THE FARMER'S ADVOCATE

AND HOME MAGAZINE

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THE FARMER'S ADVOCATE

—AND—

HOME MAGAZINE.

WILLIAM WELD, Editor and Proprietor.

The Only Illustrated Agricultural Journal Published in the Dominion.

TERMS OF SUBSCRIPTION:

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THE FARMER'S ADVOCATE, LONDON, ONT., CANADA.

Our Prize Essay.

Our prize of $5.00, given for the best essay on "The Best Plan, Description and Specifications of a Cow Stable, 60 feet long by 30 feet, with Walls of Concrete," has been won by J. S. Ireland, West Lynne, Man.

The competition has been very keen, and we have had great difficulty in determining to whom to make the award. Much credit is due our competitors, and we are pleased with the interest taken in the subject.

A prize of FIVE DOLLARS will be given for "THE SEEDING AND MANAGEMENT OF PERMANENT PASTURES." This essay should contain particulars relating to the kind of grass seeds, other than clover and timothy, to be sown, and must be in this office by the 15th April next.

Back numbers of the ADVOCATE for past years can not be procured unbound.

New subscribers and our friends generally will please note that after this date back numbers of the ADVOCATE will only be sent when desired and *expressly ordered*. The demand has been so great that our large stock of back numbers (January and February) is nearly exhausted.

Subscribers are desired to send the name and address of any farmer who should take the FARMER'S ADVOCATE, and a sample copy will be at once mailed free to him. As our subscription lists swell, so greater improvements can be made.

The Month.

The winter wheat is not in too good a plight at the present time. The open, mild winter and thaws have injured the clover to some extent, and rendered the wheat brittle, to be injured by our March weather if it should be as March weather generally is. There is no new variety of spring wheat that we have heard of to introduce to your attention this spring. In fact, from all the varieties we have tried, there is not to our knowledge any kind that can be relied on to yield a certain profitable crop if sown south of the Grand Trunk Railway line west of Toronto. Those living to the north or east of Toronto, we would advise to sow the varieties that answer best in your local several localities. Among the newer varieties the Defiance wheat appears to be making the best record. There have been some very fine crops reported, yielding as high as 40 bushels per acre. We think it should be tried by those who intend raising spring wheat, if they have not already tried it, or have had poor success with other varieties. The White Fife, White Russian, Lost Nation and Red Fern have done well in particular localities, and are deserving of a fair trial in spring wheat districts. The White Fife is a bald wheat with white chaff. The White Russian is strictly not a white wheat, but much lighter in color than the ordinary varieties of spring wheat, has a smooth, bald chaff, with strong straw and large, heavy heads. The Lost Nation has been fully described in previous issues, and last season did remarkably well in many places. The Russian White oats are highly commended by many excellent authorities in the United States, but have only had a very partial trial in Ontario. The White Australian we have always spoken well of and accounts fully bear out any statements respecting their yield, weight, &c. Farmers should bear in mind that the growing demand for oatmeal will bring an increased price for heavy white oats. One of our leading Canadian seedsmen introduces the Arabian oat. A new grey oat appeared last season for the first time. Our reports do not warrant an expression of opinion as yet on its merits. The Swiss oats are still recommended as being very early, and particularly adapted for poor land. Peas, we are pleased to state, have been less damaged by the pea bug the past two years than for many years previous. Good seed, free from bugs, can be procured this year, and that is a great advantage. We always liked to have a field or two of peas, as long as we could raise them. The sheep seemed to enjoy the good, clear, bright straw, especially if not cleanly threshed, and the peas left the land in good trim for other crops. The Golden Vine is in general demand; they are an excellent long-straw pea for rich, strong land. We prefer the Crown pea, but they are difficult to procure in a pure state. Some farmers will sow Black Barley this season, which is strongly recommended as an excellent substitute for peas for feeding purposes, and of which we desire fuller reports.

The attention of our readers is directed to our Grand Premium List which appears in this issue. Be sure and secure a Russian Mulberry plant, and try the Meadow Fescue. Every subscriber *must* want one of our prizes.

"All our farmers that have made money have done so by driving their productions to market on legs."—Ex.

Bound volumes of the FARMER'S ADVOCATE for 1881 will be mailed, postage prepaid, to any address in Canada or the United States for $1.50. Orders can now be sent in.

A large dry goods box, minus bottom and top, sawn in a diagonal direction, will make two hotbed frames one foot high in front and twenty to twenty-two inches at the back, and they may be placed in position on the sunny side of a building or high board fence.

Practical articles of interest to our farmers, seasonable and concisely written, on one side of the paper only, are thankfully received. Give full name and post office.

NO NOTICE WHATEVER can be taken of correspondence or papers sent without full name and P. O. address.

In this issue you see an advertisement, Rice's Pure Salt. This salt has established for itself a great name in the U. S. Many of the leading dairies there use it to the exclusion of others, and after years of trial give it the preference. Very large shipments are being made to that country, and the dairy products made by its use have carried off some of the highest prizes. We believe some of our dairymen who require the best would do well to give it a fair trial this season.

ANOTHER alteration is proposed in the Act governing the Board of Agriculture and Arts. We do not consider the suggested alterations will be of more benefit to the farmers than the last alterations resulted in. The dissatisfaction in the management of the Board has arisen because the agricultural interest has been the secondary consideration, and the interest of partizans and localities has had too great a controlling influence. This must have been plain to all. If the Association ever attains to the confidence and respect of the country, which it should have, preventative measures must be taken to ameliorate the evil by enacting a law or regulation preventing this ruling of farmers by any particular party. Real, plain, open, undisguised facts are wanted, and evasions or suppressions of these trust must be discountenanced by all who wish prosperity to the farmer. The encouragement of farmers' clubs and open discussions by impartial men would tend to much good on this question.

The Western Dairymen's Convention.

It is with much regret that we give publicity to the following strictures regarding this institution, but a short time ago we highly commended it and considered it the most beneficial institution for the advancement of this branch of agriculture in the Dominion. We deem it but our duty to speak plainly, although it may by many be thought too severe. We apprehend that such a shock has now been given to the institution that it will be almost, perhaps quite, as difficult to restore the confidence of farmers in its utility as to restore confidence in the Provincial Board of Agriculture. It requires more than legislative grants to restore lost confidence. The dairymen's time has been wasted and their confidence and honor outraged—at least such are our opinions. Many strong partizans may take exception and try to falsify or stultify our statements, as they have previously done, but right will prevail, although it may be kept down for a long time. The injurious results from this meeting will be felt for many years, and perhaps may never be effaced from the memory of those living. If our remarks tend to some future improvement we shall not have written in vain.

The Western Ontario Convention was held in Woodstock on the 1st, 2nd and 3rd of February. The gathering was good in regard to numbers, and a large number of persons that had not been in the habit of attending were there. It appeared to us that a great number of the old faces were absent. Every year many really good men that we have met in previous years have left, being dissatisfied with the management. We have noticed the partial way in which some things have been managed for many years. In fact, ever since the Government money was granted to it, this began to be visible. This year the climax has been reached, and the institution must become in as bad a position as the Government Herd Book now stands, unless remedial steps are at once taken.

Mr. Ballantyne has been playing his cards to obtain the Presidency for some years, and cunning plans have been resorted to. Mr. Ballantyne is an M.P.P.; he has had a seat at the Board of Agriculture and Arts, and has taken a most prominent position in regard to the Model Farm.

The election of officers has been conducted with what is termed sharp practice. A lot of fresh names have been whipped in, and the election took place before the usual and expected time. Consequently Mr. Ballantyne has gained his point; has had elected picked men from suitable localities to suit himself. By this means he has fanned into a flame a feeling of discord and dissatisfaction that must tend to the injury of the Association and the agricultural interest of this Dominion. We have noticed this ember for many years, but have as yet been unable to seize hold of it in a suitable manner. The practice of packing and buying up agricultural meetings has long been visible and utilized to the apparent or temporary advancement of an individual or a locality. The packing or purchasing of votes invariably tells against the interest of the real, plodding farmer. His vested rights are too often swept away by this means. The dodges that are practised by party politicians are not always honorable or honest, but when these practices are carried into our agricultural expenditure and the money voted for its advancement is used for such purposes, the sooner such expenditures are stopped or diverted into their proper course, the better for the farmer.

