at any time and in almost any manner. However, as such soils have about the right mechanical texture, it is not wise to disturb this condition by plowing under coarse manures. Either top-dressing or plowing under tolerably well rotten manure may, as a rule, be practiced—all depending more upon the season than upon the soil. There is only one way of treating vegetable soils—that is, don't apply any farmyard manure at all; it is far more profitable to use concentrated fertilizers. For all practical purposes, decomposed vegetable matter may be regarded as farmyard manure, and the crop grown yields too much straw and too little grain.

Fermenting the Manure Heap.

The regulating of fermentation in the manure heap is quite an interesting study, and is also attended with practical results in agricultural economy. In another article we pointed out the uses to which coarse and fine manures should be employed, and here we have only to do with the process of fermentation—in other words, the conversion of coarse and slowly available into fine and soluble manure. A large majority of farmers require both of these qualities.

The quality, and consequent fermentability, of the manure from the different domestic animals—horses, cattle, sheep, and swine—varies considerably. This quality is governed largely by the digestive powers of these classes of animals, as pointed out in our last issue; the greater the digestibility, the poorer the manure, and *vice versa*. Of the same nutrients in the foods, some animals digest a larger percentage than others. For example, the horse digests the same percentage of protein as the ox, while he digests less of the carbonaceous or non-nitrogenous nutrients, so that it is necessary to know the effects of the least digestible portions of the food on the quality of the manure. The percentage of water in the manure also changes its quality; the higher this percentage, the lower the value of the manure, all other conditions being equal. Fresh cow dung contains 20 to 25 percent of dry solid matter; horse dung, 25 to 30 percent, and sheep 30 to 35 percent. The fresh droppings of swine vary so much according to the food given that no definite rule can be laid down as to the percentage of water or total solids which they contain. It will thus be seen horse manure is richer and more concentrated than that from cattle, and sheep manure is the most valuable of the lot. The same remarks apply to the urine.

Horse manure being more open, coarser grained, and containing more nitrogen than that from cattle or sheep, it ferments more readily, its porous condition allowing more air to circulate through it. In fermenting qualities, the sheep manure is a medium between horse and cattle manure, and hog manure, although naturally cold, readily dries out, and then possesses good fermenting qualities. The drier the manure, the other conditions being equal, the more readily it ferments. The more water in the solid excrement or in the urine, the less subject they are to the fermentive process, and this rule applies whether we consider the natural water or the water that has been added by rain or from other sources. Cattle manure is a slow fermenter because (1) it contains much water, (2) it packs solidly together, and (3) it is fine in the grain. The compactness is largely caused by its fineness.

From these explanations it will be readily seen how the manure heap can be fermented slowly or rapidly at the will of the farmer. The other condition of fermentation, viz., heat, is due to the openness of the manure. Every farmer will now see the effects of mixing the manures from the different classes of farm animals; the more horse manure, for example, the quicker the fermentation, other conditions remaining the same. Tramping and watering the heap check fermentation; keeping it loose and dry favors the process, and the farmer can thus regulate the fermentation to suit the soil and crop to which the manure is to be applied, considering also the time of application.

But when fermentation proceeds too rapidly, there is a loss of ammonia, which escapes into the air. There is also a rapid loss of carbonic acid, which, although it is not a fertilizer, has much value in the soil, as it aids in dissolving the rocky particles, making the food more available for plants. But carbonic acid is lost during the process of decomposition of the manure, even when no ammonia escapes.

Many experiments have been conducted to ascertain how this loss of ammonia can be most profitably checked. The addition of half a pound of gypsum or kainit per grown animal per day, applied in the stable, practically saves all the loss of the ammonia. It was found that there was a loss of 22.2 percent of nitrogen, under the best method of treatment, when no absorbents were used, which loss was reduced to 5.9 percent when 3 percent of gypsum was applied in the stables—that is, 3% of the total weight of the manure. The same experiment applied to the liquid manure reduced a loss of 69.8 percent of nitrogen to 6½ percent.

It is a good practice, as a rule, to haul out the manure in winter, and spread it on the field, but it should not be put in small heaps. It should be spread as evenly as possible, by which method there is no danger of loss, either in summer or winter, even if the manure is not plowed under as soon as practicable. Another excellent plan is to haul out the manure in winter and pile it into large heaps on the field to be manured. In this case, however, it is desirable to cover the heap with 10 to 12 inches of vegetable soil in order to prevent the escape of ammonia during fermentation. The larger the heap the thicker should be the layer of soil.

COTTON OIL A PRESERVATIVE.—A wagon-maker says in Farm and Home that he has used cotton-seed oil in his business nearly three years. He finds it better than either coal oil, kerosene or linseed. He oils all his stock with it and it keeps away worms absolutely. It also preserves the wood and brings out the grain. Single-trees, spokes and hubs are particularly benefited. Mail carts, village carts and wagons that are made in natural colors are much handsomer if the wood receives two coats of cotton-seed oil. The oil is absorbed rapidly by the pores of the wood and does not gum, and in hot weather doesn't sweat out. He uses the summer yellow oil and has recommended it to many friends who like it now as much as he does.

PROTECTING THE ORCHARD.—Some work must be done in the orchard without delay. Mice and rabbits, finding their natural provender scarce, will attack the tender bark of the young trees and girdle them fatally in a night. This is to be attended to at once. There are ways recommended, says the Times, which are as fatal to the trees as the vermin are, if not worse. One of these is to tie strips of tarred roofing paper around the trees. This paper absorbs the sun's heat at midday in the coldest weather, thaws the bark and sap-wood, and then the sharp freezing of the night bursts the bark from the wood and does fatal injury.

The Dairy.

Another Word about Feeding Rations.

We have received some inquiries relating to the table showing the composition and digestibility of feeding stuffs published in our December issue.

We have taken a great deal of pains in preparing that table; it cost us several days of hard labor, and we hope our readers will make every possible use of it. Although the proof sheet was duly corrected, yet we find that a couple of typographical errors have crept in, viz., (1) the nutritive ratio of oats is 1:5.5 instead of 1:4 5, and (2) the nutritive ratio of oil cake is 1:2, instead of 1:1.2. We give below another table making the necessary corrections, and changing the relative feeding values.

Since our December number issued from the press, we received a copy of the *Milch Zeitung*, in which changes have been made in the relative values of the three nutrients, protein, fat, and carbo-hydrates. We based our calculations on 5:5:1 as the respective values of these nutrients, and expressed the opinion that in these proportions fat was valued too highly. The recent changes corroborated our views, the proportions now being 3:2:1, instead of 5:5:1. This change makes fat less valuable than protein, and the carbo-hydrates more valuable than in the old standard. This simply proves that the German farmers have been educated to pay scientific prices for their feeding stuffs, and their new standard, therefore, possesses great value for the farmers of Canada or those of any other country.

TABLE SHOWING THE NUTRITIVE RATIO AND RELATIVE FEEDING VALUES OF FEEDING STUFFS:—

Foods.	Nutritive Ratio.	Relative Feeding Values.
Timothy	1:13.5	$0.57
Red Clover	1: 5.2	0.65
Wheat Straw	1:45.8	0.39
Oat Straw	1:29.9	0.46
Pea Straw	1: 9.8	0.56
Wheat	1: 5.8	1.02
Oats	1: 5.5	0.86
Peas	1: 3.0	1.18
Barley	1: 7.9	0.86
Corn	1: 8.3	0.99
Bran	1: 4.0	0.88
Oil Cake	1: 2.0	1.25
Mangels	1: 9.3	0.14
Carrots	1: 9.3	0.16
Turnips	1: 7.0	0.10
Potatoes	1:10.6	0.29

Amongst the grains, oats are the best food to be taken as a standard, because it is the most complete ration in itself; it does not specially produce fat or lean, but is the happy medium at which all feeders should aim, both with a view to economy and the wholesomeness of the meat produced. Amongst the coarse fodders, red clover is the best standard. Now, if you regard the relative values 3:2:1 as cents—that is, the protein of the food is worth 3 cents, the fat 2 cents, and the carbo-hydrates 1 cent, you will get the relative feeding values found in the above table. Oats (see table) is, accordingly, valued at 86 cents per 100-lbs., or 29¼ cents per bushel, which is somewhat less than the present average price of oats in Canada. In order to get at the value of a feeding stuff, the statement is put in this form:—If oats are worth 86 cents per 100 lbs., wheat is worth $1.02 per 100 lbs.; bran, 88c.; peas, $1.18, and so on throughout the whole table. Or, with reference to the coarse fodders, you may say: if red clover is worth 65c. per 100 lbs., timothy is worth 57c., pea straw, 56c., etc. But let us suppose that the market price of oats in your locality is, say, $1.03 per 100 lbs. (35c. per bushel), you will find that you have to add 20 percent to the 86c. to bring them up to the $1.03. (This calculation is made as follows: 103—86=17: then 17÷86=20%) Now, all you have to do to get at the feeding values of the other foods is to also add 20 percent or one-fifth, which will make wheat worth $1.22, peas $1.42, bran $1.06, and so on with all the other foods.

This knowledge is of great value to our farmers, especially at the present time when the greatest economy must be exercised in feeding, but it must not be forgotten that these calculations are based on foods of average quality; if a superior or an inferior quality is to be considered, the variations, as published in our last issue, must be brought into the calculation. The shrewd farmer will now see that if oats are $1.03 per 100 lbs., and bran costs less than $1.06 per 100 lbs., it will pay to sell the oats and purchase bran, and so on with all the other feeding stuffs; but care must be taken that foods must be kept which are required to make up proper feeding rations. The shrewd farmer may also further economize by selling his fats (such as in corn), and purchasing carbo-hydrates, which can be substituted, to a large extent, for fat, without disturbing the value of the feeding ration.

Stock.

Clydesdale and Canadian Draft Horse Associations.

The annual meeting of the Clydesdale Association was held in Toronto Dec. 15th. The secretary pointed out that the second volume of their Stud Book contained the pedigrees of 1015 animals, classified as follows:—For the Stud Book, 335 stallions and 230 mares; for the Scotch Appendix, 240 stallions and 210 mares. The first volume contained 1,277 pedigrees and the difference is accounted for in this way. The Executive Committee at the request of a large number of breeders had consented to drop the mixed-breeding Appendix from the Stud Book and to publish it separately, to be called the Canadian Draught Horse Stud Book; only for this, the new volume would be as large as the first. At a subsequent stage of the proceedings, the action of the Ex. Committee was over-ruled, and the editor instructed to publish the Appendix at the end of the book.

The stallion spring show will be held early in March, notice to be given as to exact date.

There is a balance of $134.50 in the treasury. This favorable report drew from Mr. Wm. Rennie a notice of motion to amend the constitution so as to reduce the animal fee to two dollars.

Mr. Sorby gave notice that he would move to do away with the Appendix at the next general meeting.

The following officers were elected:—President, David McCrae, Guelph; Vice-President, William Smith, M. P., Columbus; Secretary-Treasurer, Henry Wade, Toronto. Directors—William Rennie, Toronto; Arthur Johnston, Greenwood; Robert Graham, Claremont; John Davidson, Ashburn; James Beith, Bowmanville; D. Sorby, Guelph; John McMillan, M. P., Constance.

On the same day a meeting was held for the purpose of organizing a Canadian Draft Horse Association. This was in response to the request of a large number of the breeders of the Canadian draught horse, who had heretofor recorded in the Appendix to Clydesdale Stud Book, their breeders being of the opinion that the word Appendix attached to the certificate of these animals injured their sale by conveying the impression that they were not of the requisite number of crosses to be recorded in the Stud Book, whereas this was a fallacy, it being the presence of Shire horse crosses in the pedigrees which these breeders thought improved the stock. The following provisional officers were appointed: President, Chas. Jackson, Cooksville; Vice-President, C. Fanson, Toronto. Directors—Jno. Gardhouse, Malton; Dougald McLean, York Mills; Chas. Lawrence, Collingwood; W. A. Fanson, Toronto; John Vipont, Brougham; F.T. Coleman, Arthur; Thos. Nattress, Mackville.

It was decided that as soon as 75 names were subscribed to the new Association, the work of publishing a Stud Book would be commenced. The new book will contain the pedigrees in Appendix to volumes 1 and 2, and such others as are sent in.

Haltering a Colt.

It is a good plan, says Dr. Fleming, to occasion the foal to be handled at a very early age. When haltering has not been attempted until the animal is weaned, or even later, there is often great difficulty experienced, and much patience and tact are generally required to effect it. In such a case the colt (or filly) to be haltered should be quietly induced to go into a yard, stable or loose box, either by leading, driving, or the enticement of a horse led before him, with a man or two on each side at a little distance to prevent him getting away, everything being conducted silently and soothingly. When in the yard or stable, if a horse has been employed as a decoy, he should be removed and the door closed, only one man being left with the colt, which should be allowed to survey and smell at leisure until satisfied that there is nothing dangerous present. After a time the man should retire for a short space, and return again to put on the halter. This article should have a "shank" about eight feet in length, with a knot tied in it to prevent its running tight and pinching the head if the animal pull on it. The man must approach softly and slowly, keeping his hands down and speaking encouragingly, until, on reaching the colt, efforts may be made to touch and stroke him, without alarming, until the hand has been worked up the neck towards the head. One hand can pass the "shank" over the neck and tie it round that part; this will give a hold of him, and the halter can then be worked on to the head. After being patted and talked to for a little a light, but strong, leather head collar may be placed on the head over the halter, and then he should be watered and fed, and left alone. The headgear is left on, and on the following day he is handled again, a rope is tied to the head collar, and he may be led round a few times, then tied up—if he is uneasy or struggles, stroking or speaking to him will reassure him, and he will soon become tranquil. After half an hour of this the halter may be removed from under the head collar, as well as the rope for the latter, and the animal left to himself. Next day this is repeated, after which he may be turned out into a paddock or a straw-yard and allowed to amuse himself.

Horse-shoeing.

In order to understand this subject it will be necessary to be somewhat acquainted with the structures that compose the foot, not only in order to become acquainted with the names which must necessarily be used in the description of the subject, but also, and much more so, to be able to understand the principle to be observed in its practice.

The hoof of the horse is not, as it may seem, composed out of one piece of horn, but is built up by several pieces, which are again composed of several layers of horn, varying in structure. That portion of the hoof which is visible when the foot is standing on the ground is called the wall. It is composed of three layers, the outer of which is serrated by the coronary ligament, situated at the upper margin of the wall. It is a hard, dense, fibrous structure, and covers and protects the two underlying layers, of a softer and tougher character, to which it is firmly united. The principal function of the wall is to withstand the wear to which the hoof is subjected. It has an unlimited growth in a downward direction, that is, if its lower margin, which comes into contact with the ground, were not shortened by wear, or by the rasp, knife or some similar instrument, it would grow to an undue and abnormal length. The lower portion, or bottom, of the hoof is composed of the sole, frog and bars. The sole is that portion of horn enclosed by the lower margin of the wall having an even, concave surface. Its growth, contrary to that of the wall, is limited, viz., if it has attained its natural thickness (the direction in which it grows) it flakes off as fast as it is produced, and therefore constantly remains at that thickness. Its objects are to assist in bearing up the weight of the limb and to protect the sensitive structure which secretes it. The frog is a soft, elastic, protruding, triangular portion of horn, situated at the posterior portion of the hoof. It stretches forward to about the centre of the so'e, where it terminates in a sharp point. Some of the functions of the frog, in its natural and healthy form, are to prevent the jar caused by the animal putting the foot on the ground, preventing it from slipping, and obviating the tendency to contracted feet. Its growth, like that of the sole, is limited. The bars are a continuation of the wall, and are situated between the frog and the sole. Their functions are to assist the frog in preventing the contraction of the feet. Those portions of hoof forming the angles between the bars and the remainder of the wall are called heels.

Having investigated the functions of the various portions of the hoof, we will now determine the objects of shoeing. These generally are to prevent the too excessive wear of the wall, and slipping on icy roads. Any method that best accomplishes these ends and leaves the hoof in its most natural bearing and form, is the best method of shoeing. This latter factor is, however, generally entirely lost sight of, and the feet are not only thrown into an unnatural position by unequal lengths of calkings, raising the frog so as to prevent it from touching the ground, and similar conditions, to which we will refer later on, but even the horn itself is so interfered with that it loses considerable of its efficiency. The sole is very frequently pared down to a considerable extent, which removes the harder and dryer portion, and leaves the softer part exposed to the air and wear. This will dry out, contract and thereby injure the form of the foot. Besides this, being thinned, it will not bear up the weight as well as before, and also leaves the sensitive structures more exposed to bruises and injuries, which may develop into corns. The paring of the frog has similar injurious effects. It exposes the softer tissue, and prevents it, more or less, from coming into contact with the ground, which has the effect of diminishing its elasticity and reducing its size, and by so doing favors contraction of the feet. The heels are also frequently interfered with, which will also favor the same complaint. Burning the wall, as done by "hot fitting," injures the texture of the horn, suffering from it by closing its pores, injuring its growth and making it brittle. The sensitive laminæ are also injured. Rasping the outside of the wall to make it look nice and neat, removes the dense, fibrous structure covering the underlying layers, and exposes them to undue evaporation, thereby making them hard and brittle, as well as robbing them of their natural covering and protection.

The above wrongs, with the exception of burning the hoofs, are not caused by carelessness, but simply from a want of knowledge, and while materially injuring the hoofs, they do not diminish the expenses of shoeing, but rather increase them.

The other evils referred to, such as altering the position of the feet, whether due to improper, or rather uneven, shortening of the walls, or the uneven bearing of the shoe—depending upon an uneven thickness, or more frequently upon improper calking—may not only change the structure of the hoof and sensitive laminæ, but also that of the bones and ligaments which these cover. A high-heeled shoe prevents the frog from coming in contact with the ground, and causes it to become hard, dry and reduced in size, thereby causing increased concussion during locomotion, which, together with the altered position, favors the production of such diseases as sidebones and navicular disease. High toe-pieces are liable to cause what is known as sprain of the back sinews.

To prepare a hoof for shoeing the wall should be equally and evenly shortened until it is on a level with the outer margin of the sole. This is safest done with the rasp. The shoe applied should be as light as possible and of a uniform thickness, and should fit closely to the shortened wall, so that every portion of the latter bears its share of the weight. The shape of the shoe varies, depending upon the various requirements of the horse. Those used on fast horses are bevelled on their lower surface, which gives them a better grip, while those for heavy work, requiring to be heavier and wider, are bevelled from above, to prevent undue pressure on the sole, for although it is naturally concave, and therefore would not touch the shoe, yet, it being somewhat yielding, may be pressed down, especially if weak, and then come in contact with the sharp corner of the shoe, which would bruise it. A bevelled shoe is, however, liable to pick up stones, which may become wedged in between the bevelled edge of the shoe and the sole, and bruise it. The shoe should therefore be narrow, especially at and near the heels. In all methods of shoeing healthy feet the frog should come in contact with the ground as much as can be done without altering the natural position of the hoof or paring the sole, that is, use as thin shoes as possible, with the shortest possible calkings and toe-pieces. These latter appendages to the shoes are generally entirely useless, except on icy roads, for it has been observed that a horse with the frog touching the ground is firmer on his feet than one with calking on his shoes. The nails with which the shoes are fastened should have a short, thick hold, but care must be taken that they do not touch or go too near to the sensitive structures of the foot. The rasping under the clinches should be very light, for otherwise the wall will be weakened too much at that point. In thin-walled hoofs the same object may be better accomplished by a small gouge. Shoes should as a general rule be changed about once every month, for otherwise the wall will grow too long, which throws a strain upon the back sinews and raises the frog.