The injustice done to dairymen in the west caused such dissatisfaction that the Rev. W. F. Clark introduced a motion on the second day to endeavor to have fair play done to those who were dissatified. Mr. Parker was then in the chair, and he delivered one of the most sweeping and condemnatory charges ever heard at any Convention, against the reverend gentleman, in which he used some extremely harsh terms. The charges were so cutting and telling that Mr. Clark immediately arose, seized his resolution, and tore it to atoms before the meeting, humbly apologizing for bringing it forward. The real fact is, that Clark's resolution was just what the western dairymen wanted; at a full meeting of dairymen it would have been carried and fair play been given. The other paid speakers were L. B. Arnold, Harris Lewis, X. A. Willard and Mr. Clark. These were the speakers for the dairy interest. The two first and most practical, experienced men, were appointed to deliver their addresses at the most unsuitable time, while the party speakers, under the garb of the dairy interest, were called to occupy the best part of the time of the Convention.

There never have been such disgraceful meetings under the auspices of the Dairymen's Convention as those held in Woodstock and Stratford, which are not the cheese centres, but have now the controlling influence. Ingersoll, London and the whole western peninsula are not fairly represented. There never was less opportunity given for the dairymen to profit from the practical experiences of Arnold and Harris. The usual mode of obtaining information was almost stamped out, namely the questions and answers. The time was too fully occupied by very long addresses, much of which was not as important to dairymen as addresses usually have been, and the discussions about them. It has astonished us to see with what patience a President will sit and listen to the long, tedious address of some fluent speaker who likes to hear himself talk and has good oratorical faculties. But when the sound of his voice has ceased, no new idea of value has been imparted—nothing tangible for the mind to dwell on; merely a rhetorical sound has been heard. The dairymen came to gain information in their particular calling, and have not been as well satisfied as usual. Many are disgusted to such an extent that the downfall of the Association is predicted. We have no doubt but these forecasts will prove correct, unless immediate and radical changes take place. Mr. Ballantyne, M.P.P., the President, has apparently directed his attention to advocating the Model Farm, and this has been pretty fully done to the detriment of the dairy interest. Read the speeches and dilations and comments upon them, if they are ever published. But we fear the Association dare not publish half that the President said, or that the speakers introduced. For instance, Mr. Wetherall, of Boston, one of Mr. Ballantyne's selected speakers, came out openly and frankly in his address, and with modest remarks, said he was in favor of

ANNEXATION.

In stronger and more emphatic terms, he announced that he was a Grit. His eloquence waxed strong when he dilated on and condemned all that favored a protective policy. Mr. Ballantyne's annexationist received no censure, but rather approbation, from the chairman. Politics should be omitted. We do not think our public money should be expended to encourage a disruption in our Dominion. Another important point was brought out. Mr. Ballantyne, the President, appeared far too fond of hearing his own voice and blowing his own horn. He tried to give an account of the great good he had done, and instanced one factory that had produced inferior cheese the previous season; but from his instruction this season they had sold at the very highest price. A voice asked for the name of the factory and for the price received. Mr. Ballantyne said he did not think it necessary to give names, and the audience, with Wetherall, of Boston, and Roberts, of Cornell, applauded and cheered Mr. B. for such a suitable reply. We failed to see the merit of the cheers, except that the faction had on the previous day got such a victory over the dairymen that their joy knew no bounds.

The Hon. Harris Lewis, a gentleman who has delighted every dairyman who has heard him by his amusing, pleasing way of imparting his fund of knowledge on dairy matters gained from practical experience, in a humorous manner alluded to the wire-pulling that had been practised at this Convention, with a view, perhaps, of preventing any recurrence of the kind, as such must tend to the injury of the Association.

Some have for years condemned us for speaking so plainly, and no doubt they will continue to do so. We will just give you one more instance of the just and honorable manner in which some of this body have acted for your benefit. The last day arrived. Each of the invited speakers received his pay: Arnold, $50; Roberts, of Cornell University, $50; Wetherall, $50; Willard, $50; Lewis, $40; Clark, $30. A vote of thanks was then given to them, and they were requested to reply. All replied with thanks except Mr. Clark, who got up and informed the meeting that the committee had reduced his pay 40 per cent.; that he had given them a good paper, and that they had a surplus of cash. The chairman replied, upholding the steps of the committee. Mr. Lossee, one of the best dairymen in Canada, and one that all respect, but who has a strong dislike to speak much and always has to be drawn out, this time, uninvited, ascended the steps to the platform, with his large walking-stick in his hand and his gray locks flowing, and said: "Gentlemen, if you are going to act so mean, I shall leave the Association." This was enough. A resolution was immediately put and carried that all receive the same rate, $50 each. This act of the committee was looked on as intending to censure Mr. Clark for trying to bring in a resolution favoring the dairymen's interest against their (the committee's) wish, especially as Mr. C. was expected to have been a bought and paid tool for the ringleaders. The Hon. H. Lewis committed a grave offence against this august body when he dared to allude to the wire-pulling that had taken place. One of the observers remarked that the chairman had exposed himself, sold himself, and lost his hold.

We applied on the morning of the second day for Mr. L. B. Arnold's address for publication. This had been granted us on previous occasions, but this year the chairman refused. You may well ask, why?

Again on the last day a request from the FARMER'S ADVOCATE office for the privilege of publishing Mr. Arnold's address, was read; also, an offer from the same office to publish the annual report as cheaply as it had previously been done. The chairman, Mr. Casswell, objected, and neither of the requests have been granted, but were both laid on the table on the morning of the second day. On the morning of the third day Mr. Ballantyne was asked by Mr. Weld if the propositions had been considered. Mr. B. handed the request to Mr. Weld and informed him that arrangements had been made for the printing. Now, this would show that Mr. Ballantyne had taken power upon himself very early, apparently before being elected, as the printing of the report could scarcely have been granted or promised after election. In the printed report of this Association for the year 1880, the following appears on page 120:

(Mr. Weld said: "I have a plan which may

perhaps be more advantageous to the interests of the Association than any that has been as yet suggested. My journal will be out on the first of the month, and if you will select what is most suitable for the patrons and the whole of the farmers of this country, I will circulate them *free of charge*. . . . . if you want any extra copies I will have them sent out also by the middle of the month. . . . . I will not only send the articles to my subscribers scattered over the Dominion, *but to any names you may furnish me free of expense.*")

Mr. Ballantyne has long been one of the principal lights on the committee of management. It was through his influence that Mr. Richardson was kept out of the Presidency and Mr. Casswell elected. This was when Mr. B. desired the position and was a candidate; thus the wires were pulled, he is in full power, and in fact, in our opinion, has been for many years.

Can you not foresee an injury being done to the country from withholding information from its legitimate channel? Mr. Arnold's address asked for, had in previous years been granted to the ADVOCATE, and the punctual and proper return had always been acknowledged. No valid reason can now be given by Mr. B. why the address should not have been furnished, nor why Mr. Weld should not have been allowed to publish the report when offering to do it free of charge.

Many dairymen have for years looked on Mr. Arnold as the most useful and practical instructor on dairying on this continent, and as is too often the case, those who really do the most good get but poorly rewarded. As a token of esteem and reward, it was proposed to get up a testimonial for this worthy, and we might add, ill-used gentleman. It was deemed proper to obtain Mr. Ballantyne's consent before such a resolution could carry. Mr. B. gave his consent cheerfully and commended the step. The resolution was put and carried, and $45 paid in without solicitation. But afterwards when the Secretary and Treasurer asked Mr. B. to aid the project, he immediately threw cold water on it.

A hint has been thrown to us insinuating that Mr. B. actually wished to deprive Mr. Arnold of the high name he has and claim Mr. Arnold's plans as his own, and that speakers were actually engaged with our Government money to try to establish such an injustice as a precedent in Canada, and that years of wordy warfare have been the result. This step has not been looked on as tending to raise the standard of honor or the dairy interest. Oh! how some preach! But where is honor and justice in their practice? Thus speakers can be selected of any stripe or color, or to serve any emergency—can be drawn from any place to suit anywhere. Mr. Ballantyne's sway must be felt in the Eastern as well as the Western Association, consequently his selected speakers and lauders have the best time of the Convention allotted to them, and the whole dairy interest is thus diverted from the utility of its course. Instead of giving information on the dairy business, the Dairymen's Convention appears to be turning into a large political advertising scheme. Many were the complaints we heard about the valuable time that had been lost to the dairy interest at both of the Conventions, and Mr. Ballantyne's cards have been so well played that it is very doubtful if there will ever be as good a Convention held again as there were before the Government took charge of the institution. There can be no doubt but a great deal of valuable information has been spread, and that good has been done and will be done by this Association this year, but taking into consideration the following points, it is very doubtful if the cost is justified:

1st. The perversion of the Dairymen's Association into a personal and selfish faction cannot tend to the advancement of the real interest for which the Association received the grant.

2nd. Whether the attempt to withhold agricultural information from those who desire it and pay for it, is not tending to check rather than encourage beneficial enterprises, and the spread of agricultural information.

3rd. In tending to lower the standard of morality by encouraging deception with the public money.

Despite the usefulness and the great good done by this Association, the interest in it is already on the wane, and the great cause is this, that it is driving many practical and really first-class dairymen away because there has been shown a strong tendency to use it as a party institution; that the dairy interest has been compelled to take a second position; that wire-pullers have employed the funds and the time of the meeting to try to elevate party men for party purposes, and the interest, utility and honor of the institution have been trampled in the dust. This is much to be regretted, and we deem it our duty to try and use our influence to prevent its failure. Three more meetings like the three last have been, the Government of the country cannot sanction, neither will the people tolerate it. Hard as some may think the above remarks to be, no really honorable, truthful or independent person who attended these meetings, or is acquainted with the real facts, will pretend to deny them. But all has not yet been told. Should any person acquainted with the facts openly show that we have formed erroneous conclusions, or are stating anything contrary to our convictions, we should be pleased to insert their opinions, even if they occupy two columns.

ANNUAL MEETING.

The address of L. B. Arnold we publish in full, as we have always considered that more really sound, practical and valuable information has been given by him, and gained by steady application and tests of the most practical and useful character. His addresses always contain many useful and new ideas, that is, if there is anything new in dairying or its application.

X. A. Willard is the dairy orator. He is a good speaker, but his address contains much that has appeared and is too long to afford the space. Mr. Willard has a good faculty of observation and selecting good matter.

Hon. Harris Lewis is a very valuable aid to Dairy Conventions, thoroughly practical, very humorous, and has a ready answer to every practical question; he also has a happy knack of soothing a trouble and putting a meeting in good spirits. He gave a most valuable account of his experience with Meadow Fescue, and considers it the best grass we have for permanent pastures. His information about this grass alone must be of immense value to this Dominion, as from his practical experience and information this will now be noised about and introduced to a great extent. But few will be willing to credit the good done by Mr. Harris to our Dominion. As yet few have tried the grass. We advise every one to try a little this year, if you have not already tried it; and if you have, get more. Mr. Lewis is a strong advocate of a variety of grasses in our pastures. He has tried and found the beneficial results from personal experience and practice on his own farm, and now highly recommends it to others. We never heard or read a more convincing proof than the words from this plain, unassuming, honorable, practical farmer. His words will prove a text for thousands in Canada to dilate on and show what good they are doing, but few will eventually credit this gentleman with the good he has done in convincing some of the leading farmers of our Dominion. The profits from his teaching amply repay a hundredfold the small sum paid to him.

Prof. Wetherall, of Boston, read an interesting paper on "Feed and Feeding." In feeding, the object was to lessen the cost and to increase quality and quantity. Grass contains all the essential elements in due proportion; oil cake and some other foods do not. He cited an experiment that he had made with 100 sheep, divided into lots of 10, and placed half in cold and half in warm sheds. With one-fourth less food, there were three pounds more per sheep in favor of closed sheds. He spoke of the value of saving grass in as green a condition as possible, and said he put in clover somewhat green alternating it with layers of dry straw. One acre of corn was equal to four acres of grass. The speaker closed an able address by stating he had more confidence in the dairy than in beef.

Prof. Roberts, of Cornell University, spoke of the importance of proper breeding, and depreciated strongly the use of miniature animals. This latter occasioned a deficiency in vitality and a tendency to disease. Shelter and proper care were all important, and striking examples of the result of want of proper care were given. More care, as a rule, was given by breeders of horses. He did not think in-breeding was of much good; it was, however, the best thing, when there was no superior stock outside—what was gained by selection was usually lost by unavoidable mistakes. To perpetuate the milk qualities of a breed the animals must be kept under as favorable circumstances as those under which they were bred.

The Rev. W. F. Clarke also gave an interesting address.

Of course those who have heard the greater portion of the valuable hints again and again, as it is no easy matter to have been accustomed to attend these Conventions bring out new and valuable suggestions; but the continuation of impressing good lessons on the public in different forms tends to good results. The greater portion of the real practical information has been given through the ADVOCATE, therefore we must not weary you by too oft a repetition, or too much on this subject at one time. We hope to treat more on this Convention and the addresses in future issues.

Mr. Tilson, of Tilsonburg, gave his experience on soiling, an account of cost of food, description of and cost of the silo he had erected. He informed the meeting that he had prepared an article on this subject for the FARMER'S ADVOCATE. We shall be pleased to insert Mr. Tilson's own description as soon as it arrives at our office.

The Eastern Ontario Dairymen's Convention.

This Convention was held in Belleville on the 7th, 8th and 9th ult. We presume the attendance was larger than usual. The number of prominent dairy writers and orators, and the number of professors assembled, we presume was the largest ever brought together in Canada. The same addresses as were delivered at the Western Convention were given by Messrs. Arnold, Willard, Lewis, Roberts, Wetherall and Clark; also, Prof. Bell, of Belleville, and Brown, of the School of Agriculture, delivered addresses. A vast deal of useful information was contained in each address. Some of the addresses were, we thought, rather long. There were not a great many new ideas brought forward, but the reviving of old, good and tried practices in new forms or by different means tends to do good. Prof. Brown being looked on as the representative of agriculture in Canada, was listened to with great patience. He treated on the different grasses, showed samples and gave a diagram showing the length of time that each kind was available for food, and strongly recommended sowing more mixed grasses for our pastures. He commended the following list as the most suitable for Canada:

Lucerne.
Red Clover.
Italian } for soiling.
Perennial }
Fan oat grass.
Timothy.
Orchard.
Meadow Fescue.
Kentucky blue grass.
Red-top.

The Hon. Harris Lewis, who is much impressed with the great benefit of sowing different grasses, and has long since advocated it, said Mr. Brown's suggestions in regard to sowing a larger number of grasses would be worth forty times the cost of the College if the farmers would only practice it; although he could not recommend some of the grasses that Mr. Brown had commended, as he had tried them and found they would not answer. He stated that his farm in Western New York was similar to ours in Canada, and if they would not thrive or live there, they would not live here. His experience would also differ very much from Mr. Brown's diagram showing the value of grasses.

For permanent pasture he would give much greater credit to meadow fescue than Mr. Brown had done. This grass, Mr. L. considered, by far the best artificial grass to sow; it was as hardy as any, would grow anywhere where our blue-top would grow, and in many places where it would not grow, as it will send its roots deeper and live on soils where other grasses will die out. It makes good hay and excellent pasture.

Messrs. Arnold and Lewis are full of useful and practical knowledge. We know of none more able and willing to impart useful knowledge from practical experience in such a mild, pleasing and unassuming manner, as these gentlemen. There appears to be truth, honor and honesty in every sentence they utter, and they always keep to their own sphere unless drawn aside by some unsuitable remark from other persons.

The greatest good that we have noticed having been done at any Convention we ever attended, was many years ago at Ingersoll. This was when the Association was conducted for the interest of dairymen. The Dairy Conventions in the United States have gradually diminished in interest and in numbers. Some have become extinct, and the cause of their downfall we understand has been because partizans, manipulators, or those having some hobby to grind, salt to sell, or new fangled dairy implements to introduce, have generally got the control out of the dairymen's hands, and have used the Association for other purposes prior to the dairy interest.