From the above it will be seen that, unless absolutely necessary, it is much safer and better to leave the feet unshod, and this statement will gain force when we consider that fully fifty per-cent of the lameness of the horse at the present time is brought about by shoeing, and as every observing horse owner will know, the greater majority of those shod that are not yet lame, have an altered and a weakened hoof, which in the course of time will make them more or less lame. What is the reason that a horse which has thrown its shoe will walk lame on that foot, while another horse never shod will walk with ease on the same road? Simply because the structure of the hoof has been changed, and as a general rule the longer they have been shod the greater the change will be.

Causes of Depressed Prices of Live-Stock.

A few weeks ago a subscriber who farms several hundred acres called to see us and to inform us that he had lost $4,000 in the Shorthorn boom; also to say that he wished he had taken the ADVOCATE'S advice. In response to a question, he informed us that he lost nothing directly by the recent Shorthorn herdbook disclosures. All his loss is therefore involved in the word "boom." Further, he asked our advice, and as we have the same advice for all breeders, we make it known through our columns.

Fancy prices are not, in the end, profitable even to the boomers, except possibly in a few extraordinary cases where an animal brings the price of two or three farms. This is not a desirable object of ambition, for in a thousand of such hazards there is sure to be 999 failures, if not ruinous losses, and then it requires an enormous capital to begin with, as well as a very perverse conscience. You may begin with any scrub animal, so long as it traces its blood to aristocratic origin. Then a few thousand dollars must be invested in printers' ink, obtaining flashy illustrations which show up to perfection those fancy points that happen to catch the popular eye of the period; wasting precious time in writing for the boom press, showing how "blood will tell;" paying special wages to hands who know how to ruin the constitution of the animal by stuffing it with food, drugs, condiments, etc.; providing it with close, warm, unhealthful quarters; nursing, grooming, and blanketing it beyond all rational bounds, thereby fitting it for the keenest competition in the show ring; then

you get your record book ready, and after seven days trial, you must have it published in every paper on the continent (the ADVOCATE will not publish it, however,) that you draw cream, instead of milk, from the cow's udder. As the agricultural editors have every confidence in you and your statements, they will publish your records free of charge, because they are advancing our live stock interests so much, don't you see? All this costs money and requires a flexible conscience, and it is questionable if the greatest sum for which you can mortgage your farm will enable you to foot the bill. Meanwhile, we will say nothing of the sums you have to pay in taxes to support schemes of this kind.

These are by no means all the losses which you suffer. Your education and your morality have undergone a severe shock. If you had not wasted your time in tracing the ancestral line of your stock, you would have been educating your eye to see the individual merits of your original herd, and would have experienced the delight of realizing the profitable effects of rational management and intelligent breeding. Pedigrees are scales in your eyes which prevent you from seeing individual merits. Finding no profit in your milk or your beef, you are forced to depend on a fiction for your income, the destruction of which would not lessen aggregate wealth one iota.

We submit to the effects of heredity, but you must remember that it transmits the inferior as well as the superior qualities, so that after all you must scrape the scales from your eyes in order that you may see the individual merits clearly. If you have an animal whose dam and grand dam, as well as the sires, possessed superior merits, you have something more substantial than you can obtain by ransacking all the pedigree history of the past century, and you should keep your own records, the value of which will be a substantial gain to you and all who purchase from you at reasonably advanced prices.

In the end, breeders themselves would make more money by purchasing animals at their intrinsic value, and selling them or their offspring in a still higher state of improvement; for then the purchaser would gain by the advanced prices as well as the seller, and there would be no limit to the demand so long as honest profits were made all round. There would then be no reaction—no collapsed booms, which drive thousands into poverty and crime, in exchange for the enrichment of a few unscrupulous rascals. In order to accomplish this end, each animal must be judged separately, instead of judging a whole family by the presumed virtues of a remote ancestor, which method is as absurd in domestic animals as in human beings. After all, in the light of modern science, the points used in judging are quite different to what they were a century, or half a century, ago.

The same farmer, mentioned at the beginning of this article, also asked us the following question: How is it that you advocate scrub stock and yet publish illustrations and glowing descriptions of improved stock? We challenge anybody to show us a sentence or a word in which we advocated scrub stock; on the contrary, we have done more to place breeding and testing on a solid foundation than all other agricultural journals combined. Every word we utter in denouncement of live stock booms and swindles is from an earnest desire to improve the live stock of our country. Summed up in a few words, our policy is, and always has been, this: We want one breed for beef, another for milk, and no other breed is required. Based upon true principles, there is no such thing as milk, cheese and butter breeds. It is a matter of common observation that our native stock are milkers and not beefers. There is so little difference between the merits of the leading beef breeds that all tes ing should cease meanwhile, and the energy thus economized should be devoted to the solution of dairy problems. Amongst the popular dairy breeds, there is not substantial evidence to prove that any one is superior to the other in the economy of milk production, there being many good and bad specimens amongst them all, and any attempts made to prove the superiority of any one of them is no evidence of the inferiority of our native stock. In improving a herd it is just as necessary that the best animals be selected as it is to introduce the best blood from a standard breed, so that the testing of natives is just as important as the testing of thoroughbreds. It is not a matter of common observation that blooded stock produce cheaper milk, under the same management, than our natives, there being a difference of opinion on this point. With reference to the grades, the merits of the common stock are just as important as those of the thoroughbreds, no matter whether the grades are intended for milk or beef. We have, therefore, protested against the one-sided nature of these investigations, seeing that it is unpracticable to keep thoroughbreds on an extensive scale, merely for the production of milk or beef. At the same time, we do not object to farmers purchasing thoroughbreds at reasonable prices, if they can cheapen the cost of production by doing so.

Special advantages may be derived from the use of pure bred horses, if the breeding be pursued with intelligence and with a distinct end in view. We have protested, and shall continue to protest, against the systems of judging of all classes of live stock, and the injurious consequences arising from the methods of preparing animals for the show ring, which have a tendency to degrade them below the common stock of the country.

Chatty Stock Letter from the States.

[FROM OUR CHICAGO CORRESPONDENT.]

Receipts of cattle for the year are by all odds the largest ever known, and the same is true of sheep. Hogs show a large decrease.

The very best cattle have lately sold here at $5.75@$6.50; best hogs, $5.25@$5.50; best sheep, $5@$6; which prices are certainly not bad, even for very extra stock, but the markets have been flooded with unfinished cattle to such an extent that prices have been about as low as ever. There has been a very remarkable "stampede" among cattlemen to get their cattle to market and save their feed.

The holiday live stock market this year has been far more satisfactory to feeders and salesmen than last year. There has been a better demand, and prices have ruled decidedly higher all round, not to mention hogs selling at $5.50@$5.60, against $4.40 last year. Christmas beeves were selling at $5.75@$6.50, with the bulk one year ago at $5.25@$5.75. Some Shropshire wethers, averaging 115 lbs., sold at $5.60; and some 155 lb. muttons sold at $6, against $4.80@$5.20 last year.

Col. J. D. Gillett sent in a lot of two and a-half year old 1,752 to 1,781 lb. grade Shorthorns, which sold at $6.20@$6.30. A lot of superior 1,450 lb. Hereford steers sold at $6.50, the highest price of the season. Shorthorns sold at $6.30, and the best Polled Angus cattle sold at $6.25. There were far more Shorthorns at high prices than any other kind, and a lot of 1,382 lb. Shorthorns, less than two years old, sold at $6.25. A 1,600 lb. West Highlander sold at $6.50 to the Stock Yard Company for the fine stock farm. By the way, it was a two-year-old West Highland and Hereford cross-bred steer that took the prize for the most edible carcass of beef on the block at the American Fat Stock Show this fall.

The "early maturity idea" carried to an extreme is bad, but there are a good many conservative feeders who cling too tenaciously to the old notion of late maturity. For instance, a feeder sent in a lot of 1,861 lb. cattle, four-year-olds past. They were "fat as hogs," but the fat was "patchy," and the animals were coarse. They sold at $5.25. In an adjoining pen a lot of 1,150 lb. Shorthorn yearlings sold at $5.50.

Some Virginia farmers and feeders were recently here buying store cattle. Sales of ordinary 900 to 1,100 lb. cattle had been made at $2.25@$3, and they bought some 1,250 to 1,275 lb. steers of high grade at $3.60@$3.75. The prices seemed high, especially since some 1,300 to 1,400 lb. so-cal'ed fat cattle were se ling for $3.35@$3.75; but good judges thought the finely-bred heavy cattle were cheaper than the "cheap" cattle of poor quality. As an old dealer remarked, "cheap store cattle make cheap fat cattle and cheap cuts for the butcher.

We have heard much of the strength of the Polled Angus breed in reference to marking off spring. It has even been asserted that half of the progeny of Angus cows and bulls of other breeds would be black and hornless, but there are exceptions to all rules. William Snider, of Abingdon, Ill., marketed here a lot of 21 1,816 lb. three-year-olds at $6. They were all sired by one thoroughbred Polled Angus bull, and the dams were Shorthorn cows. The steers were nearly all black and shaped like the breed of the sire, but all had horns.

With such flattering prospects of improvement in the cattle market, it is odd that the markets should be so flooded with inferior and unfinished cattle. The flood continues. Men say: "We are tired of feeding high-priced corn, and had rather let the cattle go and save the corn." This may be wise, but it certainly looks otherwise, when mature cattle are already bringing very rumerative prices, and the lean and unfinished cattle are selling almost as low as ever known in the history of the trade.

Two or three years ago, when cattle were worth $7, men said: "They are going higher, we have not reached the top yet." Those same men, since values have been so depressed, say: "There is no hope of improvement; prices are going lower; we have not seen the worst yet." From one extreme to the other. This is human nature.

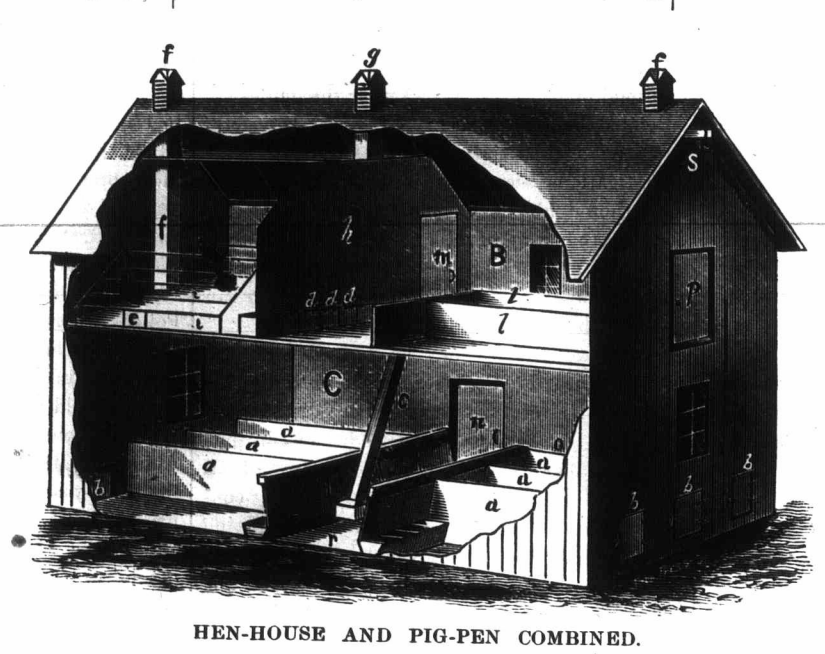
One thing is certain, the farmers and live stock breeders and feeders have temporarily lost all desire to speculate or take any sort of chances. This is demonstrated by the largely increased receipts of stock, particularly cattle, following the slightest improvement in prices.

Cattlemen are in much better condition, financially, than a year ago. They are "down to hard pan" and seem to be prepared for the worst—now that the worst is probably past.

Hen-House and Pig-Pen Combined.

In answer to several inquiries we have given this subject special attention, and give the accompanying cut as the result of our investigations.

The pig-pen (C) occupies the entire lower story with the exception of a space (o) left for a staircase and a place to put pails, tools, etc. The doors (b b b) lead from the pens (a a a) to the yard, which is not shown in the engraving. The upper story is divided into two compartments by the partition (k) of these. A is the hen house and B a storage-room for the food of both fowls and pigs. The foods to be stored away may either be carried up the stairs at o, or may be taken in through the door p, and, if heavy, elevated by means of the pully (s). The store-room B contains several bins (l). From one of these a spout (c) leads down, through which the foods are brought down again to the lower story for the consumption of the swine. A door (m) leads from the store-room to the hens' quarters, which are ventilated by the ventilator (g) in the centre of the building. The ventilators (f f) are for the purpose of keeping a healthy, pure air in the pig-pens below. The nest-boxes (d d d) extend the whole length of the partition (k) with the exception of the space occupied by the door (m). Each one of these nests has a separate door on its outside, which enables the attendant to examine each nest separately without entering the poultry room and disturbing its inmates. A small door (e) leads from the poultry house to their yard, which is a very necessary adjunct to every poultry house. A sloping board or plank with cleats nailed on its upper side should be placed against the outside of the building, with its upper end at the bottom of the entrance (e). This enables the birds to gain that entrance with comparative ease.



HEN-HOUSE AND PIG-PEN COMBINED.

The size of the building, as well as the relative room occupied by each of the departments, depends entirely upon the relative prominence given to each. If it is desired to keep more fowls than the relative space allotted to them in the annexed cut permits, the partition (k) can be moved out so as to enlarge their quarters, and lessen the space for the store-room. Or, if even this room should not be sufficient, it will be necessary to set a portion of the lower story apart for their use; but in such a case, that portion should be boarded up to the ceiling and provided with a separate ventilator.

Announcement is made that the American Poultry Association will meet at Indianapolis, Jan. 18 to 25, 1888, for the purpose of revising the "Standard of Excellence," a book which contains descriptions of all recognized varieties of land and water fowls, and which is the official guide for judging and scoring thoroughbred poultry. This book is revised but once in five years. At the same time and place will be held an "International Poultry Show." It is stated that reduced rates have been secured from railroads, express companies and steamship lines. Premium lists of the show and further particulars may be obtained from the secretary, Richard Twells, Montmorenci, Indiana.

Veterinary.

Side Bones.

These consist in extensive ossifications from the heels of the coffin-bone (bone of the foot) into the lateral cartilages. Their great cause is improper shoeing; cutting away of the base or sole so that the wall turns inward and bruises the sole; pressure of the shoe on the sole, whether from misfitting or from being left too long on; uneven bearing of the shoe, throwing too much strain on one part; pricking or pinching with nails driven too near the quick; the pressure of the dry, hard horn after undue paring or rasping, and the continuous irritation which attends the partial separation of sole and wall. They are especially common in heavy horses with upright pasterns and the toe shortened relatively to the heels, or shod with high heel calkins, so as to increase concussion in action.

Symptoms.—Lameness, with a short stilty step, and a tendency to stumble from the attempt to avoid shock on the heels. The pasterns are upright and the heels often deep and strong. Pressure on the prominence above the hoof at the quarter detects tenderness and a hard unyielding structure, instead of the usual yielding elastic gristle. Bruises of the heel (corns) with bloody discoloration of the horn, is almost a constant result of extensive sidebones, the sensitive sole being pinched between the bone and hoof.

Treatment.—Subdue any existing inflammation by rest, blisters, or even firing at the coronets, and apply a bar shoe, the bar resting upon the bulbs of the frog, and keep the hoof-wall at the heels rasped lower than the rest of the bearing surface, so that daylight can be seen between this part and the shoe. The same shoeing must be kept up when the horse is put to work, or he will soon fall lame again from the bruising of the heels.

Corns.

These are at first simple bruises of that part of the sole included between the bars of and the wall at the heel, but later there is often an increased production of horn, and the formation of a horny tumor, which presses injuriously on the quick. In other cases the bruise causes active inflammation and the formation of matter which, if denied to escape below, will burrow toward the coronet or less frequently around the toe, and give rise to disease in the deeper fibrous network, the cartilage or the bone. In these last conditions it usually results as fistula or quitters. In other cases the corn is pared out as is supposed, but the heels, having lost their mechanical action of the sole, curl forward and inward, repeat the bruise continually, keep up the inflammation and what is equivalent to a sore in the heel. The irritation often produces absorbtion of the margin of the bone at the heels, with bony deposits above or below, and ossification (turning to bone) of the lateral cartilages, a condition which almost necessarily perpetuates the bruises or corns (see side bones). Corns may exist in either heel, but are usually in the small or weaker one, and prevail above all in flat feet, with low, weak heels.

Symptoms:—Lameness, with a tendency to *point*, with the heel slightly raised when at rest, and a short, stilty, stumbling step when moved. Pinching the affected heel with pinchers and tapping it with a hammer causes wincing. If the shoe is removed and the heel pared out, the horn may be seen to be blood-stained, but unless this is seen on removing the flakes no one shou d allow curiosity to lead to a deeper search. If suppuration has taken p'ace, the tenderness is extreme, almost causthe animal to keep the foot raised, and scarcely daring to touch the ground with the toe. A tender swel ing usually appears at the coronet above the affected heel, and pinching or hammering of the heel is unendurable.

Treatment.—If a recent bruise and uncomplicated, apply either a bar shoe or a common one, but rasp down the baring surface at the heel, to avoid pressure, as advised for side bones, and p'ace the affected feet in water, or keep the walls moistened with wet swabs, and the sole with oil meal or clay packing. When tenderness has subsided, smear the hoof with ointment and work carefully. Remove the shoe ear y enough to prevent pressure on that heel, and in preparing the foot retain the strength of that heel by preserving the e'astic horn of the sole between wall and bar. Never allow this to be pared and weakened unless it be to evacuate matter or sand, or for the removal of a horny tumor.

If suppuration has taken p'ace, pare down the heel until the matter escapes, remove all horn detached from the quick, and pare the horn around this to a thin edge; poultice until the surface is smooth, dry and not at all tender; then app'y a bar shoe with a leather sole, and a stuffing of tow and tar, or crude turpentine (pine pitch). No pressure should be allowed on this heel until the so'e has grown up to its natural level, as a support. Horny tumors may be removed by paring out and treating, as above advised, until the so'e attains its natural growth. If old-standing corns are connected with death of a portion of the hee', of the foot bone, or ulceration of the lateral cartilage, these must be scraped or cut off before improvement is to be expected. If connected with side bones they are liab'e to be kept up by frequent pinching of the quick between the bone and horn, and demand careful shoeing to avoid pressure on the heel.—Law's Veterinary Adviser.

Garden and Orchard.

Preserving Fruits and Dairy Products.

One of the greatest difficulties that meets the grower of small fruits is that, under ordinary circumstances, he has to sell his produce whenever it is ready for the market, and as at that time the markets are generally overstocked, he cannot dispose of them to the same advantage as he would later on when the bulk of the fruit has been disposed of.

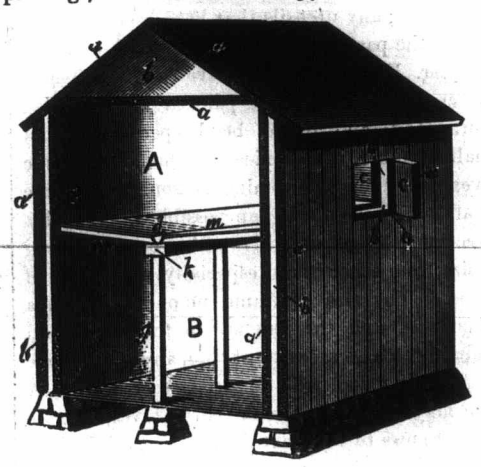
The annexed cut represents a cold storage house, in which fruits or any other easily perishable article can be preserved for a considerable length of time. The marketable period of raspberries was by means of such a house extended three weeks, that of cherries six weeks, and other fruits in proportion.

The house is constructed of wood. The outside walls are built in such a manner that they form three spaces, one on the outside of the other, and each separated by a board partition; the tighter the better. The outer space, 8 in., and the inner, 8 in., are filled with sawdust, and the central one, 6 in., is left empty to form a dead air space to separate the other two. The underside of the rafters (forming the roofs) is boarded, and the space between this boarding and the sheeting filled with sawdust to prevent air escaping through the roof. The joists, forming the frame-work for the ceiling of room A, are also boarded on both sides, and the space filled in with sawdust. Thus two layers of sawdust (a a) and an intervening air-space (b) surround the interior space of the whole building. By this means the changes in the outside air are hardly perceivable in the house. Room A is the ice room. In it the ice is stored one layer on the top of the other, and the intervening cracks and spaces filled with either slush or sawdust, as described on page 305 in our October issue of last year. The slush (snow and water) system is the better for small houses, as by its use the entire contents of the room are transformed into one large block of ice, which more effectually prevents melting. The floor (m) of the ice room must be water-tight, and slope towards the centre of the building, where it rests on a stick of timber (k), which is supported by pillars (g g). The water caused by the melting ice flows down the inclining floor to the centre; from there it is carried away by the gutter (d). The ice room is refilled each winter, the ice being taken in by means of a slide through the doors (c c). The doors, one opening to the inside, and the other to the outside, are each 10 in. thick, and consist of a case, made out of 1 in. boards, filled in with sawdust, so that when they are closed that portion of wall formed by them is just like the remainder. The space B is the cold storage room; its relative size depends upon the size of the house; the smaller the latter the smaller the relative size of the room must be. The foundation of the house is entirely buried in the ground, and the floor of the room B, constructed from stone, concrete, or cement, rests upon the ground.

This house can also be built partially into a well drained bank, but as the outside boards would soon decay, that portion of the outer outside wall situated in the bank should be built of stone. Building the house partially into the bank would keep the house cooler or save the ice. A similar effect would be accomplished by building the house in a cool and shady place.

Although these houses are especially in use for fruit storage, yet they would be very valuable for preserving dairy products and other more or less easily-perishable articles on the farm.

Says Mr. L. H. Bailey on "Apple Culture":—I have always pruned in May or early June. Wounds made at this time heal more rapidly than those made in early spring. It is commonly asserted that the removal of growing branches weakens the trees, from the fact that so many leaves and so much young wood is destroyed; but I have yet to see any confirmation to this notion in practice. Pruning in February and March has its advantages, the most important of which is the greatest leisure at that time. The fact that there is such a balance of opinion as to the relative advantages of late spring pruning, is proof that the advantages of either are mostly unimportant, from the fact that wounds heal sooner, that the work is pleasanter, and that the brush handles easier. I have a preference for pruning just after the leaves appear.



COLD STORE AND ICE-HOUSE COMBINED.

Fruit trees require manuring as well as any other crop. There is as much fertility removed from the soil in apples as in many other crops sold, and when other crops are also grown in the orchard fertility is removed at a two-fold rate. Fruits being a heavy potash feeder, unleached ashes have almost invariably produced good results. As barn-yard manure is an excellent thing for its mulching properties alone, apart from its fertilizing value, we would advise farmers to use larger quantities of their farm-yard manure on the orchard and supply the deficiency on the farm by the use of concentrated fertilizers. However, a knowledge of the uses and abuses of the latter must be carefully studied.

Beginners in fruit-growing—and sometimes experienced men—says a correspondent to the Horticultural Times, often make mistakes in mulching the ground about young or newly-set trees. The mulch is placed in contact with the stem and for a short distance away from it. Now, what should be done is to raise a slight mound of earth about the tree; beat it smooth with the back of the spade, and keep the mulch at least a foot or two away. Another common error is in the way in which manure is applied to trees in small compact circles closely against the trunks. The feeding roots are not there, but are many feet away in all directions, and placing the manure where the roots cannot reach them is like trying to feed a hungry man by thrusting the food up the legs of his trousers.

Sheaves from our Gleaner.

The results of numerous experiments in feeding cooked and raw foods to hogs, conducted at various experiment stations, have been collected and tabulated as follows by Prof. Henry. The figures are given in the form of a relation or proportion of the cooked to the uncooked foods, and in every instance, except one—the experiments conducted at the Michigan Agricultural College—the uncooked foods produced the best results, as is shown in the following table:

Agricultural Experiment Station, Wisconsin:	
Cooked barley meal (4 trials) was to uncooked as	93.7 to 100
Cooked corn meal (2 trials) was to uncooked as	81.0 to 100
Cooked corn meal and shorts (2 trials) was to uncooked as	96.1 to 100
Cooked whole corn and shorts (2 trials) was to uncooked as	85.8 to 100
Ontario Agricultural College:	
Cooked peas (2 trials) were to uncooked as	84.9 to 100
Michigan Agricultural College:	
Scalded corn and oatmeal was to wet meal	101.7 to 100
Kansas Agricultural College:	
Cooked shelled corn was to uncooked corn as	84.0 to 100
Iowa Agricultural College:	
Cooked shelled corn (2 trials) was to uncooked as	82.3 to 100
Cooked corn meal (2 trials) was to uncooked as	79.3 to 100
Maine Agricultural College:	
Cooked corn meal (9 trials) was to uncooked as	82.9 to 100

"We have known numerous road-bred horses that would walk from four and a-half to five miles in an hour without urging, and many, in fact, most well-bred road horses, could be taught to cover greater distances than this in the same time if it were not for the pernicious custom (as we think) of putting the colts to the trot as soon as they are in the harness and before they are really bridlewise. Every farmer's boy knows that he can do a better job of work—ploughing, harrowing or working corn—with a fast-walking team, which makes the dirt fly, than with a slow one. The saving on a farm when the horses walk three miles an hour, or even when they walk two miles and a-half, is twenty per cent., or in other words, the fast team can rest a whole day in the week and yet do as much work as the slow team—do it easier and do it better. When work is pressing or weather uncertain, the fast team is a treasure. While every effort has been made to increase the speed of the trotter, the draft-horse men have been working for pounds with little regard either for muscle or walking-speed. It is a very great mistake to suppose that the draft-horse cannot be trained to walk rapidly. We have been breeding to a Percheron for four years that often walks nine miles in one hour and fifty minutes, over a hilly road, and his colts are all rapid walkers."—[Wallace Monthly.

TRAINING DRIVING HORSES.—There is nothing more important in the training of a young horse for driving on the road than the idea of teaching him to strike a certain rate of speed and then keep it. A good strong walk is quite essential in a driving horse for parts of the road where the trot is impracticable. But when a horse is urged out of a walk he ought to have a certain rate of speed which he will, of his own accord, take and keep. By a little patience in training this gait, or rate rather, is not hard to establish, and when once acquired it adds materially to the value of any driver. A horse that "goes by jerks," that will trot his best for a short distance and then slow up to an uncomfortable dog trot, is never a pleasant driver, and as a rule is not able to get over as much ground in a day with ease to himself and comfort to those who handle the reins as one that is steady gaited.—[National Stockman.

The Apiary.

Seasonable Hints.

There is but little that should be done at this season of the year in the way of giving bees attention. They should have been put in a condition to require no stores from September until they can gather it from natural sources in abundance. The proper place for such stores is in the combs. But practical experience proves to us only too often that what should be done is frequently left undone, either from lack of knowledge, carelessness or owing to circumstances over which we have no control, and many inexperienced bee-keepers put the question, What shall I do to save my bees from starving, having no stores? Or, worse still, they resort to methods which result in not only the loss of the bees, but the further expenditure used to try and save them, but which only too often destroys the colony more certainly.

It must be remembered that everything tending to disturb bees and awaken them from that state which borders on torpidity during the season that they are compelled by means of the inclemency of the atmosphere to remain in the hive, tends to their destruction. The course may be a gradual one, and through favorable weather or other causes checked at any stage, but in such a case, which would be the most favorable instance, the colony has become debilitated, weakened, and less able to resist the future difficulties of winter and spring.

Now, winter manipulations, jarring of the hive, feeding, all assist in this work of destruction. Liquid food given when bees are confined is very injurious. The colony becomes under this condition very excited and active. The bees gorge themselves with honey, and are almost sure to have dysentery. A colony once in this condition is on the road to rapid destruction, and a cleansing flight is the only cure. How difficult this is to secure in our climate during winter will readily be understood. Dysentery may be checked by raising the temperature of a bee house or cellar, or by placing warm absorbents, such as chaff cushions, over the combs in the hive, but it will not cure the disease. From the above it will be understood that examining colonies to see if they have sufficient stores during winter, is inexpedient. To feed liquid food is almost certain destruction.

If the owner of the bees has been outside, and has strong reasons to suspect that his colonies will have sufficient stores until spring and the season when they can fly, it would be better to leave them alone, unless a day comes that they fly well, when he may examine them. If they are deficient, then he can make a sugar cake of granulated honey to place on top of the frames. To do this a box should be made with inside measurement the size the cake is to be. This box should be lined with paper, so that when the syrup is poured into the box it will not harden and adhere to the box, but the paper, which can be detached from the box, and after removing what paper you can from the cake, place it on top of the bars and under the cloth, placing on top of all some good warm packing to keep the bees comfortable. The cake should be made by dissolving sugar—best quality—in water, bringing the mixture to a boil, all being of such a consistency that when cold it will become a solid hard cake. If this is done carefully the bees do not require to be disturbed very much, and the hard cake of solid food will not excite the bees much. At the same time they can get it as required and be saved from starving. Another method that may be resorted to is to tack a board on one side of a frame, such as is used in the hive, line it with paper as before; the frame laid on its side and board laid flat gives us a box. This box may be filled with the candy the same way as the box before spoken of. When the mixture cools the board can be removed, and we have a frame full of food which can be suspended in the hive. This latter method has the advantage of placing the food more directly in the centre of the cluster. At the same time it is more liable to result in evil results from disturbing the cluster. There is a bee candy made which never runs upon heating, but crumbles easily. This makes a very excellent food for the bees. It is made from the best of sugar, and undergoes a pulling process; then, too, it is in sticks, and the bees can get at it more readily. This candy is sold by some supply dealers.

Preparation for the coming season should take some time; any utensils that have been damaged during the past season should be fixed and put in order. Hive covers that have become damaged by cracking should be painted and puttied thoroughly, and if the bee-keeper has even a small number of colonies, he should get some hives ready for the coming season. Now, the greatest mistake a man can possibly make in this direction is to get up a hive of his own, differing in size from other hives, especially as to size of frame. The size of frame no one can claim a patent on, and the Langstroth frame is used probably to a greater extent than any other frame in America, and will do satisfactory work. A man may start with two or three hives, but he never knows to what extent he will go into bee-keeping, and if he ever gets enough bees to require to sell, he is at a great disadvantage with the hive of his own notion, whilst if he had his bees in a hive that was most generally used, his opportunity of selling would be far greater. Another matter to be considered is that should he ever require to purchase his hives, he can never get an odd sized hive as cheaply as he can a hive that is made up in large quantities and sold to many bee-keepers.

As to the advisability of every man making his own hives or purchasing them from supply dealers, it would be well for a good mechanic who cannot secure work all the year round to make his own hives, provided he knows all about bee spaces required and the principles of a hive construction. If he is not so situated he would do well to purchase his hives, as his outlay will soon be regained by the additional returns.

Some supply dealers are constantly getting on some new hive, which is away ahead of anything ever got out before, and which in turn is again discarded for something else. If the poor bee-keeper were to follow the sanguine hopes of such a firm, he would require a small fortune, therefore it is well not to be taken too rapidly with new notions in hives. By that is not meant we are to return to the old box hive and smother our bees; but a good frame hive, not deeper than ten inches, is a hive that will give good results. The reversible system has occupied considerable attention the last few years, but it is an experiment a beginner does not want to try. Let this question be decided by those of greater experience, and who have more at stake to advance bee-keeping; then if it prove of use and advisable to adopt by the novice, they can do so; in the meantime the minority of advanced bee-keepers only advocate reversing. Then bee-keepers, even if they have only a few colonies, should attend bee-keepers' conventions; he may, and in all probability he will, learn very much that will bring him in dollars and cents; some little mistake corrected or prevented that will save his bees or increase his yield of honey for years. Bee-keepers are a very communicative people, and any question asked will be replied to with pleasure by any one able at such a convention. There are conventions in almost every county during the winter months, at any of which a bee-keeper will be welcome.

Poultry.

Nests for Egg Eaters.

The season for annoyance in this line is again at hand. Many are the devices to prevent it, some of which are cheap and simple, while some are covered by patents and cost from 50c. to $1.50. A correspondent in a contemporary advises the use of a nail keg, half filled with straw, claiming the hen could not reach the eggs from the top, and could not get at them when in the nest. This is a great mistake. A nest that is large enough for a hen to sit on is large enough for her to eat the eggs from. The best device we have seen is a long box (say 14 inches high, 12 inches wide and 30 inches long); make an opening in the side close to one end, and make the nest at the other; the opening should be only large enough to allow the hen room to go in. A partition should be placed within fourteen inches of the other end, with a similar opening. This places the nest in comparative darkness, and when the egg is laid she is anxious to get back to the light and let it rest in peace. It is also a good plan to use earthen nest eggs as much like the natural egg as possible. We have, by frequent tempting them with this, led them to believe they could not break an egg.

Seasonable Hints.

Those who wish to get early chicks should arrange their breeding pens at once. Select large early pullets and mate them to a vigorous one-year-old cock, or use one or two-year hens and a strong, large cockerel. Farmers who keep fowls in quantities should select six or eight of the best pullets or hens and mate as above. Do not feed much corn, as it is not a good food for eggs, and is the greatest cause of failures in egg hatching.

It is well to feed in the morning with scalded bran and shorts, and if a little linseed meal or oil-cake is added, it cannot but prove beneficial. After this cut a large turnip in two pieces, drive two nails in the floor, or a piece of board for the purpose, and allow them to protrude an inch or more; strike the round side of the turnips on the nails, which will hold them from turning over, and the hens will eat out the inside to the very rind. One large turnip is enough for a dozen hens. Just before dark give a feed of oats, barley or wheat, just what they will eat up clean and not leave any whole grain to detract their attention from the warm, soft feed in the morning.

Keep them supplied with fine gravel and an

occasional meal of meat scraps. With this diet, and such variations as common sense will suggest, there will be a plentiful supply of eggs and no disappointment in hatching. Of course, it is possible to over-feed even on this diet, but that must be guarded against by commen sense. Give milk to drink, if possible, if not, water—pure and clean—with the chill taken off.

Commercial.

FARMER'S ADVOCATE OFFICE.
London, Ont., Jan. 2, 1888.

The month of December has been one of fine, mild, pleasant weather, with a slight fall of snow in some parts a day or two before Christmas, followed by a fine fall of snow the following week, and the county roads are now in fine condition for farmers to get to market. Trade has been very quiet, and were it not for the usual Christmas trade, business would be very dull. Money is scarce, and collections and payments are coming in very slowly. The cause of this is due to the fact that the price of produce is low, while the yield has been short, and to this may be added the fact that there has been up to within the past two weeks, at least $500,000 worth of cheese unsold and lying in the factories in the country west of Toronto and Hamilton This money should all have been in circulation not later than the 1st Dec., and one half should have gone into circulation by the 1st of November.

WHEAT.

The wheat markets have been quiet and steady, with an upward tendency. The deliveries of wheat in Ontario have been light, and many are of the opinion that the bulk of the Ontario wheat crop has been marketed. In some sections no doubt this is true, while in others it may not be such.

Mild weather has prevailed most of the week in the Central West, snow falling in some localities, and at the close of the week there is a decided decline in temperature, and hard freezing.

The movement of wheat at primary markets for the week shows a slight reduction for winter grain markets, at which the receipts are very light, being less than half as much as a year ago; for spring wheat centers there was a smal gain over the preceding week, and largely exceeding corresponding time last year.

Exports from Atlantic ports for the week were 1,422,950 bushels of wheat, flour included, some gain over the preceding week, and 644,000 bushels less than a year ago.

The report of visible supply of wheat showed a gain of 1,236,000 bushels for the week, fairly representing the expectations of the trade.

The course of the Chicago wheat market was steadily in the direction of moderate advance until Monday, when there was a fractional reaction, from which the market recovered on Tuesday, ranging yesterday at 84@84½ for May, against 82⅛@83⅛ a week ago. The closing yesterday was 1⅜@1½c higher than a week ago, but 2½c below the highest point previously touched for the May option.

The total quantity of wheat in sight on this continent and afloat to Europe is 57,575,000 bushels, an increase of 895,000 bushels, compared with a week ago, an increase of 1,451,000 with two weeks ago, an increase of 3,251,000 with three weeks ago, an increase of 8,959,000 with four weeks ago, and a decrease of 28,446,000 with a year ago.

The following table shows the total quantity of wheat in sight according to the Chicago statement of the visible supply and the amount afloat to Europe :

	BUSHELS.
Dec. 24, 1887	57,575,000
Dec. 17, 1887	56,680,000
Dec. 10, 1887	56,124,000
Dec. 3, 1887	54,324,000
Nov. 5, 1887	48,616,000
Oct. 1, 1887	45,661,000
Sept. 3, 1887	48,446,000
Aug. 13, 1887	52,472,000
July 2, 1887	56,781,000
June 25, 1887	61,004,000
May 7, 1887	65,719,000
April 2, 1887	70,762,000
March 5, 1887	77,541,000
Feb. 5, 1887	84,289,000
Jan. 8, 1887	88,665,000
Dec. 27, 1886	86,021,000
Dec. 22, 1885	73,820,000
Dec. 29, 1884	67,566,000
Dec. 30, 1883	55,198,000
Dec. 31, 1882	44,368,000

PEAS.