This meeting will be lauded as one of the great reasons why large grants should be given to foster agriculture; and yet one of the speakers could not refrain from advertising a most popular seedsmen on every opportunity. Whether this is courteous to other intelligent and equally respectable seedsmen, or part of his duty, the audience was not informed. From seeds to salt, and from salt to high and low pressure engines, and the good intended will be gone. When the Association's money is expended for such a purpose, for trampling down the deserving and honest dealer, whether it be in wares or information, the results are sure to tend to the permanent injury of the Association or party to which they belong.

Western Notes.

[FROM OUR OREGON CORRESPONDENT.]

January 16th, 1882.

This is a great fruit country. I could give you lots of information on the subject of fruit if I had time. In the spring just try grafting pear on the common thorn to see how it will work in Canada; it does splendid here; I graft lots of thorns here every year, and never had one miss yet. I have one that I grafted 5 years ago, that had five bushels of pears on last year; the fruit was Bartlett and of good flavor. I graft them all over my ranch, wherever I find a thorn, and will soon have hundreds of bushels of fruit every year. All varieties of pears grow equally well on the thorn. U. S. A.

English Letter No. 35.

[FROM OUR OWN CORRESPONDENT.]

Liverpool, Feb. 4.

Our winter has continued singularly fine and open until now, when we are having slight frosts and cold winds. There is no prospect now, however, of anything like the severity which we endured last winter. The papers have been filled with paragraphs about the abundance of flowers in our gardens and fields, and the birds have been very noisy, some of them even beginning to build their nests. According to the law of averages we shall have a cold, late spring. As it has of late been dry, field operations have made satisfactory progress. The fall wheat is looking well, and the farmers, having also had a very favorable season for live stock feeding, are in fairly good heart

Anyone seeing a paragraph in the papers headed "Food Supplies for America," might naturally accuse the printer of an error in substituting "for" for "from." In this instance, however, the printer is right. Something like 2,000 tons of potatoes have during the past few weeks been shipped from Glasgow for American ports. Our last season's crop was certainly a fine one. The wonder, however, is not so much that we have anything to spare, but that your side of the Atlantic can find a market for our surplus at any price.

Heavy as last year's immigration from Europe was, I hear rumors that it is to be far exceeded by that of the coming season, and there is a marked indication of it in the fact that last month, in the depth of winter, the total immigration from this port was more than double that in January, 1881. From Germany the exodus will be enormous. I am very glad to learn that the movements towards the Dominion continue to be of a most favorable character, which, seeing the vast difference there is between the manner in which the claims of Canada and those of the different land interests in the States are pushed, speaks very highly for the natural superiority of the country itself. On this point I may tell you a little story. A personal friend of my own some fifteen years ago had the immigration "craze" very badly, and, finding some congenial spirits, a little scheme was arranged by which one of their number, who by experience, &c., was deemed the best qualified, should go as pioneer. It was impressed upon him, however, that he should not act precipitately, and above all things should not fix upon any location until he had got as far as Fort Garry, as it was then called, and had judged thoroughly of its capabilities, and the terms on which land could be acquired. I never learnt the full story, but I know this, that the "pioneer" never got any further than St. Paul, where some smart land speculator persuaded him to buy a location in Sherbourne County, Minnesota. Several others of the party joined him there, struggled for a year or two, found nothing in it but hard work, and came home again. Now if the "pioneer" had followed out the original intention he might at that time have acquired any reasonable amount of land at something under one dollar an acre close up to the Fort. The city of Winnipeg was then only a dream in the brains of an enthusiastic few, of whom my friend was one; but had the "pioneer" bought only a hundred acres close to the Fort, he and all his colleagues to-day would have been worth at least $100,000 each. Let this little instance be a lesson to those who migrate west not to be in a hurry or be led astray, but to carry out fully any scheme they may have laid down as to "spying out the land."

The Archbishop of Canterbury has greatly assisted the emigration; mostly by issuing a letter on the subject. In that letter he referred to the proposed issue of a series of hand books on emigration by the "Society for Promoting Christian Knowledge," and the first of the series, which relates to Canada, has just made its appearance. No doubt it will prove of very material assistance to the Dominion agents in their propaganda.

Those of your dealers and agents who propose purchasing pedigree and other first-class stock here during the coming season must be prepared with well-provided purses. The prices of first-class animals are running up fast, and difficulty will be experienced in securing anything like first-class animals except at long figures. Several Canadian buyers are already in the field, and in Herefords and Polled Aberdeens have secured some fine animals.

My remarks in previous letters about the great advantage of getting sires purchased here into the Dominion in good time for the season appear to have had some weight, for efforts are being made to purchase largely and to send off at once. The Allan steamer "Manitoban" recently left the Clyde with eighty-seven Clydesdale stallions, consigned to an American. I understand that they are sent out by the Glasgow Clydesdale Horse Breeding and Exporting Company, and are by such noted sires as "Prince of Wales," "Damby," "Ivanhoe," "Lord Byron," "Topsman," "Young Lorne," &c. It is to be hoped that better success will attend this shipment than some of the last, when the Company sustained heavy losses by the deaths of "Druid" and other valuable animals. Messrs. Graham and Renor, of your Province, are here purchasing stallions, and, in addition to Clydesdales, have secured a very fine Shire-bred stallion, bred by Mr. Forshaw, the well-known breeder. Other importers are coming forward, but I fear that those who cannot get their shipments off very quickly will find great difficulty in obtaining space, as any steamer carrying over fifty passengers is not allowed, under the regulations of the Imperial Board of Trade, to carry live stock, and as already intimated the pressure for emigrant space is likely to be unprecedented. States buyers have been busy amongst the Polled Aberdeens; one buyer from Missouri having secured forty head. I am told, however, by one "canny" farmer from the north that with some of the "cute" States buyers anything that is black and without horns will pass for the desired article, and that longish prices have been paid for Galloways under the impression that they were the choicest Aberdeen breed.

"Pink Eye," which is a disease not quite unknown in your stables, made its appearance a few months ago at Newcastle-on-Tyne, and after spreading to Glasgow and Birmingham, has at length appeared here, and with disastrous effect. Our heavy cart horses—the finest in the world—are all fed almost wholly on dry food and are kept fat, and on them the disease appears to work with special virulence. In one stable of twelve horses, valued at $500 each, four died in one night. Many articles and letters have appeared in the papers about the disease, and the consensus of professional opinion appears to be that the disease is of the type of typhoid fever, and that a liberal use of disinfectants in the stables is of the greatest importance.

Large numbers of farmers in the corn growing districts of the east of England are giving up their farms shortly, and one noble landlord, who is the Lord Lieutenant of his county, will, it is said, be "left without a tenant" at Lady Day.

From the United States.

[FROM OUR WASHINGTON CORRESPONDENT.]

Feb'y 19th, 1882.

One of the subjects discussed by the National Convention of Agriculturists lately assembled in this city was, "Cross-breeding or Hybridizing Wheat." An experienced and educated agriculturist in the Convention said that these experiments in cross-breeding before successful are sometimes continued ten years to combine all the properties in their proper proportion. He said that his note-book shows the fact that some varieties will easily cross one upon another, but will not cross upon others. For instance, foreign wheats cross readily upon ours, but ours fail to effect a cross upon them. Many theoretical writers, he continued, are of the opinion that new varieties of these cereals, called hermaphrodites, can be made by selection. I cannot conceive of a new variety being produced within itself, no more than in-and-in breeding produces a new race. Selections improve, as heretofore shown, but never produce a new type. In making wheats by crossing a strong female should be selected as to stalk and blade, and a strong male as to the grain. In other words the female should have a strong, stiff straw, well glazed and good milling properties; the male should possess the same qualifications with a grain that has at least 12 to 14 per cent. gluten. In conclusion, he said, in the system of

cross-breeding the deterioration of the grain by improper culture is not so rapid and ruinous as in wheat improved by the in-and-in breeding or pedigree system. Crosses or hybrids when once fixed retain their power and good qualities many years, even when badly handled. From which it is obvious that for the average farmer a good hybridized wheat brought to perfection by some one skilled and experienced is a better variety for him to cultivate than the pedigree wheat.