The demand is good, and those who can thresh them with the flail or horses will do well to do so, as seed peas will be in demand. They can be shipped to the States at fair prices. Many farmers who have already threshed their peas with the machine say they will have to buy their seed, as they are so badly split and broken by the machine.

CLOVER SEED.

The price of clover seed is low at present, and unless stocks of seed in the United States market are very much reduced during the next two months prices will likely rule low. There has been an enormous crop of seed in the States. Twice what was expected last August. The seed is also very fine, and we may look for a good deal of it to be shipped in here this winter from the fact of the price being so low. Prime seed can now be bought in Toledo for $4.25. There is a large crop of alsike in some parts of the country, and where there is any red clover seed the yield per acre is said to be very good.

TIMOTHY.

This article is also scarce and high, and farmers will do will to save any timothy they may have. It might even pay them to thresh some of their best timothy hay, if ripe enough, for the seed to grow.

BUTTER.

The Montreal Gazette says:—There was no change in the butter market, which remained quiet and steady with trade principally in small lots.

	C.	C.
Creamery	20	@22½
Townships	17½	@21
Morrisburg	17	@20
Brockville	16½	@19½
Western	15	@18

ELGIN, Ill., December 26.—Butter on call opened brisk at 31 cents, and sold up to 32 cents.

CHEESE.

Cheese was quiet but steady. There was no important enquiry here, but the late dispatches from the West report that fair prices have been made. The cable remained at 58s. Receipts at Liverpool from October 1 to December 14 were 260,000 boxes, against 311,000 yesterday. Mail advices report: London—"The demand for American keeps very limited, and although quotations for finest fall-made are called 60s.@62s., and full rates held out for by some holders, others who cannot be always looking at their stock have to submit to easier prices if any disposition is shown to press sales. The New Zealand cheese have found a market at low prices; being irregular in quality, they have sold at irregular prices, say from 28s.@48s." Bristol—"There is a little more doing at slightly easier rates for finest autumn makes, but the demand is still far from brisk. Spot prices, autumn makes, 57s.@59s.; Augusts, 50s. @54s.; summer makes, 45s.@49s."

THE STOCK OF CHEESE.

Cruickshank, Lovell & Co., of London, have the following letter in the London Grocers' Gazette of December 17: It is difficult to obtain correct estimates of stocks of American and Canadian cheese, hence an estimate is advertised, which is so absurd that its source can only exist in the imagination of the advertiser. It is an old game when one has no goods to cry down the market; but, as a rule, those who condescend to such tactics lack the influence which a correct description of the market alone can give. It has been stated that stocks of American and Canadian cheese in London, Liverpool, Bristol, New York and Canada are estimated at 850,000. No authority is quoted for this estimate, and as we felt it to be a gross exaggeration. we have been at some trouble in obtaining as correct information as possible, and beg to give you the same: This week we cabled one of our correspondents, Mr. Thomas Dallantyne, Stratford, Ont.: "What do you estimate stocks in Canada to be?" and he replied 200,000 boxes. We also cabled New York, and the estimate there is 125,000. We went personally to the docks and railway stations in London, and estimate es follows:—

Royal Albert, Victoria and Milwall docks	80,000
Great Northern Railway Company	5,000
London & Northwestern Railway Company	4,000
Midland Railway Co.	1,500
Lower Thames street and Tooley street	15,000

We asked two firms of brokers in Liverpool, and the estimate given is 150,000. Messrs. Crew, Widgery & Co., of Bristol, report 45,000. This makes a grand total of 626,000, against 850,000, which is only out 224,000 boxes. We believe the statistics we have collected are as correct as it is possible to get them. Last year the States consumed 718,000 or 59,000 boxes per month; this will more than absorb any stock in the interior of America, and will in fact be partly supplied from the stocks now in New York. It has been estimated that the consumption of American and Canadian cheese per week in the United Kingdom is 40,000 boxes. This, up to the middle of May, would absorb 880,000. Whether it be so or not, finest cheese will all be wanted, and the market value will not be regulated by those who have no stock, but by importers and merchants who own the product.

The Decrease in Grain Production in the United Kingdom.

The London Times, observes the Mark Lane Express, has published a statement showing that the wheat-growing area of the United Kingdom has shrunk from 3,981,989 acres in 1869 to 2,553,092 acres in 1885, which means that the bread-corn produce of 1,503,671 acres, which may average 5,000,000 or 6,000,000 quarters per annum, has to be replaced by importation. In this period of sixteen years the reduction of the wheat area has been accompanied by a shrinkage of the total area of the United Kingdom, yielding wheat, barley, bere, rye, oats, peas, and beans, from 12,000,111 acres in 1869 to 10,013,625 acres in 1885, being a loss of 1,985,486 acres, or 16.5 percent. The Times remarking on this says:

"This vast acreage has disappeared from the annual breadth which employs the greatest number of laborers per acre. Taking England alone, we find that fully one-seventh of the country has gone out of corn cultivation; while in Wales the proportion of corn culture sacrificed is still greater, and in Ireland considerably more than a quarter of the whole grain-growing area is lost. Thus abandoning arable land, with its high proportion of weight and value yielded per acre, and substituting grazing land, of which the larger part consists of natural herbage, means the banishment of an immense amount of the agricultural industry peculiar to the sister kingdom."

LIVE STOCK MARKETS.

Buffalo, Dec., 26, 1887.

CATTLE.—Receipts, 12,444 against 10,778 the previous week. There were 200 car loads of cattle on sale Monday. The demand for the best

grades was fairly active at former price, but common cattle of which the supply was plentiful were dull and lower. A few loads of extra 1,500 to 1,600 lb. steers were sold at $4.85@$5.30, otherwise good 1,400 to 1,500 lb. steers brought $4.40@$4.80; good 1,300 to 1,400 lb. do., $4.10 @$4.50; good 1,200 to 1,300 lb. do., $4@$4.35; good 1,100 to 1,200 lb. do., $3.25@$3.85, and common to good 1,000 to 1,100 lb. do., $3@ $3.40; mixed butchers' cows and heifers slow at $2.50@$3.10; fat bulls were in liberal supply, and the market the dullest of the season, common to fair selling at $2@$2.75, and extra to fancy at $3@$3.50; stockers and feeders in limited supply and demand at $2.50@$3.25. The receipts were light on Tuesday and Wednesday, and all of common quality. The feeling for good cattle was strong. The following were the closing

QUOTATIONS:

Extra Beeves—Graded steers weighing 1,300 to 1,450 lbs	$4 85	@5 25
Choice Beeves—Fine, fat, well-formed steers, weighing 1,300 to 1,400 lbs	4 10	@4 50
Good Beeves—Well-fattened steers weighing 1,200 to 1,350 lbs	4 00	@4 35
Medium Grades—Steers in fine flesh, weighing 1,100 to 1,200 lbs	3 35	@3 85
Light Butchers' Steers averaging 1,000 to 1,100 lbs, of fair to good quality	3 00	@3 40
Butchers' Stock—Inferior to common steers and heifers, for city slaughter, weighing 900 to 1,000 lbs.	2 50	@3 00
Michigan stock cattle, common to choice	2 50	@2 75
Michigan feeders, fair to choice	2 90	@3 10
Fat bulls, fair to extra	2 25	@3 00

SHEEP.—Receipts 55,400 against 50,000, the previous week. The market opened up on Monday with about 15,400 sheep on sale. The demand was slow for sheep at about Saturday's prices, but lambs were 10@15 cents lower. Common to fair sheep sold at $3@$3.50; good to choice, $4.25@$4.65, extra to fancy, $5@$5.40; fair extra lambs, $5.25@$6.25. The market was dull on Tuesday, the offerings all being common, and on Wednesday prices declined 10 @20 cents, closing with good to choice sheep selling at $4.10@$4.40; extra, $4.60@$4.75; common to fair, $2.75@$3.50; fair to extra lambs, $4.75@$6.

HOGS.—Receipts 62,003, against 78,975 the previous week. The offerings of hogs on Monday numbered about 9,600. The demand was active and prices 5 cents higher than on Saturday. Pigs sold at $4.75@$5.10; good to choice Yorkers, $5.45@$5.55; fair do., $5.25@$5.40; selected medium weights, $5.50@$5.60. The market was steady on Tuesday and active on Wednesday at a decline of 5@10 cents. At the close pigs were quoted at $4.60@$5.05; good to choice Yorkers, $5.40@$5.50; fair do., $5.20@ $5.30; selected medium weights, $5.45@$5.55.

Farm Produce.

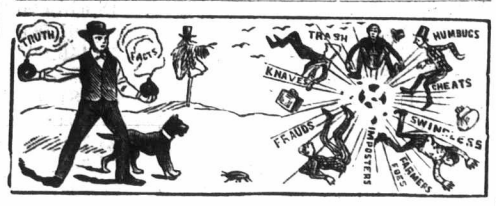
PRICES AT FARMERS' WAGONS.

Toronto, Dec. 29, 1887.

Wheat, fall, per bushel	$0 83	0 85
Wheat, red winter, per bushel	0 83	0 85
Wheat, spring, do.	0 77	0 82
Wheat, goose, do.	0 73	0 75
Barley, do.	0 60	0 77
Oats, do.	0 00	0 40
Peas, do.	0 00	0 65
Dressed hogs, per 100 lbs	6 75	7 00
Chickens, per pair	0 35	0 45
Butter, pound rolls	0 20	0 25
Eggs, fresh, per dozen	0 21	0 22
Potatoes, per bag	0 95	1 00
Apples, per barrel	1 75	2 50
Onions, per doz	0 15	0 20
Do. per bag	0 00	2 00
Turnips, white, per bag	0 40	0 50
Rhubarb	0 00	0 00
Cabbage, per doz	0 50	1 00
Celery	0 40	0 75
Beets, per peck	0 00	1 00
Radish, per doz	0 00	0 20
Cauliflowers, good	1 00	1 50
Peas, per bag	0 00	1 25
Beans	0 00	1 50
Tomatoes, per bush	0 75	1 00
Hay, per ton	11 00	16 00
Straw, "	8 00	12 00

THE HORSE MARKET.

There is a very fair demand this week for anything in the shape of working horses, but light horses are not much called for. Two buyers are at Grand's Repository purchasing heavy horses for the woods, and are paying from $110 to $150 for animals weighing from 1,350 to 1,450 lbs. Mr. W. D. Grand sold twenty horses by auction on Tuesday last, the prices ranging from $60 to $140 each. Business is rather quiet just now, but a revival is looked for after the holidays.—Toronto Mail.



Although our utmost vigilance is exercised to prevent the entry of fraudulent and other exceptional matter into our advertising columns, yet with all our circumspection we are sometimes imposed upon ourselves. We are constantly refusing contracts on this account, and indeed not a month passes that we do not sacrifice our own interests to the welfare of our subscribers by repudiating advertisements frequently of a very profitable nature pecuniarily. We beg to caution our readers against the Swiss Importing Co., of New York. The advertisement in our November issue reached us from what we supposed to be a reliable source; but immediately upon becoming aware of its fraudulent character have expelled the intruder from our columns, and hasten to make the only reparation to our subscribers that lies in our power. While upon this subject, in case any of our readers are in communication with the following humbgus, some of whom have tried to secure admission to our columns, we earnestly caution them to classify them with the Swiss Importing Co., of New York, as we understand they all emanate from the same office in that city: The "Imperial Fire Extinguisher Company," the "International Watch Company," "Russell, Walker & Co.," and the "Household Journal." Any of our readers hearing of any frauds being perpetrated upon the farmers in their vicinity, by sending the same to this office we will only be too happy to expose them.

LEAN MEAT.—The demand for lean meat will have to come more plainly to the surface, and a premium placed on its production, before the old style of feeding will be broken up. Farmers do not consume as much pork as they used to, when their work required a fuller development and use of the muscular system. They drop off the use of such strong meat because the system does not require the burning of such strong fuel. The hard, laborious work of clearing and fencing their lands has passed away, and with it the heavy implements incident to the times. Instead of the strong meats required for such labor, something is needed to accord with the work of these times. Much of brain work must enter into the farmer's labors, and the food must be in keeping with the work. Granting that the quality of the pork has changed in the period alluded to, that it has become more oily, this, in connection with the other reason, will not account for the falling off *per capita* in its consumption. But much of it can be attributed to the fact that other meats, not so strong, are substituted, and more vegetables are used in making up the daily bill of fare. This falling off is common to all classes, unless it is the miners and men working on heavy public contracts. It is evident that the quality of the pork placed on the market must be changed, or the decrease in consumption will continue. There must be more muscular or lean meat, and less grease or oil.—[National Stockman.

A Mammoth Industry.

No one visiting Toronto should fail to run up and see the extensive works of the Massey Manufacturing Company. While they have created wonder at their size in the past, they are now larger than ever, the Company having added two new buildings within the past few months. On page 28 may be seen a cut showing this enormous, plant as it now stands. The Massey Company are giving employment to upwards of 350 men, working full time, and turning out about 50 binders and mowers per day. The past season was by far the greatest year in the history of their business.

Notices.

CHEAP WATCH.—We consider the Waterbury Series E. the best cheap watch in the market. It is sold at the exceedingly low price of $2.75. It is just the watch for the boys. Enquire of your watchmaker for it, or write Toronto office.

We have been much pleased with the manner in which the Corbin Harrow did its work, but its makers—the St. Lawrence Manufacturing Company, of Prescott, Ont.—ever on the alert to add improvement, are out with a new harrow, the No. 30 "Reversible," which we had the pleasure of trying last fall. This harrow can be changed to work three different ways—turning the soil either way—which adds greatly to its utility. It did its work very satisfactorily. As it will take a seeder, it appears to be complete. Our own opinion of the Corbin Harrow agrees with that of a number of our subscribers, who have expressed themselves as much pleased with it, and we commend it to the attention of our readers.

TO DENVER IN ONE NIGHT.—On December 4, 1887, the Burlington route, C. B. & Q. R. R., inaugurated a fast train service as follows: Fast express train known as "The Burlington's Number One" leaves Union depot, corner Canal and Adams streets, Chicago, at 12:01 P. M. daily and runs to Denver solid, arriving at 10:00 P. M. the next day, thus making the run from Chicago to Denver in thirty-four hours. This train arrives at Omaha at 5 A. M. making the run to Omaha in seventeen hours. Corresponding fast train from Denver to Chicago. Direct connection made to and from St. Louis with these trains, and at Denver with the fast train of the D. & R. G. R. R. for San Francisco and Pacific coast points. Superb equipment on "The Burlington's Number One," consisting of sleeping cars and coaches from Chicago to Omaha and Chicago to Denver without change. Meals served en route on the famous Burlington route dining cars as far West as the Missouri river. Omaha passengers will be allowed to remain in their sleeping car till breakfast time. See that your tickets read via the C. B. & Q. R. R. It can be obtained of any coupon ticket agent of its own or connecting lines or by addressing.

PAUL MORTON,
Gen'l Passenger and Ticket Agent.

Pig Pen and Hen House Combined.

I have a pig pen and hen house under one roof, 30x 18 feet, walls 13 feet high. The pen is divided into three pens, and has a plank floor laid with a fall of one inch to the foot. The hen house is as follows: The walls are double boarded and filled in with concrete. I have a window at each end to open when required. On the south side of the roof there is a skylight 6x4 feet. The fowls roost two feet from the floor. The nest boxes are in two lengths, entrance at each end, and the tops lie at an angle of about 40 degrees to prevent roosting thereon. In the middle of the floor I have a frame 4x4 feet 6 inches deep. I place ashes therein weekly. It would do you good to see how they enjoy it. I mix a handful of sulphur with it occasionally. Such is my experience for the last seven years with 50 hens (white leghorns), and I very seldom lose one from sickness, and have received 3,500 eggs from them this year. I generally cover the floor three inches deep with chaff or sawdust in the winter. The fowls run at large on the farm in summer.—W. A., Auguston, Ont.

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. If an answer is specially requested by mail, a stamp must be enclosed. Unless of general interest, no questions will be answered through the ADVOCATE, as our space is very limited. 3. Do not expect anonymous communications to be noticed. 4. Matter for publication should be marked "Printers' MS." on the cover, the ends being open, in which case the postage will only be 1c per 4 ounces. 5. Non-subscribers should not expect their communications to be noticed. 6. No questions will be answered except those pertaining purely to agriculture or agricultural matters.

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 case of suspicion of hereditary diseases, it is necessary also to state whether or not the ancestors of the affected animal have had the disease or any predisposition to it.

In asking questi ns relating to manures, it is necessary to describe the nature of the soil on which the in ended manures are to be applied; also the nature of the crop.

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

Superphosphate for Potatoes — Relative Value of Turnips and Carrots —1. Will it pay t raise potatoes upon superphosphate, and how is it best applied? 2. What is the feeding value of carrots as compared with turnips, and which is the most exhaustive upon the soil?—G.L.P., Nashwaaksis, Ont.

[The advisability of using superphosphate for your potato crop depends upon the character of your soil. Upon a light, sandy soil, a marly or limy soil, and upon a peaty soil, superphosphate has not given very favorable results. If these soils require a special dressing of phosphoric acid, it will be more economically applied in the form of bone dust or ground apatite. On most light soils an addition of potash fertilizers, such as ashes or kainit, to the phosphate, would give more favora le results for potatoes than the phosphate alone. Ashes, although very valuable in combination with ground bone, should not be applied in combination with superphosphate, and if very little or no vegetable matter is present in the soil a nitrogenous fertilizer would also be of advantage if the season is favorable. But heavy rains in the spring are liable to wash out the nitrogen. If your soil is of a somewhat heavy character, with sufficient vegetable matter, a dressing of superphosphate may prove very remunerative. Superphosphate is best applied by sowing it broadcast over the soil. The finer the superphosphate and the more perfectly it is spread the better. 2. The relative feeding value of carrots and turnips, based upon the latest investigation, compare as 16:10; that is, if carrots are worth 16 cents, turnips are worth 10 cents. If the same weight of carrots and turnips are grown on the same soil, the carrots will exhaust the soil one-third faster in nitrogen and phosphoric acid, but the exhaustion of potash will be about the same; or, in other words, a crop of 300 bushels of carrots would be as exhaustive in nitrogen and phosphoric acid as 450 bushels of turnips, but would exhaust the potash much faster.]

Black Teeth in Pigs.—Quite a discussion took place the other day on the above subject. I took part with the porkers for quite a while, that the black teeth were caused by improper and unhealthy food, and bad premises; but I met with such a host of opposition that I had t give way, agreeing with the party to write to the ADVOCATE and take whatever version of the matter that would be decided on by you. I have often met with parties besides those men who told me their pigs had black teeth, and had them broken out I have always stood up in their behalf, advocating a clean, dry bed, plenty of sweet, nutritious food, and none from a sour swill barrel. I may say in conclusion, I have raised quite a number of pigs for the past 25 years, and although living where this disease is so prevalent, so far I have not had one case amongst my pigs. By giving a cure or a preventative for the above you will confer a favor on the owners and a better time for the pigs.—A SUBSCRIBER, Antrim.

[Your opinion is right. Black teeth are not a disease, but are caused by disorders and acidity of the stomach. Apart from these causes, however, some foods cause them. Wholesome foods and clean quarters are the best preventatives.]

Concrete Houses.—I take the liberty of asking you for some information concerning the building of a concrete house, if in your opinion it is a safe house to build. In this settlement we have abundance of good beach gravel and sand close at hand, and the nearest brick yard is twenty miles from here, so that if a gravel wall can be built to stand, I think it would be much cheaper than either brick or frame. Knowing that you have such widespread experience, and that you take such an interest in the welfare of farmers, I ask of you to kindly give me all the information concerning the building of such a house, say about 20x30 and a kitchen 16x18, same height as house. What thickness would the wall require to be, and how much lime and sand should be used with the gravel? Would it be better to have the cellar and foundation of stone, or have it concrete all through? Should there be a space between the wall of concrete and the plaster inside, and what way should the strips be put in to make the space? Does the wall require plastering outside, and what kind of material should be used? —M. D., sr., Kingsridge, Ont.

[A concrete house is perfectly safe if care is taken in its building. It is safer to build the foundation, reaching about two feet above ground, of stone, than of concrete, for the latter, even if built entirely with cement and gravel, is more liable to give way at the earth's surface than a stone wall. The walls will be much stronger if Akron cement is used in addition to the lime and gravel. Mix together one part of Akron cement, two parts of air-slacked lime and nine parts of coarse sand or gravel. When well mixed moisten the mass until it has the consistency of mortar. Have the whole thoroughly mixed, for the strength of the wall depends to a large degree upon the evenness with which the cement and lime are distributed through the sand. The wall should be twelve inches thick at the bottom, and may run out to ten inches at the top, but they are generally built of a uniform thickness throughout. The framework necessary to form the mold for the wall should be well braced and stayed to prevent the wall from spreading. The studding should be placed three feet apart to prevent the boards, which serve as mold, from bulging out with the weight of the concrete. It is safer to leave these boards in their places (to protect and strengthen the walls until it is thoroughly dry), and use new ones to serve for forms as the wall is going up A space should be left between the inside of the wall and the plaster to keep the house dry For this purpose put strips six inches by one inch horizontally on their flat side on the inside of the wall, as it is built. They should be placed two feet apart, the lower one six inches from the floor. On these strips nail others in a perpendicular direction, and on these lath and plaster. It is not necessary to plaster the outside of the wall. But if you desire to do so, use one part of Portland cement to three parts of sharp sand. Nothing else will stand the frost.]

Interesting Notes from Our N. W. T —Our settlement is located on the South Saskatchewan river, Saskatoon District, N. W. T., and our location is favored with many natural advantages that only need development to become a very successful agricultural community. The soil is principally loam on clay and sandy clay subsoil, and seems to be very fertile. Our crops are not threshed yet, but will yield well, the sample very fine, especially in wheat, peas and barley. The season has been favorable. The rainfall was not heavy, but well distributed through the growing season. Last year the crops suffered from drouth and most of the surface water dried off, but good water is got in plenty for light digging here. Stock are going into winter in good order, and are always expected to come out the same in spring when fed on wild hay. Potatoes are a fine crop, roots fair, gardens good. I find that here the winters are colder than in Western Ontario, but with less storms and no deep snow. Last spring seeding was not interrupted after April 6th, and wagons are still running. Gophers are somewhat troublesome here, but not so bad as reported at Gopher Lodge. On 5 farms in this township about a half acre of crop destroyed and about 400 gophers killed. Fortunately the little pests are very easily destroyed, as they will even walk from their holes into a trap held in a person's hand. We think your I. H. friend is mistaken about hard ground best retaining moisture, as we find well-cultivated land the last to show the effects of a dry spell. We also find prodigious crops of roots and vegetables raised on those plains without the least shelter. The Central Saskatchewan Agricultural Exhibition was held here on September 22nd and proved a grand success; over ninety entries in cattle alone, pedigreed Ayrshires and Shorthorns being well represented. The Hudson Bay Co.'s silver cup, offered for best collection of grain at Prince Albert Exhibition was brought to this settlement this year by J. Caswell. The price of good butter has not been below 25 cents here this summer. We are glad you have visited some of our shows and have seen a bit of our country, and we think with you that we have a bright future. We would like to have your opinion as to the prospects for the dairy industry in this country, also what breeds would you recommend as most profitable for the dairy?—Yours truly, H. S., Saskatoon, N. W. T.

[With reference to the merits of the different dairy breeds, you will find the necessary information in this issue of the ADVOCATE. The hardiest native herds, or cows with a good deal of native blood in them, will suit your conditions best. Many thanks for your interesting letter. Hope to hear from you again. You will get our opinions of your country in future issues.]

Scours in Sheep—The crops in this neighborhood were first-class this year, but a very dry fall made feed in well stocked parts scarce. I summered about 400 sheep, which in the first part of the summer were in fine condition, but scarcity of grass later on pulled down such sheep as had twin lambs and their lambs a good deal, and these went into winter quarters in rather poor condition. Some of them have since given me a good deal of trouble in endeavoring to get them into condition. They are also very subject to scours, which, when it commences, is hard to get rid of, and I have lost two or three already this winter from that cause. I refer only to the poor conditioned ones, as the bulk of the flock are in as good condition as could be desired. I find sheep in poor condition must be very carefully handled, and I would be much obliged to you to advise what feed would be best for them, and in cases of scours what treatment is best, as any remedies I know have been of little or no avail. I have been feeding the sheep good hay, and twice a day some chopped oaten sheaves adding a little oats, until a week ago I added bran at the rate of a bucket twice a day per 50 sheep, but thinking the bran may have caused the scours, I have stopped using it Have had sheep here over four years, and almost no mortality; in fact, until this year have scarcely lost a sheep from natural causes, but this fall and winter have lost several from scours. The poor-conditioned sheep do not eat heartily; the only thing they seem to relish is bran. Is there any tonic that would help them? I remain, yours, etc. -J.S.M., Beausejour, Man.

[The scours may be caused by worms, indigestion or some irritating substance in the stomach. Give half a pint of raw linseed oil mixed with a teaspoonful of turpentine once a week. Also give an astringent, such as tincture of opium, 2 drachms, mixed with say half a pint of water, twice a day, or tincture of catechu, 2 drachms, in the same quantity of water. Starch or strong coffee are also good remedies, or a little oak bark tea. As a tonic you may give powdered gentian, 1 drachm, and sulphate of iron, ½ drachm, for each sheep in feed twice a day. Bran does not cause scours when regularly fed, but sudden changes in any ration may cause them.]

Rabbits Barking Fruit Trees—I brought some of the hardier kinds of apple trees from Ontario and planted them here. They grew remarkably well, but the rabbits barked them the first fall. The next spring growths started below where they were girdled: these they eat to the ground the following winter. They ate my gooseberries off level with the ground last winter. Would you kindly inform me through the ADVOCATE of any means that will prevent them?—J. K., Fourmidi Agow, N. W. T.

[Destroy all the harboring places of the rabbits, such as heaps of brush or logs, sagged-over fences, or anything else that affords them shelter in and about the orchard. Then plant here and there throughout the orchard sticks to which pieces of cloth, previously dipped in sulphur, have been tied. A good dog is also of advantage in keeping the rabbits at bay.]

Pasturing and Soiling Rye.—I am short of pasture for next summer, and am thinking of plowing up part of my pasture, that is, not giving much feed, and sowing spring rye, clover and timothy seed mixed, and then keeping the cattle off until the rye gets up about eight or ten inches, and then turning them in to feed it down. After they have fed it nearly down shut them out for three weeks, and then let them in again. Will this answer? My land is sandy loam. I could have different pieces of pasture, so as to keep them from one field to the other through the season. I have heard this plan recommended, but have never seen it carried out.—J.C.S., Danville, P.Q.

[On your soil it would be very injurious to the young grass and clover to allow heavy animals to graze upon it, for the soil, being loose, would yield under the pressure of their feet, and therefore tear the tender grass roots and displace the plants themselves. If you intend the young grass and clover to grow, your better plan would be to mow the rye as you may require it, and feed it to the stock as a soiling crop. This would also economize the rye for the stock, for being turned in when the crop is eight inches high, they would trample down and waste considerable. As mowing has the tendency to make the rye stool or tiller, it will be necessary to guard against too thick sowing, which would smother the grass and clover.]

Notes from P. E. Island.—Winter is upon us again, though in a very mild form. As yet we have had very little frost and no snow. The past season has been a good one for the agriculturist. That fabled individual, "the oldest inhabitant," does not remember a finer season or more abundant crops. Wheat has been exceptionally good, and as there was a larger acreage grown than ever before, we will probably have sufficient for our wants, and as we have a roller mill that will manufacture the very best grade of flour, we will not import much of that article. Our oat crop was also good, and we will have a large surplus for export. But our oat market is badly demoralized; in fact, it has almost failed us. Ten years ago 40 cents was about the price of oats with us; they are now worth 25 cents, which is below what they can be profitably produced for. Our root crops were excellent. We had the largest crop of potatoes ever known on the Island, and our farmers would have reaped rich returns for their potatoes if they could have been got to market. But unfortunately there was not shipping to carry near all of them. Very few potatoes have been shipped from the north side of the Island, owners of schooners preferring to load on the south side, where the harbors are better. Large quantities were shipped by rail from Point du Chene to Boston, and some to Ontario, but they were sent on so fast as to cause a freight blockade on the I. C. R. R. in the middle of our shipping season, which kept us from marketing the quantities we otherwise would. The price of potatoes this fall ranged from 18 to 30 cents, which Ontario people will no doubt think cheap this season. In stock raising we are making rapid advances, though in this respect our advance is due more to private enterprise than to any encouragement we get from the Government. Our Government, with the exception of keeping a few thoroughbred cattle, sheep and hogs on their stock farm, the produce of which are sold annually at our fairs, are doing very little for the encouragement of agriculture these last few years. Private enterprise is doing nobly in the matter of importing horses. During the last year quite a number have been imported from Great Britain and the U. S. The Clydesdale and the English Shire are favorite cart horses with us, and the American standard-bred trotter has almost wholly taken the place of the English thoroughbred. Our island, which has been called the garden of America, is in future going to be known as "The Kentucky of Canada," for the reason that in proportion to our population we raise more horses than any province of the Dominion, yet we are only just beginning to realize that the breeding of horses is a business that is admirably suited to our soil and climate, and that it is also the most remunerative branch of our husbandry. We raise three to four horses now for one raised five or six years ago. Though turning our attention to horses more than formerly, we are not neglecting our other stock, but rather improving and increasing them. We are compelled to do this, as the price of our staple product, oats, is so small, and a market for our potatoes is altogether dependent on the failure of that crop in other places. The commercial union fever has not become epidemic with us yet (in this respect the measles and whooping cough have advantage of it just now). Our Board of Trade has been discussing it at their weekly meetings during the past month, and the members are about equally divided on the question. But the farmers have not yet spoken out, not even thought it worth their while to publicly discuss it, which I think goes to show that however much they may desire free trade relations with our neighbors to the south, they are not yet prepared to swallow the pill that Wiman, Butterworth & Co. have been compounding for them.—Farmer, Bay View, P. E. I.

Interesting Notes from Manitoba -- This year has been an exceptionally good one for the farmers of Manitoba. It has been a year of phenomenal yields. As a rule, the reports of very heavy crops have a good deal of elasticity about them, but I leave the stretching for others and state what I have reason to think the truth. I recently visited a farm on which 57 bushels of wheat was grown to the acre, and the owner told me that he had never grown less than 40 bushels to the acre. His land is cleared from poplar scrub, and for the time that he has been on it he certainly has accomplished wonders. His place reflects great credit upon him, and is an evidence of his perseverance and industry. I have heard of 60 bushels to the acre having been grown this year, but cannot vouch for its truth. There is money in growing such crops as these, but everybody is not fortunate enough to get them, but excepting a comparatively small area where the rainfall was insufficient, good crops are the rule. Cattle are rather cheap, a good yoke of three-year-old steers being worth from 40 to 45 dollars. Hogs are scarce and dear, 5 cents per lb. live weight being paid. The price of wheat is from 45 to 50 cents. Good, clean barley, 25 cents per bushel. Now, in last ADVOCATE wheat at Toronto was worth 78 cents, and barley from 60 to 78 cents. Now that is rather a large margin for extra distance from point of consumption. I should think that the buyers here could well afford to give at least 5 cents per bushel more than they are at present doing, and that would mean something like 300,000 dollars circulated amongst the farmers of Manitoba on this year's crop, and that is a sum that is not by any means to be laughed at. The fact is that the farmers here are very much at the mercy of monopolies. There is no railway competition, and very little, if any, amongst the grain buyers, so the farmer has to be very much like "Uriah Heep," or probably he will have to take his wheat home again. We want more honest competition. We want also some of the leading strings, which our very paternal Government seems to think essential to our well-being, cut assunder; they might be of service to the infant in its first efforts to toddle off unaided, but they chafe and hamper the strong limbs of sturdy young manhood, and if the parent be wise the tension will be released in the near future.—R. C. B., Stodderville, Nov. 20th, 1887.

Treatment of Lucern.—I have a small plot of ground that I wish to seed with Lucern. Can you tell me how to prepare the ground, how and when to sow, how much seed per acre? Shall I sow it alone or sow a foster crop?—R. V., W. Flamboro.

[Lucern requires a well cultivated, clean soil, with a light, limy subsoil to ensure a growth. A stiff, wet soil is very detrimental to it. It should be sown in drills about 8 inches apart as soon as constant weather is assured in spring. The usual quantity sown is 15 pounds, and over, per acre. It is generally sown without a foster crop. Lucern is a very tender plant to start vigorous growth, and weeds or other plants are apt to crowd it out when young. Unless it is allowed to remain for five or six years it is not a profitable crop. It is very vigorous when mature, and can very successfully withstand drought. It should be mown or grazed before blossoming; otherwise it readily turns to woody fiber. It is very nutritious, but for hay it is difficult to cure in good condition.]

Deductions and Allowances at the Grist Mills.—Is a miller allowed, when you take a grist to him, to deduct 2 lbs. for each bag when he weighs it in, and only 1 lb. when he weighs it out, and then only allow 38 lbs. of flour, 3 lbs. of shorts and 10 lbs. of bran for good fall wheat that weighed 61 lbs. to the bushel?—J. R., Arkwright, Ont.

[A miller must certainly allow the same weight for bags when he weighs in as when he weighs out. In the old stone process there was a law that for water power he was allowed to take one-twelfth of the wheat to be ground, and in steam mills one-tenth. After these deductions were made, good wheat would usually yield about 40 lbs. of flour, 3 lbs. of shorts, and 11 lbs. of bran. The roller process works differently; the customers can't get the proceeds of their own wheat, and the transaction is simply an exchange of wheat for its mill products. The returns mentioned in your letter are considered very good for the roller process at present prices.]

Hen and Pig House Combined.—In answer to W. E. A.'s (Drayton) inquiry with reference to a pig pen and hen house combined, I have one combined which is built entirely of wood, and is very convenient, both for feeding and cleaning, and is sufficiently warm. It is 18x26 ft., with 14 ft. scantling on sides. The hen house is above the pig pen altogether, and should be double-floored. The stairway could either run from the passage inside or from the end of building outside to hen house. The hen house could have two or three windows, and it could be kept quite clean. The pig pen could have slide doors into a yard, where the manure could be kept and pigs have exercise. The building should have one or more ventilators to run from ridge boards down into the pig pen. The pig troughs could run nearly across the pen and be fed from the passage, and a furnace for boiling feed could be kept in the passage, if large enough. The floor of the pens should have a slant of two or three inches from the trough.—T. H. F., St. Helens P. O., Ontario.

Killing Lice on Stock.—We have a few cattle—mostly calves, troubled with small blue lice. How can they be killed? Our cattle are range cattle, and wild, so that any remedy should be effectual with but one application, if possible. The lice were brought in on Ontario cattle.—L. Q. C., Man.

[Give plenty of sulphur in feed, say two tablespoonfuls per grown animal twice a day, which generally proves fatal to lice. If this does not effectually succeed, the best external application for your conditions is a mixture of equal parts of melted lard and coal oil.]

Value of Ashes - Corn for Soiling and for Table Use - Best Varieties of Carrots and Turnips - Salt on Roots.—1. Would it pay me to gather ashes in the country for fertilizing purposes, and pay ten cents per bushel for them? 2. Would it be profitable to haul leached ashes, to be used as a fertilizer, five miles, if they could be had for the hauling? 3. What is the best variety of corn for feeding and soiling purposes, and what is the best early variety for meal? 4. What is the best variety of carrots for feeding purposes? 5. What is the best early variety of turnips, and what the best late variety? 6 Would it be good to apply salt on land for roots and potatoes?—P. B., Russell, Ont.

[1. The profitableness will depend upon the time expended in obtaining these ashes, and the quality of the ashes gathered. Soft wood ashes are much less valuable than hard-wood ashes, and even these latter vary in composition. The sample of hard-wood ashes analyzed for our "Experimental Grounds," contained 1.8 percent of phosphoric acid, 6.76 percent of potash, and 37.3 percent of lime. These constituents, at their market price, would make 100 pounds of this sample of ashes worth 50 cents, or 45 pounds (one bushel) would be worth 24 cents. Therefore, if you can gather such ashes as the above, which are but an average sample, for say ten cents per bushel, you will make money on the investment. 2. Leached ashes contain on an average about from 1 to 2 percent of potash, 1.5 percent of phosphoric acid, and 29 percent of lime. Such ashes would be worth from 12 to 15 cents per bushel. If these ashes contain 30 percent of water, a bushel would weigh about 60 pounds, which would make a ton worth from $4 to $5. Supposing you made two trips a day, and took a ton with each load, you would make a wage of from $8 to $10 per day. 3. For soiling purposes the Mammoth Southern Sweet has lately met with great demand, owing to its succulency and absence of crude fibre. The Western is also an excellent variety for this purpose. The flint corns, such as One Hundred Day Corn and Pearce's Prolific, are highly recommended as an early table corn. 4. The White Belgium is claimed to be the best carrot for feeding purposes. 5. Webb's Yellow Tankard and the Purple topped Yellow Aberdeen are considered valuable early varieties, and Westbury Im Purple-top possesses good keeping qualities for winter feeding 6. Salt sown on rich land is valuable for a root crop.]