A report has been made to the Commissioner of Agriculture by one of the most extensive dairymen in New England in relation to the use of the centrifugal machine for cream raising and butter making. He says: The value of this process in saving more of the butter from milk than the ordinary methods of setting milk has not heretofore been systematically shown by European writers, where this process is used. His use and experience with the centrifugal machinery leads him to make for it the following claims, and to express the concluding convictions:—1. It will do away with the bother and expense of setting milk in pans for cream raising; 2. The cream can be separated from the milk as soon as withdrawn from the cow, and the cream churned immediately; 3. A more complete separation of the cream from the milk than can be obtained by the ordinary process; 4. Purity of product; 5. Larger yield of butter than by the ordinary system; 6. A fresh skim milk, and hence in a better condition to market; 7. Diminutive waste in the handling; 8. A quality of cream which is unsurpassed for table use. It seems to us that the use of the centrifugal machine will ultimately revolutionize the milk interest, although as yet its use must be deemed as experimental only. It will be seen that the conditions required for a farmer's dairy centrifugal are different from those required for a factory where much milk is handled and much power is at hand. A machine at low cost, one that can be revolved at a sufficiently high speed by such a power as a farmer can support, will tend to make easier the care of the milk and enlarge the profits. A dairy of twenty cows would save enough yearly in extra butter produced to pay for a machine. In our opinion the farm machine must belong to the self-delivery class, be one in which the milk can be passed in a steady stream, and which will separate the milk into cream in one pail and skim milk in another. It must be simple in construction and efficient in action. The use of centrifugal machines for cream raising will also, in our opinion, call attention to the difference between milks, and will thus tend towards an increased attention to securing uniformity of milk by the use of milk from distinct breeds of cows. From a theoretical and experimental position it may be prophesied with considerable certainty that the best results will occur where large globuled milks are used, and where the feed is of a nutritious and succulent character. Many experiments are, however, yet necessary to fully demonstrate all the possibilites of the machine and what are its defects.

A bill has been introduced in Congress and reported upon favorably by the Committee on Agriculture, "To Enlarge the Powers and Duties of the Department of Agriculture." This bill will probably become a law this session. It makes the Commissioner of Agriculture Secretary of Agriculture and a Cabinet Minister. It provides for an Assistant-Secretary of Agriculture, who shall be a practical agriculturist; and that for the purpose of collecting and disseminating all important and useful information concerning agriculture, &c., the Secretary shall organize the following bureaus, with a chief of each bureau having a practical knowledge of the subject:—1. Bureau of Agricultural Products; 2. Bureau of Animal Industry, in charge of a veterinary surgeon; 3. Bureau of Land, the chief of which shall report upon the resources or capabilities of public or other lands for farming, stock raising, timber, minerals, &c.; 4. Bureau of Statistics. This will greatly enlarge the powers of that department, and enable it to give much more valuable information to the public in the future than it has in the past.

Manitoba Letter.

[FROM OUR OWN CORRESPONDENT.]

February 6th, 1882.

Agriculture has made great progress in our young and growing Province during the past year; nearly double the number of acres have been under cultivation than in any previous year, and the crops on the whole have been good, so that the farmers have reason to feel glad and be rejoiced, as well as encouraged, for while their labor has been rewarded with a bountiful harvest, prices have maintained a firmness that is not usual with such general abundance. This winter, up to the present time, has been an exceptional fine one, with the exception of a few slight storms of short duration. The roads have been good and favorable for the farmers marketing their produce. Upwards of three hundred thousand bushels of grain have been bought here since last September, with a prospect of 200,000 additional bushels being marketed before spring. The energetic buyer for the Ogilvie milling company, Mr. R. Ross, having secured 81,434 bushels of wheat, paying for the same $69,800.00; the highest price paid, $1.00, and the lowest 80 cts. per bushel. The wheat purchased by Mr. Ross, part of it is shipped to Winnipeg, to be used at the company's extensive flouring mill, recently erected at that place; and the other part of it is being shipped to Duluth, to await the opening of navigation in the spring, and it will then be forwarded to Montreal. As yet the wheat bought at this place has not been graded, or in other words, all kinds and samples passed for No. 1 hard; being a great injustice to the farmer that has grown it pure and unmixed, and of good quality, and tending to injure the reputation of our Manitoba wheat. In conversation with Mr. Ogilvie, of the above named firm, he said that he would grade all wheat purchased by him next season, and make a difference in the price from 15c. to 20c. a bushel, in favor of the Scotch Fife, as it is in his opinion the best kind for milling purposes; and that the company realizes 50c. more on the barrel for flour made from Fife wheat than for that made from any other kind. A large number of acres have been under the cultivation of flax the past season, a good many sowing it on new breaking, calculating the crop of flax to pay the expense of breaking the land. In some instances fair crops have been obtained, but the most of it treated in that manner only gave light returns. It is grown for the seed and not for the fibre; 70,000 bushels have been marketed here up to date, 60,000 bushels of it being purchased by Mr. Erbach, representative of the firm of Livingston & Co., Baden, Ont., and it is shipped to their extensive oil works of that place. The annual meeting of the Morris Electoral Division Agricultural Society was held at West Lynn, on Monday, 16th of last month, and nearly all the influential farmers in the neighborhood attended it. They elected their former President by a large majority, and he urged the farmers and members of the Society to meet together monthly, and discuss subjects relative to their interests, and pointed out to them the advantage to be gained by procuring pure clean wheat of a standard variety to sow the coming season, also advising them to adopt a better system of its cultivation. It is the intention of the directors to hold a plowing match in the spring, open to the Province, under the auspices of the Society, and if they succeed in carrying out their plans, it will be the first plowing match ever held in the Province, and doubtless a great deal of good will result from it. Beef and mutton are shipped in large quantities from Ontario and meet with ready sale at Emerson and Winnipeg. At present the home supply of those commodities are not near equal to the demand, nor it is not likely to be for some time to come owing to the large influx of immigrants that are constantly settling in the Province, a fact that should encourage our farmers to pay more attention to stock raising, as our soil and climate are admirably adapted for that branch of industry. Real estate is in active demand, judging from the number of improved farms that are changing hands at advanced prices, causing quite an excitement in the farming community, and two questions are oftimes asked: Has the boom reached your locality? Are you speculating in town property? Those questions I generally answer in the negative, for I am under the impression that the farmer should not be too much of a speculator. In some instances it may answer, but in the majority of cases the farmer that pursues his legitimate calling, using prudence and forethought generally, succeeds the best. The annual meeting of the Provincial Agricultural and Industrial Society of Manitoba, is to be held in Winnipeg, for the adoption of the report of the retiring council, for the election of a council for the ensuing twelve months, and for the transaction of general business. The council is to consist of seventeen members, five from the city of Winnipeg, and three from each of the four counties, Lisgar, Marquette, Provencher and Selkirk. The obliging and energetic Secretary, Mr. Acton Burrows, is striving hard to get the farmers throughout the Province to take an active part in the good work, and get them to become members of the Society and aid in making the next annual exhibition a grand success. Horses are in good demand, and the horse dealers are doing a lively business in that line. They ship them from Ontario, and a good many old, inferior horses have been brought here and palmed off on the unsuspecting settlers at long prices. Several car lots have arrived lately for the spring trade. Messrs. Vance & Shortreed landed a nice lot of medium sized horses last week from the county of Wellington, and are selling them rapidly at $175 to $200 a piece.

North-west Letter.

[FROM AN OCCASIONAL CORRESPONDENT.]

Battleford, Jan. 31, 1882.

I intend to send you a sketch of the farm buildings at Eagle Hills, if you will put it in the ADVOCATE. The country is very different to Manitoba; it is a fine rolling wooded country, capable of producing everything to make a farmer happy and contented. It has been a very fine winter. The cold is not near so intense as at Manitoba, and I have yet to see the first blizzard of which I was rather in dread, as I thought that, living further north, the storms of Manitoba would be nothing to the Northwest, but I find the winter pleasant and agreeable. The country along the Battle River valley and between that and the Saskatchewan, possesses many inducements to the farmer. The fine, open lands that offers no impediment to the plough, and at the same time interpersed with large blocks of timber, makes the place very desirable. It would seem as if some one had made those very extensive clearings, as we might call them, and then gone away and left them, but we look in vain for the house or barn or cattle.

Farmers coming to this country would do well to bring as many cattle and horses as possible, particular the former, turn them out on those fine well sheltered, well watered lands, and they cannot fail to do well.

I will get you as many subscribers as I can by next mail, and will send you my own also. Some of the Indians are doing well, and will be able to take care of themselves; other are lazy and poor, particularly those lately from the plains.

The Agriculture of the Romans.

It is certain that, at a very early age Italy received colonies from the Pelasgi, an ancient race spread over Greece, and the islands of the Ægean Sea, and Arcadians, also a colony from Greece. In the year 1710 B.C. a colony of Arcadians was led into Italy by Ruotras, and in consequence, with them the arts of Greece were introduced, and we may conclude that there was then a similarity in the practice of agriculture in the two countries. About 753 years before the nativity of Christ, Romulus founded the city of Rome, whose inhabitants were destined to be the conquerors and the improvers of Europe. The Roman Eagle was triumphant in Egypt, Persia, Greece, Carthage and Macedon; and the warriors who bore it on to victory, in these and other countries, being also possessors of land of a larger or smaller extent, naturally introduced upon their return any superior vegetable or improved mode of culture which they observed in the more civilized seats of their victories. Thus the arts of Rome arrived at a degree of superiority that was the result of the accumulated improvements of other nations; and finally, when Rome became in turn the conquered the victors became acquainted with this store of knowledge, and diffused it over the other parts of Europe. Of the agriculture of the early Romans we know but little; but of its state during the period of their greatest prosperity and improvement we have fortunately very full information. Cato in the second, and Vasso in the first century before the Christian Era, Virgil at the period of that event, Columella and Pliny but few years subsequently, and Palladius in the second and fourth century, each wrote a work upon Agriculture, which, with the exception of that by Columella, have come down to us entire.

1.—Size of the Roman farms. When Romulus first partitioned the lands of the infant state among his followers, he assigned to no one more than he could cultivate. That was a space of only two acres. After the kings were expelled seven acres were alotted to each citizen. Cincinatus, Curius, Dentatus, Fabricius, Regulus and others distinguished as the most deserving of the Romans, had no larger estates than this. Cincinatus, according to some authorities, possessed only four acres. On these limited spaces they dwelt, and cultivated them with their own hands. It was from the plow that Cincinatus was summoned to be Dictator, and the Samman Ambassadors found Curius Dentatus cooking his own repast of vegetables in an earthen vessel.

Some of the noblest families in Rome derived their patronymic names from ancestors designated after some vegetable, in the cultivation of which they excelled, as in the examples of the Fabii, Pisones, Seutali, Cicerones, and the like. In those days, "when they praised a good man they called him an agriculturist and a good husbandman; he was thought to be very greatly honored who was thus praised."

As the limits of the Empire extended, and its wealth increased, the estates of the Roman proprietors became very greatly enlarged; and as we shall see more particularly mentioned in our historical notices of gardening, attained to a value of £80,000. Such extensive proprietors let portions of their estates to other citizens, who, if they paid for them a certain rent, like our modern tenants, were called Coloni; and Politores or Partiarii, if they shared the produce in stated proportions with the proprietor. This is similar to many of the tenancies in this country of Canada. Leases were occasionally granted, which appear to have been of longer duration than five years.

2.—Distinction of Soils. Soils were characterized by six different qualities, and were described as rich or poor, free or stiff, wet or dry. The best soil, they thought, had a blackish color, was glutinous when wet, and friable when dry; exhaled an agreeable smell when plowed, imbibed water readily, retained a sufficiency, and discharging what was superfluous; not injurious to the plow irons by causing a salt rust; frequented by crows and rooks at the time of plowing, and when at rest speedily covered with a rich turf. Vines required a light soil, corn or grain a heavy, deep and rich one.

3.—Manures. The dung of animals was particularly esteemed by the Romans for enriching their soils. "Study," says Cato, "to have a large dunghill." They assiduously collected it and stored it in covered pits, so as to check the escape of the drainage. They sowed pulverized pigeon's dung, and the like, over their crops, and mixed it with the surface soil by means of the sarcle or hoe. They were aware of the benefit of mixing together earth of opposite qualities, and of sowing lupines and plowing them in while green. They burnt the stubble upon the ground, and even collected shrubs and the like for the similar purpose of enriching the soil with their ashes. Pliny also mentions that lime was employed as a fertilizer in Gaul, and marl in the same country and Britain; but we can only surmise thence that they were also probably employed by the Romans.

4.—Draining. The superfluous water of soils was carried off both by means of open and covered drains. Cato is very particular in his directions for making them.

5.—Crops. They cultivated wheat, spelt, barley, oats, flax, beans, peas, lupines, kidney beans, lentils, tares, sesame, turnips, vines, olives, willows, and the like. To cite the authorities who mention each of these would be needless, for they are noticed in all the Roman writers upon agriculture. Of the relative importance or proportion in which the crops were profitable to the Romans, we have this judgment of Cato: "If you can buy 100 acres of land in a very good situation, the vineyard is the first object if it yields much wine; in the second place a well-watered garden; in the third a willow plantation; in the fourth an olive ground; in the fifth a meadow; in the sixth corn ground, or ground for grain; in the seventh an underwood, a plantation yielding stout poles for training the vine; and in the ninth a wood where mast grows (the latter evidently for feeding pigs.) They made hay, and the process appears to have been the same as in modern times. After being cut it was turned with forks, piled into conical heaps, and finally into stacks or under cover. But the mowing was imperfectly performed, for, as soon as the hay was removed from the field, the mowers had to go over it again.

6.—Implements. The plow consists of several parts: the beam, to which the yoke of the oxen was fastened; the tail or handle terminated in a crossbar with which the plowman guided the instrument; it had a plowshare, the sharebeam to which it was fixed, and two mould boards, a coulter and a plow staff for cleaning the plowshare. Some of their plows had wheels, and some were without coulters and earth boards. Besides this they had spades, rakes, hoes with plain and with forked blades, harrows, mattocks and similar implements.

7. Operations. Plowing was usually performed by two oxen, though three were sometimes employed. They were yoked abreast, and trained when young to the employment. They were usually yoked by the neck, but sometimes by the horns. There was but one man to a plow, which he guided, and managed the oxen with a goad. They sometimes plowed in ridges and sometimes not. They did not take a circuit when they came to the end of the field, as is our practice, but returned close to the furrow. They were very particular in drawing straight and equal sized furrows. They seem to have plowed three times always before they sowed; and to stiff soils, even as many as nine plowings were given. The furrows in the first plowing were usually nine inches deep. When the soil was only stirred about three inches it was called scarification. They usually fallowed their land every other year. Sowing was performed by hand, from a basket, and that it might be performed regularly the hand moved with the steps. The seed was either scattered upon the land and covered by means of rakes and harrows, or more commonly by sowing it upon a plain surface and covering with a shallow plowing, which caused it to come up in rows and facilitated the operation of hoeing. They were particular as to the time of sowing, the choice of seeds and the quantity sown. Weeding was performed by hoes, hooks, and by hand. In dry seasons the crops were watered. If they appeared too luxuriant they were fed off.

Reaping and mowing were the usual modes of cutting down the grain crops, but the ears were sometimes taken off by a tooth machine, called batilium, which seems to have been a wheeled cart, pushed by oxen through the corn or grain, and catching the ears of grain between a row of teeth fixed to it, upon the principle of the modern daisy rake. In Gaul the grain was cut down by a machine drawn by two horses. They do not seem to have ever bound their grain into sheaves. Threshing was performed by the trampling of oxen and horses, by flails, and by means of sledges drawn over the grain. The threshing floor was circular, placed near the house on high ground, and exposed on all sides to the winds. It was highest in the centre, and paved with stones, or more usually with clay, mixed with the lees of the oil and very carefully consolidated. Dressing was performed by means of a sieve or van, and by a shovel, with which it was thrown up and exposed to the wind. It was finally stored in granaries or in pits where it would keep fifty years.

8.—Animals. Oxen, horses, asses, mules, sheep, goats, swine, hens, pigeons, pea-fowls, pheasants, geese, ducks, swans, guinea-fowls, and bees, are mentioned by various authors, as products of the Roman farms. Directions for breeding many of these are given in the third and fourth books of the Georgics.