Lampas.—I have a horse coming four years old, which is troubled with the lampas. What is the remedy?—E. F. B., Sparta, Ont.

[It is natural for horses to have lampas when shedding teeth, and it is merely an imaginary disease. Usually the best treatment is to do nothing. However, if the complaint is troublesome so that the horse eats with difficulty, it is advisable to give soft feed. In case the blood should be out of condition, which aggravates the complaint, it is also advisable to give a purgative pill or drench, followed by nitrate of potash, in drachm doses, in feed night and morning for a week or ten days; in less severe cases one drachm dose per day will be sufficient.]

Fertilizers for Roots.—Fodder is very scarce in this locality (eight miles north of Kingston), and I make a specialty of root crops. My root land is sandy. I have a field sown to rye, which I intend plowing under for potatoes, and there is some quack grass in it. No fertilizer has ever been applied. The previous crop was peas and oats. I want to know what kind of fertilizers to use and how to apply them for potatoes and turnips. Can I get them in Brockville?—OLD SUBSCRIBER, Kingston, Ont.

[Your green crop plowed under will be equivalent to a dressing of farmyard manure, and we think superphosphate, at the rate of 300 to 400 lbs. per acre, would be the most economical fertilizer you could use for turnips; but for the potatoes fine ground bone and unleached ashes would likely produce the most favorable results, mixing one part of the bone dust with four of the ashes, and applying the mixture at the rate of 1,000 to 1,200 lbs. per acre. Apply the superphosphate shortly before seeding and the mixture as early in the spring as possible, harrowing both in thoroughly. For fertilizers write to the Chemical and Superphosphate Co., Brockville, or Messrs. Brodie & Harvie, Smith's Falls, both of which firms manufacture mineral superphosphates; but for bone superphosphate or ground bone write to Messrs. P. R. Lamb & Co., Toronto.]

Shorthorn Grades versus Ayrshire Grades.—We have a stock of Durham grades that we consider to be excellent milkers. They weigh about 1,300 to 1,400 pounds; are well-bred, some of them having five and six crosses, give about fifty pounds of milk daily, and would milk the whole year round if we would let them. We are well satisfied with them, and have never been able to buy cows to beat them. We consider dairying the most profitable part of farming, and thought whether it would be profitable for us to cross our stock with the Ayrshire. We would like to have your advice in this matter.—T. H., Belmont.

[It requires great caution to improve upon good Shorthorn grades, but the quantity of milk can be obtained at a less cost by having a herd specially adapted for the dairy. Ayrshires of good milking reputation will improve your herd as well as any other breed You will get smaller cows which consume less food, but will produce about the same quantity of milk at a less cost. The grain in this change will more than make up for the extra beefing carcass of the Shorthorn grades, and there will be a further gain from being able to make the special dairy cows useful for a greater number of years.]

The Household.

Care and Management of Children.

Only those who watch infants with intelligent discrimination know how often they suffer from fever. With this fever comes *thirst*. What does the mother put into that little dry mouth? Often nothing but milk! When we adults have fever do we find that milk relieves the thirst? Does it not rather increase it? Be assured, it is the same with the baby. With the slightest symptoms of fever, cold water administered with a teaspoon is the prescription of wisdom and mercy.

Mothers, do you know that when your babies are feverish, restless and sleepless, you have at hand the means to give them relief and refreshing sleep? I do not mean opiates, for in the end *they* add to the fever. I refer to the warm bath. For babies it is a blessed institution. Better than all medicines, it will impart relief and restoration to the feverish and restless little folks. The warm bath is not appreciated. In addition to its charming effect upon the general conditions to which I have alluded, it is well to add there is scarcely a local trouble of a temporary nature, as, for example, pain in the stomach or bowels, which will not give way upon immersing the body in the warm bath. The degree of temperature may be determined by the urgency of the symptoms. The greater the suffering the warmer should be the water, especially if the patient be one of strong constitution. When the little sufferer becomes quiet or the skin moist, it should be taken out, rubbed with soft, warm towels, and wrapped in a fresh, warm blanket. During the last five years of professional management of the sick, I was in the habit of constantly resorting to the warm bath as above advised and always with the most satisfactory results. No other simple means in the treatment of sick children can be compared with it. In teething, the irritation and bowel affections are more relieved by a judicious use of the warm bath than by all other means.—Babyhood.

To Make a Happy Home.

1. Learn to govern yourselves and to be gentle and patient.
2. Guard your tempers, especially in seasons of ill-health, irritation and trouble, and soften them by prayers and a sense of your own shortcomings and errors.
3. Never speak or act in anger until you have prayed over your works or acts and concluded that Christ would have done so in your place.
4. Remember that, valuable as is the gift of speech, silence is often more valuable.
5. Do not expect too much from others, but remember that all have an evil nature whose development we must expect, and that we should forbear and forgive, as we often desire forbearance and forgiveness ourselves.
6. Never retort a sharp or angry word. It is the second word that makes the quarrel.
7. Beware of the first disagreement.
8. Learn to speak in a gentle tone of voice.
9. Learn to say kind and pleasant things whenever opportunity offers.
10. Study the characters of each, and sympathize with all in their troubles, however small.
11. Do not neglect little things if they can affect the comfort of others in the smallest degree.
12. Avoid moods and pets and fits of sulkiness.
13. Learn to deny yourself and prefer others.
14. Beware of meddlers and tale-bearers.
15. Never charge a bad motive if a good one is conceivable.
16. Be gentle and firm with children.
17. Do not allow your children to be away from home at night without knowing where they are.
18. Do not allow them to go where they please on the Sabbath.
19. Do not furnish them with much spending money.—Intelligencer.

The Shortest Way.

A household duty done in time and properly saves the greater labor of attending to it too late and diminishes the demand made upon the time of the housekeeper. The brass may be kept bright and shining with ammonia. Don't grease a creaking hinge and stick it up with a remedy that is worse than the evil, but put a little graphite or soft lead pencil on the place of friction. Why leave stains on cups and saucers and other dishes when ashes will remove them? Not a spot need be left on the cane-seated chairs if on a bright, sunny day, each chair is thoroughly washed and the wood saturated and dried in the open air and sun.

Iron rust comes off with lemon juice and salt, and the same kind of juice will remove stains from the hands. A polished floor is kept so by wiping it with a cloth saturated with milk, or with coal oil. The carpets may be kept much fresher if, occasionally, or general sweeping day, they be well sprinkled with corn meal and salt before beginning to ply that woman's weapon, the broom. A faded carpet will get a somewhat new lustre by putting a half tumbler of spirits of turpentine in a basin of water and keeping the broom wet with it while sweeping. There are a thousand things about a house that may be done in the right way at the right time, and the result will be a saving of time and household belongings.—[Good Housekeeping.

Precocious Children.

The majority of parents are fond of encouraging and delighting in the early mental development of their children, being for the most part unaware of the danger to which they expose them. Says an eminent authority: "There can be no question that the Creator intended there should be perfect harmony in the development of physical and nervous systems, and that where such harmony exists we come nearest to the standard of a perfect organization. This harmony of the two systems demands that in the earlier years of life the brain and nervous systems be held in abeyance to the physical.

"To fathers and mothers, surrounded by luxury and flattered with the precocity of their children, which they are stimulating to the least degree, I say you are enemies of your race; you are sowing the seeds of nervous, mental and physical disorders, from which the harvest will be fearful and the end death to your family and your name. Do not under peril encourage this brilliancy in your child, which is now so charming; rather let his mind stagnate.

For the *first seven years of life give concern only to his morals and his physique*. Nourish him as you would nourish an animal from which you desire the finest development, stimulating only his moral nature, and his intellect will take care of itself. Thus, if he have no hereditary taint, you will have laid the foundation of a splendid specimen of his race."

Family Circle.

BEN BIGGINS' FOREIGN SERVICE.

Up at the Hall there was a general commotion. Mr. Westley, of the Grange, had came pretty nearly to the end of his tether. He had but lately succeeded to the estate, and it had come to him very heavily encumbered: and now, with reduced rents, irregularly paid, he found it impossible to go on. He had, therefore, determined to spend a couple of years on the Continent, during which time he hoped that the agricultural depression would pass away.

The establishment at the Hall was not a large one by any means for a country bachelor squire, but it was larger than he could afford to keep up under existing circumstances. So one evening he called his servants together, and told them how matters were with him, bidding them seek other situations at once.

His personal servant, Ben Biggins, was not included in the general dismissal, but was destined to accompany his master abroad. Ben was one of those men not unfrequently met with in this country—a man who could turn his hand to most things, though he might not be good at any. The position he held at Westley Grange was a cross between a valet and a gamekeeper, but at odd times he had been known to cook his master's dinner and make his master's bed. This was during a grousing expedition on the Welsh hills, but the rumour of it had travelled to Westley. Ben was in high spirits when he was told of the journey in store for him.

"I'll teach those foreigners a thing or two," he said to the cook one night; to which she replied, "You be very careful, Mr. Ben, that they don't teach you more than you teach them."

"Them!" he cried; "them teach me! Why, I could wallop the lot on 'em if I wanted to."

"Then you mind you don't want to," she answered.

"Why, you knows very well," continued Ben, "that I set your watch a-going after James, the watchmaker, had had it a month, and couldn't make nothing of it; and I stopped the blue bed-room chimbly smoking, when the smoke had nearly druv you all out of the place."

"Rubbish!" she said. "The watch only wanted winding; and as for the chimbly, it smoked because there was a bag of straw in it. You needn't crow over them things, young man."

Yes, there *was* a little ill-feeling on the part of the cook towards Ben. She had claimed him for her own originally, but Ben had fought shy; and latterly he had been paying a good deal of attention to Anna, the housemaid at the Rectory. Either fault alone, on Ben's part, would have made the cook somewhat aggrieved towards him, but the two combined were more than culinary flesh and blood could stand. Thus it happened that her tongue had an access of acerbity when moving at Ben.

Down at the Rectory the commotion was nearly as general. The servants discussed the situation from morning till night, and Anna received many unpleasant jeers.

"Stick to you!" said the coachman; "not he. Them sort never sticks to nothing but their baccy. When you says good-bye to Ben, you says good-bye for ever, my lass."

"He can please himself," she said; "but if he thinks I shall die broken-hearted because he takes on with some foreign girl, he's very much mistook."

"That's always the way with you women-folk. You talk as big as big, and when it comes to, you doubles up to nothing. There was that girl o Simmonds's—her as kept company with that keeper fellow. Look how her brazened it out when they found he'd left a wife in Wales, and her died of consumption in less than a year."

"But Ben and me's different," said Anna. "If he's not in earnest, no more aren't I." Which was, perhaps consolatory.

The time slipped rapidly by, and it wanted but a day till Ben and his master should start for the Continent. That night Ben repaired to the Rectory, and had a parting interview with Anna. His last words were, "You'll not forget me, Anna, while I am parted from you? I'm a-coming back for you some day. Till then, ho river!"

"Till what?"

"That's a bit of French, my dear. I've bin learning the langwidge lately. It's something like 'Good-bye,' only more so. Ho river!" And they parted.

In the course of a few weeks Ben and his master were comfortably settled in a small German village near Bonn. The house where they had made their home was an old farmhouse that had once belonged to a noble family, but was now partly fallen to decay. It was inhabited by the present owner, who carried on the business of a small farmer and wine-grower. He had neither wife nor child, the domestic functions being superintended, and in a great measure performed, by a sister. Naturally, therefore, it came about that Ben and Fraulein Schmidt were often in each other's company, and, naturally also, Ben improved the occasion. If the Fraulein, with womanly curiosity, asked about the Herr Westley, Ben was careful to explain to her that the Herr Westley was a great baron at home, dwelling in a mansion with marble halls and gilded ceilings; that he, Benjamin Biggins, was the confidential companion of this said great baron; and that, though he (Benjamin) now appeared in the *role* of a servant, he had a remarkable good position amongst the gentlemen of his native land. And the Fraulein would listen with flushed cheeks and sparkling eyes. Sometimes, in the evening, before the farmer had come home, as they sat together by the house-place fire, Ben would delight his listener with stories of

the wonders of London. He had spent a few hours there one day while attending upon his master, and he therefore felt competent to describe its principal sights,and where his knowledge failed his invention came to the rescue.

True, he mixed things up a trifle. He got the National Gallery and the Houses of Parliament under the same roof, Westminster Abbey and the Tower within a stone's throw of each other, while the way to the Crystal Palace was over London Bridge, and up the river, past Battersea Park. But this made no difference at all to his listener. Like Desdemona, she drank in all his descriptions—

"But still the house affairs would draw her thence;
Which ever as she could with haste despatch,
She'd come again."

All this was, I fear, on Ben's part, a matter of calculation rather than sentiment. That he wished to stand well, for the standing's sake, in the eyes of his landlady goes without saying, but the standing well brought with it and after it some advantages that were of infinitely more value to Ben. There were many things dear to Ben's heart.but none more dear than poached eggs and hot buttered toast; and although those were "not in the contract," they were almost daily incidents of Ben's life. At first, it is true, he had not got on so well with his landlady, for notwithstanding the best intentions, neither had been able to comprehend a word said by the other. Time, however, which works wonders in so many cases, brought amelioration in this, for Ben got a smattering of German, and the Fraulein picked up a few words of English, and from that time Ben was, to use his own expression, "a made man." Though not endowed with a large amount of wisdom, he knew "which side his bread was buttered,' and he resolved to keep on good terms with the Fraulein, no matter who else might be offended. And the Fraulein herself grew really to like the big, boastful Englishman, and did her best to make both of her lodgers contented with their temporary home. This was about the position of affairs when, some eighteen months after they had left England, Mr. Westley told Ben he should soon be returning. This was a sad blow to Ben. No more poached eggs on hot buttered toast, no more tempting Rhine wine, no more idle days. He told the Fraulein what the Herr had said, and she, too, grieved. No more *stories* about London; no more leaves from the stately genealogical tree; no more pleasant evenings.

"And you must go?" she asked. "And I shall never you no more see?"

This set him thinking. Why should he go back? And the thinking ended in resolution; he would not go back. It came out in words at the first opportunity:—"I do not mean to go back to England, Fraulein, but shall settle down in Germany, if I can get any work."

"There is plenty of work on the farm," said the Fraulein.

This did not altogether chime in with Ben's view of life. Work was a thing to be endured, not courted. Plenty to eat and to drink, and nothing to do, was Ben's domestic creed. Still, he could work, and not work very hard; and if he married the Fraulein the farm would be as good as his at once, and absolutely his some day. He might do worse; he feared he could not do better.

"I've had some news from home, Ben, that ought to please you. Your old sweetheart at the Rectory has had a couple of thousand pounds left her by her uncle, the miller."

"Two thousand pounds!" said Ben to himself. "Two thousands ponnds! Why, that's a fortune. Things are becoming extremely complicated. I think I shall go back with master."

That night a letter was despatched to England bearing on the envelope the name of Miss Anna Robinson, at the Rectory, Westley, Shropshire. This was the letter:

MY DEEREST ANNER,—I ope this will fine, you in good elth as it leeves me at present. My deerest Anner, it his a long time sense, I rote to yew, but their have been so much to do as I have, no time. I hop this will fine you, in good helth, my deerest Anner. This is a very quite plase, there is no, sports nor nothink, I orphan sy, for deer old Englan an the swete fases, spechially one, I left behind, I ope to see, it soon, so know more at present from your trew lover,

"BEN."

What the Fraulein thought of it when she heard that Ben had changed his mind I hardly know, but he made some plausible excuse, I have no doubt, and promised (to soothe her wounded feelings) that he would soon return.

Once more at Westley! The first evening after his arrival Ben went down to the Rectory. Anna was out—but the coachman was in!

"Yo' back again; my lad! Yo're just like a bobby, a-turning up when you are not wanted."

That was the coachman's welcome, and Ben resented it.

"Perhaps, if you don't want me, there's some one else as does."

"Then perhaps there's two on 'em, for I see two on 'em together not five minutes ago."

"Hey!" ejaculated Ben.

"As much hay as yo' like my lad. We gies it to the 'osses, and can spare a bit for a donkey."

Clearly, there was no friendly feeling on the part of the coachman for Ben.

Then the cook tackled him. "You've made a fiue mess of it, Ben. Have you heard what she's had left her?"

"Left her!" exclaimed the humbug.

"Yes, left her—two thousand pound; and she's going for it on Monday. It'll make them very comfortable."

"Her and her mother," suggested Ben.

"Ho, ho, ho, ho!" roared the coachman.

"Hi, hi, hi, hi!" laughed the cook.

"Hee, hee, hee, hee!" sang the kitchen-maid—all in chorus.

"Her and her mother!" and then they went off again.

"It's very funny," said the victim, "but I don't see where the fun comes in."

"Don't 'e now? Then I'll tell yer. Yo're come back to make it up wi' her because yo' an heard as her's got some money. But it's bespoke already for—her and her mother."

Coachman, cook, and kitchen-maid repeat chorus.

"I'll not take it," said Ben, "from no one's lips but hers. Her said her'd stick to me, and I've stuck to her, and I expect her'll stick to me, and that's all about it."

"Then you can take it from her lips now, Mr. Benjamin," said Anna, coming in at the moment. "You never wrote to me for more than twelve months, though I wrote to you twice, and then, when I had some money left me, you sent me a letter pretending as how as you was very fond of me. Afore you went away I said to the coachman, 'If he's not in earnest then I'm not in earnest,' and that's all about it."

"Never mind," said Ben to himself that night. "If one door shuts another door opens."

Yes, the door was open when Ben got there,some six weeks after he had left. He entered the house with the air of a master, pausing a moment to look round on the vineyards which would soon be his. He opened an inner door; there sat Fraulein, busy with her needle.

"I am back again," said he; "give me a welcome."

"Then you can go back *again*," she replied.

"But I am come to stay and work on the farm."

"The farm does not want you, neither do I," she answered.

Then Benjamin waxed furious. He called her fickle and unkind, told her that no good could come to a double-dealing person, and left her with the somewhat double-edged remark that "A bird in the hand is worth two in the bush!'

I think I ought to explain the Fraulein's behavior. The old cook at Westley wrote to her to warn her against "that presumin' villun."

J. T. BURTON WOLLASTON.

Minnie May's Dep't.