Such is an outline of the Roman agriculture, and in it we could doubtless find sufficient evidence to warrant you in agreeing that it was but little different from that practiced by the present farmers in England and her colonies. We are superior to them in our implements, and consequently in the facility of performing the operations of tillage. We perhaps have superior varieties of grain, but we most excel them in our rotation of crops, in our cultivation of green crops, in our stock, and in the management of it. We differ from them also in not practicing the superstitious rites and sacrifices which accompanied almost all their operations. But of the fundamental practices of agriculture they were as fully aware as ourselves. No modern writer could lay down more correct and comprehensive axioms than Cato did in the following words. And whoever strictly obeys them will never be ranked among the ignorant of the art: "What is good tillage?" says the oldest of the Roman teachers of agriculture. "To plow. What is the second? To plow. The third is to manure. The other point of tillage is to sow plentifully, to choose your seed cautiously, and to remove as many weeds as possible in the season."

Such is a rapid sketch of their agricultural knowledge—a knowledge which has since increased, and will certainly be added to by attending to the advice of another of their writers. "Nature," he observes, "has shewn to us two paths which lead to a knowledge of agriculture—Experience and Imitation. Preceding husbandmen, by making experiments, have established many maxims; their posterity generally imitate them; but we ought not only to imitate others, but make experiments, not directed by chance but by reason.

Before I close this article I wish particularly to call the attention of my readers to a few points. First of all to what Cato says, and his observation cannot be too deeply impressed on the minds of the young men of Canada, who too often, I fear, look down with great contempt on all matters relating to agriculture, considering it too low, or perhaps I shall not be far from the mark when I say they do not like the hard work. What can be more grand than what the noble Roman says: "When they praised a good man they called him an agriculturist and a good husbandman." From this we may infer that the tillers of the land in his time stood, or rather occupied the highest position; and in our own time who are the men that have raised agriculture to its present high position and made it a science? why the nobles of the land, and the highest cultivated men of the period. What says the Daily Telegraph (Eng.) of Oct. 26th, 1881? Why, that young scions of the aristocracy of England are not ashamed to work. We learn that the Hon. Captain Moreton, a member of the Earl of D —— family is a kind of father to the colony, and farms 1000 acres of land not far from the thriving little town of Le Marr, U.S. He has twenty-two pupils who do all the work of the farm. Lord Hobart, adds the Field correspondent, was mowing —when he went there to see the farm. He was assisted by two of Lord Vincent's sons; Captain Moreton was feeding a threshing machine; it was very hot, but every one looked happy. Even young Moreton was firing and driving the steam engine. Let agriculture be no longer despised, but let all young men strive to do their best, and make it a still higher science, by judgment, prudence, study and hard work. Already the agriculturist of this day is stepping to the fore, not alone in this country. England now sends her agriculturist to Parliament. Who can read the evidence given before the Commissioners on all subjects connected with the land and shut his eyes to the fact that a time has arrived when we must no longer turn our back on the plow and stock raising, but give our whole energy to the land, for there is the large

field for work. Look at the old homesteads and clearings to be resuscitated, and the great Far West to be brought into culture, while on the other hand the storehouses are replete and treading on each other's heels.

I have shown you how the Romans treated their land and made the most of it. The noblest families deriving their names from the ground produce; how they studied distinction of soils; manures—how particular they were, what care they bestowed! We can most assuredly take a leaf out of their book on this valuable article. They allowed no superfluous water to damage their crops; their grain crops were hoed and weeded, and no thistle allowed to injure their neighbors' crop. Were we more particular in this point the Canadian thistle now so overrunning the country would soon be brought within compass.

We can trace many of our late inventions to the Romans, and the old saying is verified, "There is nothing new under the face of the sun." The late invention of the cornheader, lately introduced in the West and which is likely to be greatly used in England to enable the farmers there to save their crops in wet seasons, leaving the straw to be harvested when the fine weather comes, took its origin from the Romans, at least the idea of it, for we find they used to head their grain, and deal with the question of straw afterwards. I must now close my lecture on this subject, which has been rather unusually long. My next article will be "On the Agricultural Effects of Lime on Land."

AGRICOLA.

Veterinary.

Q. A COW SUFFERING FROM DIARRHEA.—When a cow—say a young cow—has been very bad with looseness of the bowels for a period of 3 months or more, and getting low in condition, how should she be treated?

ANS.—If the cow is otherwise healthy, has no cough, eats anything, but drinks a great deal, a liberal allowance of dry food, such as hay, good cake, etc., should be given, avoiding succulent roots or wet fodder. Do not allow her to drink immoderate quantities of water. If she exhibits a desire to drink largely, substitute for the ordinary drinking water such substances as thin oatmeal gruel, well boiled; or take the jelly, free from seeds, obtained by boiling linseed, and dilute it with water until it is quite thin. Starch gruel, well boiled and cooled, is also of service. The following medicine should also be given: Laudanum, one ounce; powdered catechu, two drachms; powdered aniseed, one ounce. Mix and administer two or three times daily in gruel.

Q. A COW WITH SWOLLEN KNEES.—A young cow whose knees are greatly swollen. Would oil of bays, iodine, etc., be of any avail in reducing the swelled knees?

ANS.—For chronic swellings of all kinds in animals few applications are so satisfactory in their results as biniodide of mercury ointment. This should be well rubbed into the parts three or four times, if necessary, allowing an interval of from ten to fourteen days to elapse between each dressing. Any scurf which may form should be removed by washing with soft soap and water one or two days before re-applying the ointment. Many cows confined in byres have enlarged knees, due to bruising in getting up and lying down. In such cases, where the cause is constantly in operation, treatment is not likely to be very satisfactory.

Lampas in Horses.

The term lampas is used to designate a fullness of the bars or roof of the mouth immediately behind the incisor teeth or nippers in the upper jaw. Lampas is found in all colts during the period of dentition. In many, little or no inconvenience is occasioned by it, and its presence is unnoticed; while in others the great tenderness of the parts causes the animal to refuse his feed, in consequence of which he is too often compelled to submit to an operation as barbarous as it is cruel, that of burning out the bars of the mouth with a red hot iron, thereby destroying the function of the part, and leaving the roof of the mouth sore for some time afterwards. This system of treating lampas was only practiced by the farriers (horse shoers) who were at one time the only horse doctors, hence the name of farrier, many of whom still continue the operation. That this practice was condemned long before the veterinary profession was known. We strongly condemn the practice of burning the swelling down with a red hot iron. In most cases it will soon subside of itself, especially if a few mashes be given, aided by a gentle alterative. If need be a few moderate cuts may be made across the bars with a pen-knife. This latter course meets our approval, which experience has proven correct. —[Mich. Farmer.

Garden and Orchard.

The Edelweiss.

The cultivation of the Edelweiss, has, as yet, been seldom attempted in this country. The reputation of this plant has, however, preceded it, and to many of the numerous visitors to Europe that annually leave our shores for Alpine tours its features are familiar, Slowly the fame of the Edelweiss has spread in all directions from its mountain home, until it now promises to become known to most plant-growers and plant-lovers.

The Edelweiss, with its whitish, velvety surface, cannot be called beautiful, and it probably owes

its charm to the fact that it luxuriates most freely in those mountainous regions which other vegetation has nearly deserted, and in those circumstances it appeals not only to the senses, but to the imagination, and we invest it with the moral qualities of purity, bravery, fortitude, and fidelity, to correspond to its physical qualities of hardiness and endurance. Its culture has only recently been attempted, but now is becoming somewhat common and quite successful. Almost every returning traveller from the Swiss mountains brings home a branch of these flowers, and, as they are everlasting, may be kept for several years as a memento of pleasant mountain travel. It is said that in Tyrol and German Switzerland this flower is taken as an emblem of purity and virtue, and every lover offers it to his sweetheart. In some places it is the pride of the bridegroom to gather from the rocks with his own hands the flowers that the bride wears in her wedding dress. It loves lime and sunshine, and must be exposed to the sun and grown in a limestone soil. We would suggest the growing of this plant and think it highly adapted for rockeries, etc.—[Vick's Magazine.