MY DEAR NIECES,—I have been thinking of you all during the happy holiday season just gone by. What tender, solemn thought surrounds Christmas tide. If we are carried in imagination to the rude manger in Palestine, and listen to the sweet song of the heavenly host, proclaiming, "Peace on earth, good will toward men," are we not lost in love and praise? No wonder the glorious anniversary is such a season of rejoicing. What happy gatherings there have been in nearly every home Dear ones absent at school or college have returned. Married children with their "olive branches," and invited friends have met around the well-supplied table, and care is banished at least for that day. Christmas is nowhere else so truly enjoyable as in an old-fashioned farm house. Every dish on the table has a little history. The fruit and vegetables have been near neighbors all summer, having first seen the light within a stone's throw of each other. No wonder the pumpkin pies were delicious, when fresh eggs and sweet cream were to be had in plenty. And the turkey tasted all the better for having been "shipped" only from the barn to the house. And the children could tell which tree bore the red or yellow apples. Oh, those blessed country homes, with their generous hospitality and fresh abundance. My dear girls, be very proud of them, very much in love with them, and determine each to make home the most lovable spot on earth. I hope, my dear nieces, that in all the happy festivity of Christmas time our hearts and thoughts will turn to those in less favored circumstances. We all know homes where poverty holds a cheerless reign; food and clothing scanty. Let us remember Who it was that said "The poor ye have always with you." Let us remember them in a material manner, giving a little from our abundance. If any of you, my dear girls, say, "really I have nothing to give," consider a moment. Have you not the kind word of sympathy, the smile of recognition, or the friendly enquiry. Let us weigh their cares and trials, and endeavor to feel for them, remembering that He whose birth we have been commemorating—

Came humble and lowly,
Sharing all pain and toil,
Making them—holy.

Although anarchy and confusion seem to run riot in other lands, over us the dove of peace folds her pinions. Peace and plenty is our portion. Let us show our gratitude by endeavoring more faithfully to perform our duties in the coming year. Hoping that the holiday season has been to you all one of hearty, healthy enjoyment,

MINNIE MAY.

Recipes.

CROUQUETTS OF CHICKEN.—Mince fine the remains of a roast or boi ed chicken or turkey. Add two well-beaten eggs, and flavor to taste with pepper, salt and a very little grated lemon peel; then stir in one ounce of finely-crumbed bread, and form into the shape of pears, not too large; roll in beaten egg then in bread crumbs, and fry in boiling lard of a light brown; dish in a warm napkin or entree dish, after having stuck a stalk of parsley in each for a stem. Try them; they are nice.

ENTREE OF SALMON.—Pick one can of salmon in pieces, saving all the liquor; stir into it two eggs, one teaspoonful of melted butter, one cup of bread crumbs and a pinch of salt and one of pepper: stir well and put into a well-buttered mould; steam for one hour; turn into an entree dish, and pour the following sauce over:—Put half a pint of water into a saucepan, adding the same from the salmon which you saved. Stir in when boiling one tablespoon of butter and one of flour and one of chopped pickles, and a little parsley-garnish with slices of lemon.

FROSTING FOR CAKES.—Dissolve one large pinch of gelatine in six tablespoons of boiling water; strain and thicken with sugar, and flavor with lemon. This will frost two cakes.

SNOW BIRDS.—These little birds make delicious little morsels when cooked as follows:—When plucked, washed and cleaned, have some large-sized potatoes pee'ed, and scoop out the insides with a blunt knife. Cut a slice from the end, so the potatoes will stand; put a bird into each, head end first; place a piece of butter into each and bake in the oven until the potatoes are done. Serve on a hot dish.

DELICIOUS RICE PUDDING.—Wash and pick a cupful of rice; put into a pudding mould, with one quart of milk; steam for two hours. Eat with cream and sugar.

Etiquette of Eating an Egg.

There are many ways of eating an egg improperly, but there is only one accepted way of eating it properly, and this, according to a good authority, is to "eat it directly from the shell," set, of course, in an egg cup, not an ordinary cup nor a tumbler. "It is considered extremely inelegant to break two eggs into a cup or tumbler, or even to break them into a tumbler at all," says this authority, in the Art Interchange. "One of our fashionable ladies, and a leader in society, was lately seen to turn her egg into a glass, and eat it from that, being also guilty of breaking two into the glass at the same time."

These little things seem very trifling, but trifles make up the sum of human life, and we are judged largely, or one might say narrowly, by trifles, therefore it is best to observe the niceties, especially the etiquette, of the table.

Save the Leisure Moments.

It is astonishing what can be done in any department of life when once the will is fixed with a determination to use the leisure time rightly. Only take care to gather up your fragments of leisure time and employ them judiciously, and you will find time for the accomplishment of almost any desired purpose. Men who have the highest ambition to accomplish something of importance in this life frequently complain of a lack of leisure. But the truth is, there is no condition in which the chances of accomplishing great results are less than in that of leisure. Life is composed of an elastic material, and wherever a solid piece of business is removed the surrounding atmosphere of trifles rushes in as certainly as the air into a bottle when you pour out its contents. If you would not have your hours of leisure frittered away on trifles, you must guard it by barriers of solid work, the "must be dones' that cannot be put off. The people who have done the most for their own and general good are not the wealthy; leisurely people who have nothing to do, but are almost uniformly the overworked class. Such people have learned how to economize time, and however crowded with business, are always found capable of doing a little more; and you may rely upon them in their busiest season with far more assurance than upon the idle man. It is much easier for one who is always exerting himse f to exert himself a little more for an extra purpose than for him who does nothing to get up steam for the same end. Give a busy man ten minutes in which to write a letter, and he will dash it off at once; give an idle man a day, and he will put it off till to-morrow or next week.

There is a momentum in an active man which of itself almost carries him to the work, just as a very light stroke will keep a hoop going, when a smart one was required to set it in motion.

Young Men and Single Life.

It is undoubtedly true that a singe life is not without its advantages for some. The are hundreds of young men, as there are a like number of young women, to whom a married life would be unsuitable and unwise. It is an inexcusable sin for any young man of hereditary ill-health or deformity to assume marriage, and to such a one single life has advantages, even though it holds out few p'easures. But that young man who is possessed with every bodily and mental equipment, and marries not, fails in one of the most palpable duties of life. He deprives himself of life's most refined and exalted pleasures, of some of its strongest incentives to virtue and activity, and sets an example unworthy of imitation. Nothing has, or should have, a greater refining or moralizing influence to a young man than marriage. If he remains unmarried, he lays himself open to alluring vices that have no place in his eye or mind when his attention and affections are centred upon a devoted wife. Marriage changes the current of a man's feelings, and gives him a centre for his thoughts, his affections, and his acts. It renders him more virtuous, more wise, and is an incentive to put forth his best exertions to attain position in commercial and social circles. It is conceded that marriage will increase the cares of a young man which he would not encounter if he remained single, but it must be granted, on the other hand, that it heightens the pleasures of life. If marriage, with some instances within our knowledge, has seemed to be but a hindrance to certain success, the countless instances must not be forgotten where it has proven to be the incentive which has called forth the best part of man's nature, roused him from selfish apathy, and inspired in him those generous principles and high resolves which have helped to develop him into a character known, loved, and honored by all within the sphere of its influence. Matrimony, it is true, is chargeab'e with numberless solicitudes and responsibilities, and this all young men should fully understand before entering upon it, but it is also full of joy and happiness that is unknown to the bachelor. —[Boooklyn Magazine.

Waiting.

BY MARY J. JACQUES.

Scarce the wasted fire will burn,
Sings no more the steaming urn,
Cease thy fond, tormenting care,
From the darkened window turn,
Put aside the vacant chair,
Take away the untasted fare,
Give sweet expectation up,
Coldly on denial sup —
Oh, hark! how wide he swings the gate.
My love, who cannot come too late!

To Make a Button-Hole.

Begin at the beginning, and begin right. First, measure the length of the button-hole by cutting slits in a scrap; then a quarter of an inch from the edge of basque mark the whole length with basting—short stitches on wrong side and long ones on right side. From this line measure exact length of button-hole and make another line. Now you see you can cut your button-holes the exact size and all on a line. You can make these markings with chalk.

Now get the distance apart they are to be, and mark with pins.

No; don't cut yet, you're not quite ready, for you must first "bar and tack."

To bar, take sewing silk to match goods, and at the point of the pin on inside line put your needle through with silk double, draw it across to the outside line; take a tiny stitch across the head of the pin and draw the silk back again to inside line, thus making two parallel lines of silk about an eighth of an inch apart.

Now, with the same needle and thread tack down with three or four over and over stitches these bars.

Now the button-hole is barred and tacked, and you may cut right between them. Overcast carefully if necessary, and "work" in the ordinary way, but if you would be perfect you must practice carefully.

When you have worked round the button-hole take three stitches across the end, and work these with three tightly-drawn button-hole stitches.

Now, if you please, you may finish up by shaping with a stiletto held in the front edge of the hole while you draw it, firmly holding at the other end of the button-hole.

I think this is perfectly plain to all, for it is the way of an adept in the art I have tried to describe. MARY ALDEN.

PREPARING CUCUMBERS.—Make a strong briue which will float an egg, pour it over your pickles and let stand twenty-four hours; then remove from brine to brass kettle, add some vinegar and water with a small lump of a'um to green and harden them, cover with a folded towel and simmer over the fire until thoroughly heated through; take them out and rinse in warm water and pack in stone or glass ware. Cover with good cider vinegar, add a small quantity of whole cloves, allspice, pepper, mustard seed and a few pieces of horseradish. Will give Mrs. E. S. Smith a recipe for putting down cucumber pickles similar to keg pickles. To one-half bushel cucumbers, take three gallons water, one teacupful salt heated boiling hot, and pour it over the cucumbers four successive mornings. On the fifth morning throw the brine away and rinse with clear water. Then pour over them one gallon good vinegar boiling hot in which has been disolved a lump of alum the size of a small walnut. A few cloves, some pepper and mustard seed, also a few pieces of horse-radish to keep the scum from rising on them. This recipe comes late in the season, but like Lucifer matches is warranted to keep in any climate.—[H. W.

Time-Table for Boiling Vegetables.

Potatoes, half an hour, unless small, when rather less.

Peas and asparagus, twenty to twenty-five minutes.

Cabbage and cauliflower, twenty-five minutes to half an hour.

Green corn, twenty to twenty-five minutes.

Lima beans, if very young, half an hour; old, forty to forty-five minutes.

String beans, if slit or sliced slantwise and thin, twenty-five minutes; if only snapped across, forty minutes.

Carrots and turnips, forty-five minutes when young, one hour in winter.

Beets, one hour in summer; one and a half, or even two hours, if large in winter.

Onions, medium size, one hour.

Rule.—All vegetab'es to go into fast boiling water to be quickly brought to the boiling-point again, not left to steep in the hot water before boiling, which toughens them and destroys color and flavor.

The time-table must always be regulated by the hour at which the meat will be done. If the meat should have to wait five minutes for the vegetables, there will be a loss of punctuality, but the dinner will not be damaged, but if the vegetables are done, and wait for the meat, your dinner will certainly be much worse, yet so general is the custom of over-boiling vegetables or putting them to cook in a haphazard way, somewhere about the time, that very many people would not recognize the damage; they would very quickly see the superiority of vegetables just cooked the right time, but would attribute it to some superiority in the article itself, that they were fresher, and finer, not knowing that the finest and freshest, improperly cooked, are little better than the poor ones.

Toast Water.

Mrs. Loveland.—This nourishing drink is too often spoiled by burning the bread almost to charcoal, making thus a most distasteful beverage instead of a really excellent one, which it is when properly prepared. Toast the bread to a delicate, or even a dark brown, after first drying out the moisture in the oven; then put the pieces in a pitcher or closed pot, pour over boiling water and let it stand an hour or two, when it will be ready for use. It can be iced if preferred.

A Bag for the Dusting Cloth.

A bag for holding the dusting cloth is a great convenience, and may be made ornamental as well. Take a strip of butcher's linen 18 inches long for the back of the bag. Cut the front 5 or 6 inches shorter and both 6½ inches wide. Sew together and bind with ribbon. The extra length in the back is pointed and fastens over on the front with a button and loops. It is swung by ribbons. The front may be embroidered before making up.

COTTAGE PUDDING.—One cupful of sugar, two of flour, one of milk, one egg, butter the size of an egg, one tablespoonful of soda, two of cream tartar. Beat the sugar and butter together; then add the egg well beaten, then the milk, and finally the flour, in which the soda and cream tartar have first been well mixed. Bake in a pudding dish for half an hour in a moderate oven. To be eaten with sauce.

Hints for Ladies.

Now we come to a very useful and necessary piece of kitchen furniture—our cooking stove—and who wi l attempt to deny how much solid comfort it contributes to the household? The French are allowed to be the best cooks in the world, and the stoves in France are not made as ours, with places for pots to be set in. There is but one pot, and that a stock-pot. All the cooking is done on the top of the stove. Why cannot we take a lesson from them, and instead of the ugly, heavy iron pot, do our cooking on the top of the stove, in agateware kettles and frying-pans? Let us banish that dirty, black monster that, from his uncleanness has claimed a ho'e for himself so long. Our kitchens would look brighter, and the ceiling and walls would keep clean much longer, if there were no pots to be lifted, for a volume of smoke will escape before a lid can be replaced. Some may say, We have a large family to cook for, and it takes a large pot to cook it. Remember your pot is never full, and you have all that weight of metal to lift, whereas an agate pot would do the work infinitely better. Do not all my readers remember some occasion on which they tried to clean a pot of its black? You find it liberally bestowed over hands and dishcloth, and probab'y the spot whereon it stood has worst of all. There is no such tribulations in dealing with agateware. All is light, clean and inviting-looking. They cost a trifle more at the outset, but time and strength, and, I may add, temper, are both saved. One can cook all sorts of dainty dishes in these saucepans. They never discolor or singe, the heat is more gradual, and it is maintained that the majority of dishes should be cooked slower, besides, one's occupation is divested of certain rough and nasty surroundings, for who says that surroundings have no influence upon us? I believe cooking would be better liked and more studied if we could put black pots out of sight, and I maintain every woman should know how to cook; if she has not to do it herself she should know how to instruct her servant, for servants who know how to cook are daily growing scarcer. The iron dishcloth is another useful article, doing its work so effectually with but little trouble or labor.

It has been a subject which has often puzzled me why more labor-saving machines are not adopted by farmers' wives. A farmer and his sons provide every machine which will save time and labor and facilitate in any way the work of his farm, but the farmer's wife believes a dog-churn and a quilting-frame to be the limit of hers. The much over-worked wife and mother does the washing for her family as she did at the beginning, on the washboard, never seeming to think there is such a thing as a washing machine, which will do the work in half a day that the most indefatigable washerwoman can do between sunrise and sunset. Next comes the mangel. What hours of slavery over a hot stove, the limbs weary from patient standing and arms aching with the weight of the iron. A mangel will do all that an ironer can do. in one-third of the time and better. All square articles, such as pillow-slips, sheets, towels, tablecloths, napkins, &c., can be passed through, and all need not be touched over with the iron.

EGG CAKES.—Chop hard boiled eggs to a mince, mix with mashed potatoes, and fry in small cakes to a crisp brown.

Golden-Rod.

"How in the world did I happen to bloom
All by myself, alone
By the side of a dusty country road,
With only a rough old stone.

"For company?" And the golden-rod,
As she dropped her yellow head,
Gave a mournful sigh. "Who cares for me,
Or knows I'm alive?' she said.

"A snow-white daisy I'd like to be,
Half hid in the cool green sod;
Or a pink spirea, or sweet wild rose—
But I'm *only a golden-rod!*

"Nobody knows that I'm here, nor cares
Whether I live or die!
In a world of beautiful flowers, who wants
Such a common thing as I?"

But all of a sudden she ceased her plaint.
For a child's voice cried in glee,
"Here's a dear little lovely golden-rod!
Did you bloom on purpose for me?

"Down by the brook the tall spirea
And the purple asters nod,
And beckon to me—but more than all
Do I love *you*, golden-rod!"

She raised the flower to her rosy lips,
And merrily kissed its face,
"Ah! now I see," said the golden-rod,
"How this is the very place

"That was meant for me; and I'm glad I bloomed
Just here by the road alone,
With nobody near for company
But a dear old mossy stone!"

Nice Discriminations in Words.

Pretty refers to external beauty on a small scale. Grace of manner is a natural gift; elegance implies cultivation. Well-bred is referable to general conduct rather than individual actions. Beautiful is the strongest word of its class, implying softness and delicacy in addition to everything that is in similar words. Courtesy has reference to others, politeness to ourselves. The former is a duty or privilege to others, tho latter is behavior assumed from proper self-respect. Benevolent refers to the character of the agent acting, beneficent to the act performed. Charitable is restricted to almsgiving except when used in reference to judgment of others.—Journal of Education.

COLD BEEF WITH PUREE OF POTATOES.—Pare, boil and mash twelve large potatoes. Add to them salt, pepper and two tablespoonfuls of butter; then beat in gradually one pint of boiling milk. Spread this preparation on a warm dish and then place on it slices of cold roast beef. Put one tablespoonful of gravy on each slice. Place the dish in the oven for five minutes. Garnish the edge of the dish with any kind of green, like parsley, carrot or celery. Other kinds of cold meat can be served in this manner.

A correspondent of the English Mechanic says: Let all of "ours" know the following: My wife has suffered occasionally with acute rheumatism in her feet, with painful swelling, completely taking her off of her feet for many days at a time. The following remedy was recommended recently and tried, and took away the agonizing pain in less than fifteen minutes, and she can now walk very fairly, and in a couple of days she will be able to button her boots, and walk without a stick or crutch: One quart of milk, quite hot, into which stir one ounce of alum; this makes curds and whey. Bathe the part affected with the whey until too cold. In the meantime keep the curds hot, and after bathing put them on as a poultice, wrap in flannel, and—go to sleep (you can). Three applications should be a perfect cure, even in aggravated cases.

An opportunity is like a pin in the sweepings; you catch sight of it just as it flies away and gets buried again.

Treatment of the Hair.

A wineglassfull of aromatic spirits of ammonia added to a basin full of water, is very cleansing and refreshing. Care should be taken that it does not get into the eyes. The shampoo as given by the barber is too rough and vigorous, and the conglomeration he puts on the head afterward is anything but beneficial. While one performs daily ablutions of the face, hands and body, the head is generally left out. This should not be; it is as necessary to wash the scalp as any other portion of the body. The hair should be brushed daily. Too much violence must be guarded against. It should be brushed gently in the direction in which it lies. A harsh brush should be used to cleanse the scalp of dust and dandruff, and then the hair shafts should be smoothed and polished by means of a softer brush. The scalp should receive a roseate glow. This insures quicker circulation in the follicle about the hair papilla. and hence the growth is invigorated. Hair tonics have the same effect upon the skin, viz.: A stimulating effect upon the skin capillaries. Morning and night, before retiring, is the best time for brushing the hair. Too hard brushing tends to produce dandruff. In brushing, the object is to cleanse it from extraneous materials, such as feathers, dust, dandruff, and concrete sebaceous material, which often oozes out upon the scalp, to make it smooth, and to bring truant hairs into the right place, and to set in harmony discordant filaments.

Friction polishes the hair as well as bandoline or ointment. The end we seek in building up a scanty hair crop is a proper amount of blood-supply through friction and hair tonics.—[New York Medical Journal

---

SUGARED ORANGE PEEL.—Our lady readers may be interested in the following. We hope many of them will try the recipe, It is for making sugared orange peel. The preserve when completed much resembles citron in taste and appearance, and like that fruit is very nice in cake, etc. Take the peel of a quantity of thick-skinned oranges, cut in quarters; put into cold water, with a little salt, and keep about blood warm for two or three days, changing the water frequently, or until the bitter taste of the peel is gone. Then put into fresh water and boil very slowly until a straw or fork may be easily passed through the peel. Make a thick syrup of granulated sugar and water; drain off the water from the peel, put it into the syrup and boil very slowly as long as possible without crystalizing the sugar. The syrup should be nearly all absorbed. Remove the peel, place it on shal ow tins, pour the remaining syrup over it and dry in a warm oven. The above offers a good use for the peel.

RULES OF HEALTH.—A writer in one of our medical journals says that it is considered by all physieians impossible to lay down any rules for health which may be followed safely by all persons. Health depends largely upon the diet. Some people cannot eat newly baked bread; others cannot eat it when stale. Much fresh meat with some constitutions induces fullness of the head and a feverish state of the system, because it makes blood too fast. It should therefore be discarded, and a little salt meat or fish if the appetite craves it, with fresh fruit and vegetables, will be found probably to be just what the system requires. In truth, with health, as in many other things, each person must be a law unto himself.

Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES.—It is just a year ago since I sat in my studio, with the twilight shadows gathering about me, as the last hours of 1886 ebbed solemnly into the "irrevocable past." A year, with its indelible and eternal record, has been added to the beyond—its trials and its triumphs, its good and its ill, its hours of weakness and its moments of "overcoming," its days of gladness and sadness are forever gone—the last sunset has faded from our vision, and with subdued thought we turn to welcome the roseate dawn of the Happy New Year. In the midnight hour, when men are sleeping and good angels hover near, we would again draw aside the curtain which a year ago dropped over our picture, "The Dawn of Thought." Behind it the work has been going silently on—an unseen hand has been deepening the tints—bringing some phases of the picture out in bold relief, softening others, and throwing over the whole the impress of a master brush. I gaze upon it, and again, face after face appears before me. I recognise many of them—the fine forehead, the bright eye, the curling hair, are to me familiar, while here and there a new face appears. The longer I look the more plainly I can read the faces before me. Here is one—more thoughtful than in the last picture; there is less of the mischievous school boy and more of the earnest student in that face poring over his books. That curly-headed young rogue there, who is not often head of his class, but who is the first to find anything that is lost on the farm, and who even now is capable of taking charge of some portion of the farm work, gives greater promise than ever of being one of the sturdiest, staunchest, tidiest yeomen of his community. The next one there, with frank face and honest eyes, with knife in hand, looking for "something to make something of," is the coming carpenter. And let me tell you, honest eyes, as I heartily wish you success in the calling you have chosen, that, looking at you, these words come to my mind, "Is not this the carpenter—the son of Joseph?" As you work at the bench, with saw and plane, will you not in all your life-work follow in the footsteps of Him who was in very deed a carpenter, and the Son of the lowly Joseph? Yes, my boy, it was *His* calling—then it is no mean one. I look again, and thought that in that calm, resolute, noble face before me I can look into the future, and see a man standing, even though it be alone, yet standing bravely, independently, fighting the battle of progress, around him fields of golden grain, waving in the sunlight, and meadows rich with greenest verdure, his flocks and herds testifying to the almost unlimited possibilities of what one man's work may be. Beside the boyish yet manly form is a sweet girlish face and figure. She, too, like her brother, aspires to noble things, and in her we can see the foreshadowing of a woman who would be fulfilling part of her mission in the world were she to find herself "absolute monarch" of a school of rollicking children. That maiden beside her will yet shine forth, the star of home, the attentive daughter the kindest of elder sisters, while we can almost see a third, with thoughtful, serious face, carrying in her hand the missionary's Bible. Thus the faces throng about. Dimly I can see, as away through the years, one pleading at the bar, another relieving suffering humanity, another telling "the old, old story"—each and all earnest in the work he or she has chosen. The old clock above the mantel-piece is about to strike; with the stroke of the clock the curtain must fall, and it is with a feeling of sadness I gaze upon the picture again; for do I not see some faces which promised well last year, away in the background now, weak and indistinct; the pure sweet faces of some of my girls are scarcely recognizable in the pert face and curling lip which now meets my eyes. The honest faces of some of my boys have been supplanted by faces whose expression means, "I shall do as I please, and no one has any right to interfere with me." My boys and girls, before angel hands draw the curtain—the first chime of the midnight bell has rung, and soon you will pass from my vision—let me plead with you to come back to your ranks, and fighting bravely for the right, earn the highest reward that lips divine ever uttered, "She hath done what she could." I said the midnight bell rang one—it rings again—again—four, five, six, seven, eight, nine, ten, eleven, twelve. The curtain has been drawn, and we leave our picture, 'The Progress of Thought," to the silent working of the unseen Hand for another year, while the bells merrily ring "A Happy New Year, a Happy New Year.—Farewell, 1887; welcome 1888."

UNCLE TOM.

DEAR NEPHEWS AND NIECES.—The prizes for 1887 are awarded as follows: For best puzzles, 1st, Edward A. Fairbrother, Copenhagen, Ont.; 2nd, Ada Armand, Pakenham, Ont.; 3rd, Henry Reeve, Highland Creek, Ont.; 4th, Arthur T. Reeve, Highland Creek, Ont.; 5th, Louisa F. Redmond, London, Ont. For best and most answers to puzzles, 1st, W. B. Anderson, Ottawa, Ont.; 2nd, Emma Dennee, Bath, Ont.; 3rd, Drusilla A. Fairbrother, Copenhagen, Ont.; 4th, Amos Hawkins, Somerville, Ont.; 5th, Russell Boss, Athol, Cumberland Co., N. S.; 6th, Helen Connell, Harriston, Ont. The competition has been very keen between a few; I am sorry that more do not keep up the contest; many begin in earnest, but for lack of industry or patience soon begin to fall off. Now, I want every nephew and niece I have got to enter in the competition for 1888; I will offer the same prizes as last year, viz., $15 to be divided as follows: For the best original puzzles, I will give five prizes of $3, $2.50, $2, $1, and 50c.; and for the most correct answers to puzzles, six prizes of $2, $1.50, $1, 75c., 50c., and 25c. The rules are as follows: The puzzles must be wholly original; answers to accompany each puzzle; address in full with each communication. All letters must be sent in by the 25th of each month, and must be neatly written. Now, let me hear from you all, and look for your names in the February issue.

UNCLE TOM.

Puzzles.

1—CHARADE.

I am one, I am two; I can join, I can sever,
Now you will guess this charade if you are very clever.

ARTHUR T. REEVE.

2—TRANSPOSITION.

Reeth ear srateruse rof het nollye,
Chhiw eth dantrgse laif ot nifd;
'Strehe a nahic fo tseew facefnoit
Gindbin rsenifd fo rinkked dimn,
Ew yam pear eth stchcoie lessinbgs
Morf teh roots efp tol sin desag.

3—DROP VOWEL.

Th-n k n-t-th- str-ggl- th-t dr-w sn--r
T- - t-rr-bl- f-r m-n—n-r f- -r
T- m- -t th- f- - ;
N-r l-t th- n-bl- sp-r-t gr- -v-,
-ts l-f- -f gl-r- - -s f-m- t-l- -v-
-n - -rth b-l-w.
L-ngf-ll- -.

HENRY REEVE.

4—ILLUSTRATED REBUS.

5—CHARADE.

Gentle, sweet and loving should my primal be,
Second bright and wavy, a treasure deemeth she;
Rambling through the woodland on a little knoll
I found a bunch of flowers, and 'mong them was the WHOLE.

ADA ARMAND.

6—ANAGRAM.

Years ago a tiny mortal I did o'er puzzle corner gaze
And wonder could I pass the portal leading to that happy place.
Yes; I entered, and contented, many happy moments spent,
Writing riddles, squares and cross-words, which to Uncle Tom were sent.
Now I've many little troubles, and although it gives me pain,
I must say, Good-bye, dear cousins, here I send my "Rise not gain."

ADA ARMAND.

7—ANAGRAM.

An anagram; O, yes! Let me see,
What did you say the answer might be?
You will guess it aright, I'll be bound,
If you find an Orator quite renowned.

"Uncle Tom" solutions from all will receive,
So try and the answer to this one perceive;
Now, while you are at it, others collect,
And SEND ME THOSE by mail direct.

FAIR BROTHER.

8—ENIGMA.

Oh! how many tales of me could be told
By the young and the old, the rich and the poor,
For I never do good wherever I am,
Although I have been from creation of man.
No legs have I got, yet how swift do I go,
And often I cause the bleakest of woe;
But if you transpose me a man's name I show,
A scriptural one, I would have you to know.

HENRY REEVE.

9—DROP VOWEL.

W- c-n -l w-ys m-k- h-m- ch- -rf-l,
-f th- r-ght c- -r s- w- b-g-n:
W- c-n m-k- th- m-n-t-s h-ppy,
-nd th- -r tr- -st bl-s s-ngs w-n.
-t w-ll m-k- th- sm-ll r- -m br-ght-r
-f w- l-t th- s-n sh-n- -n.

ARTHUR T. REEVE.

10—NUMERICAL ENIGMA.

I'm sure that letters 6, 3, 5, 4,
To take dinner is and nothing more.

I went exploring, and all alive
I found a bear in my 6, 4, 5.

You bring a forest tree into view
By setting in rank my 1, 3, 2,

But if for a well-known plant you strive,
Why place in a row my 1, 4, 2, 5.

Now if a companion you would fix,
Arrange in order letters 1, 2, 3, 4, 5, 6.

FAIR BROTHER.

Answers to December Puzzles.

1—True friendship's laws are by this rule expressed:
Welcome the coming, speed the parting guest.

2—
P
M U M
M A Z E D
P U Z Z L E R
M E L O N
D E N
R

3—
B E D
H E L E N
B E N E F I T
E L E V A T E
D E F A M E D
N I T E R
T E D

4—
Stronger than steel
Is the sword of the spirit;
Swifter than arrows
The light of the truth is;
Greater than anger
Is love that subdueth,

5—Tennesee.

6— Though we have no means to purchase
Costly pictures, rich and rare,
Though we have no silken hangings
For the walls so cold and bare.
We can hang them o'er with garlands,
For flowers bloom everywhere.

7—Christmas box.

8—O-pin i-on---opinion.

9—Childhood.

Names of those who have Sent Correct Answers to Dec. Puzzles.

Drusilla A. Fairbrother, A. Russell Boss, Emma Dennee, Helen Connell, Louisa F. Redmond, Arthur T. Reeve, A. Hawkins, Henry Reeve, Annie Rothwell, Wm. B. Anderson, Robert Wilson, Jessie Robertson, Constance Whiting, R. G. Ricketts, Henry R. Moffatt, John Bowles.

Who was Cinderella?

Cinderella's real name, it seems, was Rhodope, and she was a beautiful Egyptian maiden, who lived 670 years before the common era and during the reign of Psammeticus, one of the twelve kings of Egypt. One day Rhodope ventured to go in bathing in a clear stream near her home, and meanwhile left her shoes, which must have been unusually small, lying on the bank. An eagle, passing above, chanced to catch sight of the little sandals, and mistaking them for a toothsome tidbit, pounced down and carried one off in his beak. The bird then unwittingly played the part of fairy godmother, for, flying directly over Memphis, where King Psammeticus was dispensing justice, it let the shoe fall right into the king's lap. Its size, beauty and daintiness immediately attracted the royal eye, and the king, determined upon knowing the wearer of so cunning a shoe, sent through all his kingdom in search of the foot that would fit it.

As in the story of Cinderella, the messengers finally discovered Rhodope, fitted on the shoe, and carried her in triumph to Memphis, where she became the Queen of King Psammeticus, and the foundation of a fairy tale that was to delight boys and girls 2,400 years later.—Jewish Messenger.

A Romp with Grandpapa.

Just look at the group of happy children, having a game of "Blind Man's Buff" with dear old grandpapa. What gleeful faces, as mischief loving Harry plucks him by the coat, and little Ethel narrowly escapes his clutch by jumping into auntie's arms. How kind the dear old gentleman was, always ready for some innocent fun, and willing to help us out of any scrape. What a safe repository his ear always was for our secrets, and we had some mighty big ones then. He remembered he was once a boy himself, and never quenched our young enthusiasm by rebuking us when we went to him for sympathy. Dear children, be kind to the aged. Do not show impatience if they are slower than you. Remember they were once young and active, and do not make them feel their growing infirmities. Remember how slender their hold upon life is, and try and make them forget how weak they are growing by protecting them, for they naturally turn to the young for protection. Be respectful and polite. Do not think any sort of a curt reply good enough for them. As years advance the feelings become more sensitive, and anything in the way of a pert or careless rejoinder savors of neglect, so do nothing to hurt their feelings; and what child cannot do something to add to the happiness of dear old grandpapa or grandmamma?

How Fowls Talk.

As an example of bird language Mr. C. F. Holder says in Wide Awake that the ordinary domestic fowl presents the most interesting and perfect songs. Half an hour in a barn-yard will demonstrate that certain sounds are the equivalent of words. The crow of the cock is a challenge to another cock, and is not noticed by the hens; but let him find a delicate morsel and he stops crowing to utter a succession of short notes:—"Tuck, tuck, tuck, tuck!" at which the hens gather about him for their share of the dainty.

The different notes, or "baby talk," of the mother hen, are of great variety and mean quite different things. Every biddy understands that "chuck, chuck, chuck!" means "Come home to your mother," just as the quick call, "tuck, tuck, tuck, tuck!" means "come to your supper." Mr. Holder gives the following brief chapter of domestic fowl language from a dictionary too extended to present in unabridged form:

Ur-ka-do-dle-do-o-o. Challenge of male.

Tuck, tuck, tuck. Food call.
K-a-r-r-e. Announcing presence of hawk.
Cut, cut, ca-da-cut. Announcement of egg laying.
Cluck, cluck, cluck. Call of young.
Kerr, kerr, kerr. Song of contentment of hen.
C-r-a-w-z-z-e. Quieting young chicks.
W-h-o-o-i-e (whistle). Expression of apprehension at night.
C-r-a-i-a-i-o-u. Terror and protest at capture.

To a Skeleton.

The lines, "To a Skeleton," is one of the finest things in all waif poetry. It was found pinned to a skeleton in one of the museums in London, and first published in the "Morning Chronicle" of that city, when a reward of fifty guineas was offered for the discovery of the author. Who the author was has never been known.

Behold this ruin, 'twas a skull,
Once of ethereal spirit full,
This narrow cell was life's retreat,
This space was thought's mysterious seat;
What beauteous visions filled this spot,
What dreams of pleasure long forgot,
Nor love, nor joy, nor hope, nor fear,
Have left one trace or record here.

Beneath this mouldering canopy
Once shone the bright and busy eye,
But start not at the dismal void,
If social love that eye employed,
If with no lawless fire it gleamed,
But through the dews of kindness beamed,
That eye shall be forever bright
When stars and sun are sunk in night.

Within this hollow cavern hung
The ready, swift and tuneful tongue,
If falsehood's honey it disdained,
And where it could not praise, was chained,
If bold in virtues cause it spoke,
Yet gentle concord never broke,
That silent tongue shall plead for thee
When time unveils eternity.

Say, did these fingers delve the mine,
Or with its envied rubies shine?
To hew the rock or wear the gem
Can little now avail to them,
But if the page of truth they sought,
Or comfort to the mourner brought,
These hands a richer meed shall claim
Than all that waits on wealth or fame.

Avails it whether bare or shod,
These feet the path of duty trod,
If from the bowers of ease they fled
To seek affection's humble shed,
If grandeur's guilty bribe they spurned,
And home to virtue's cot returned,
These feet with angel's wings shall vie,
And tread the palace of the sky.

Who are the Happy?

"Young gentleman," said the Professor of Mental Philosophy in——University to his class, one day, "at the next recitation I wish each one to hand in a definition of true happiness, suggested by his personal experience."

Among the definitions handed in by these thoughtful young men were the following:

"True happiness is satisfaction with one's own self."

"True happiness is the enjoyment of life with the consciousness that no one is pained by it."

"True happiness is the possession of a sound body, in which is a sound mind, using its powers for the good of mankind."

"Happiness is a state of mind in which there is perfect harmony between one's self and others."

"'True happiness does not exist in this world. Relative happiness is the result of having done right."

"Happiness to one man is misery to another. The happiest moment I ever experienced was when I gave my last dollar to a poorer man than myself. I would define it, then, as a feeling of self-approval at having done right."

"Happiness is the joy we feel without any effort made to obtain it."

"The truest happiness springs from conscious rectitude. It is the consciousness of perfect peace with God."

It would be hard to find a better definition than the last one.—*Ex.*

HUDSON BAY COMPANY

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.

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. 208 Main Street, Winnipeg.

PRICES MODERATE! TERMS OF PAYMENT LIBERAL!

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 LOT.

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. 264-a

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.

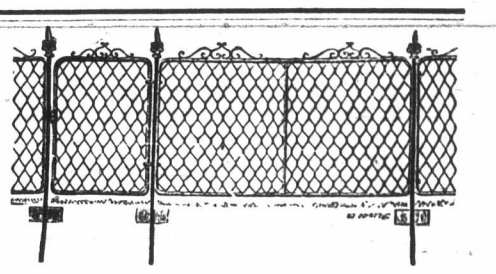
☞ The Engine for the Northwest is made to burn either coal, wood or straw. **Farmers, procure a Genuine White Threshing Engine at the Forest City Machine Works, London, Ont., Can.**

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-y

---



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. 258-y

---

THE BENNET FURNISHING CO.

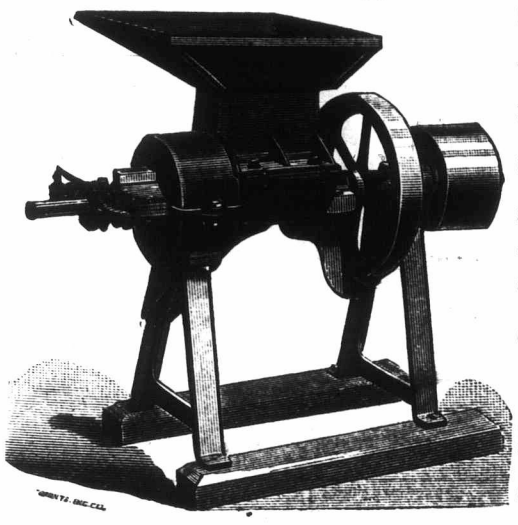
London, Canada.

MANUFACTURERS OF

SCHOOL, CHURCH, HALL & LODGE FURNITURE.

Send for illustrated catalogue and price list. 262-y

The John Abell Engine and Machine Works, Toronto



THE "DUPLEX" 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

263-tf **JOHN ABELL, Toronto.**

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.