ASHES FOR FRUIT TREES.—When apple or pear trees become diseased from being planted in unfavorably or ill-prepared soil, or from lack of food, they are very apt to be attacked by insects, which, if in healthy condition would probably be unknown. Certain washes, such as lye (a solution of pot-ash), have been applied with success in destroying the insects and restoring the tree to health. But for our own practice, we have, for the last two years, applied a much simpler remedy with more success, as it causes the old dead bark, the chosen hiding-place of the insects, to cleave off, leaving in its place a smooth, healthy surface. This is simply, after a rain and while the bark is yet wet, to throw on dry wood ashes until the power of retention is full. If rain soon follows, the strength of the ashes is carried into every cranny of the old bark, and the effect is, working cleanliness on the tree. If there is no rain, the ashes will remain and be working their good effects, and be ready for action when the rain comes. The operation of throwing on the ashes is easily and quickly performed; if the tree is in a bad condition it is easily repeated until the insects are all destroyed, and a new healthy bark covers the tree. Insects' eggs will never hatch under the influence of ashes. Two objects are gained by the operation—the ashes furnish food for the tree as well as destroy its enemies, and impart cleanliness to the tree,

Pruning Out-Door Grape-Vines.

Formerly no one thought of pruning his out-door grapes before February, but latterly the fall or early winter is preferred by most people. In our own opinion we do not think that it makes any difference what time it is done, so that it is before the sap starts in the spring; hence February—we should say in the first half of the month—is probably as good as any other time, and our own vines are mostly attended to in that month, and we have been about as successful in raising out-door grapes as a majority of growers. The pruned vines should be allowed to lay flat upon the ground, as it is warmer there than on the trellis, and they should remain there until the buds have started in the spring, which will have the effect of causing buds to strike low, and thus provide new leaders to take the place of old ones. Rampant growing vines should be cut back more severely than slow growers, and none should be trellised higher than about six feet from the ground. Lateral branches—the fruit-bearers for the year—should be cut back to two or three buds. The soil in which grapes are grown should be kept in the best condition—ground bones being probably the best fertilizer—and should be stirred several times during the growing season.

Clematis.

One seldom sees a plant of Clematis doing service as a climber on a porch or trellis in the country. This we believe due to the fact that its merits are so generally unknown. Clematis Jackmannii is perhaps best known and most generally cultivated. Its merits have been mentioned in previous floral notes, but the half has not yet been said in its praise. For more than a month a single plant of this variety which we pass daily, has been covered with the pretty velvety, purple bloom, new blossoms rapidly appearing in place of those whose petals were scattered. It gets no extra care, beyond an occasional showering from the garden hose to remove the dust of the street, but it is one of the most showy and beautiful things in a garden full of rare shrubs and exotics. The Clematis is perfectly hardy and requires but a good soil to flourish thriftly, though it throughly appreciates a liberal mulch and plenty of well rotted manure. It likes a sunny position, but does well in an open and airy situation with less sun. There are two kinds, one flowering in the spring upon wood of the previous season's growth, the other blooming in summer and upon wood made the present year. In cutting back this must be borne in mind. No hardy plant is more beautiful for covering arbors, screens, archways or trellises, as besides its persistent bloom its foliage is neat and pretty. It is worthy a place in any garden and will never fail to more than satisfy expectation.

Moss Mulching.

This comparatively new feature in the culture of greenhouse and window plants has given very satisfactory resulte during last winter, and will recommend itself as worthy of adoption by all growing plants in the greenhouse or dwelling. Wherever a collection of plants is grown, however small the number, it may be used with advantage.

As the pots containing the plants are arranged on the benches or stands, the spaces between them are filled with moss to about half an inch above the rim of the pots. This prevents the rapid drying of the soil from evaporation or from the glare of the sun against the pots, and creates a moist atmosphere about the plant, which, in dry, heated rooms, is an important matter in cultivating plants. This lack of moist air is the greatest source of failure in window gardening.

Plants grown by this system require less frequent applications of water, thus causing a saving of time and labor. Besides, the fertility of the soil is not washed away by constant dribblings of water and does not become soggy or sour. I would not recommend mixing any fertilizer wiih the moss, as it draws the young roots from the soil, and they spread in every direction through the moss, and when the plants have to be moved, these roots become disturbed and broken, resulting in injury to the plant. The fertilizer had better be given in solution to the plants when required.

In addition to these advantages, the moss, by covering unsightly pots, gives a neat appearance to the plants, making them appear more like a natural group in the midst of a velvety lawn than like stiff pot plants.—[American Garden.

Prize Essay.

In this month's number of the ADVOCATE you ask for a plan and description and estimate cost of a cow stable to answer the purpose of D. S., of Stonewall, Manitoba. As no particulars are given as regards height of walls, pitch of roof and the kind of floor to be used, all of which are necessary to know in estimating the cost of construction, I take it for granted that the building is to be built in a substantial manner, using no surplus material and as cheap as may be consistent with strength and durability.

I send you a plan of a stable that is convenient and suited to the wants and requirements of the majority of farmers in the Prairie Province. Fig. 1 is a front and end view of stable, size 60 feet by 30 feet, 14 feet height of walls and 18 inches thick, with four doors in front, one entering behind each row of cattle and one into passageway; two in the end, one entering into meal or storage room, and one into the loft or mow over the cattle. Three small windows in front and two in the end to admit light into the passageways and stable; the window frames should be set into the walls and the concrete built over them. Double windows should be used, that is, one placed near the inside of the frame and the other near the outside. When the windows are single the breath from the cattle in cold weather freezes on them so thick that it makes them in a measure opaque. The inside ash may be hung on

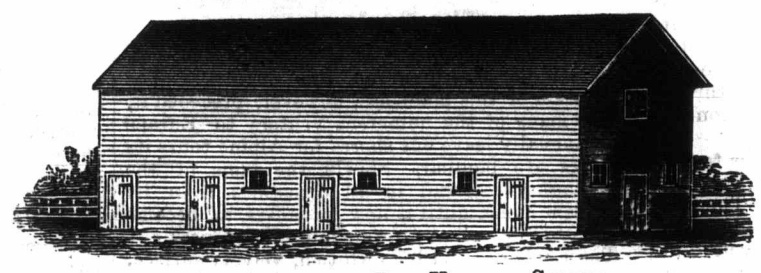


FIG. 1—FRONT AND END VIEW OF STABLE.

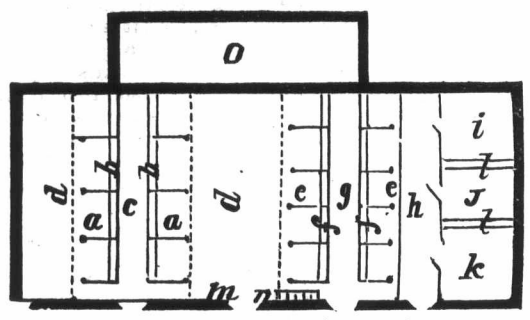


FIG. 2—BASEMENT AND CATTLE STALLS.

a pivot in the centre, so as to open easily to give ventilation in the spring and summer seasons when the stock is required to be stabled, and the outside one can be taken out and a mosquito bar put in its place. The doors are hung on hinges; they are cheaper and better adapted to the country than slide doors.

Fig. 2 shows the plan of cattle floor, which contains eighteen double stalls with ample accommodation for 36 head of cattle, besides calf house, meal or store room, and one loose box for cows at calving time, or an extra calf pen, if required; *a a*, cattle stalls 6 ft. 4 in in width from centre to centre, and 11 ft. in length from the passageway *c* to the wall behind the cows on one side, and the same distance from the passage to the manure dropped on the other side; *b b* is manger, 20 inches high from the floor, 2 ft. wide on the top, and 1 ft. 6 in. at the bottom. The top of the manger is formed of 3 by 6 scantling, running the width of the stalls, and from the scantling to the floor of inch lumber made tight and close at the bottom for feeding meal, or a small box at each side of the stalls can be made for that purpose. *C*, passageway in front of cows to feed from, 4 ft. wide and boarded up 3 ft. 6 in. high. *D d*, manure drops. The stalls described are for large-sized cows. *E e* are stalls for smaller-sized cows or young cattle, 5 ft. from centre to centre, and 10 ft. from passageway to the partitions on one side, and the same distance to the centre of manure drop, *d*, on the other. *F*, *f* are mangers the same as *d*, *d*. *G*, passageway the same as *c*. *H* is manure drop. *I*, calf house. *J*, meal room. *K*, loose box. *L*, *l*, mangers. *M*, *m*, side passage. *N*, ladder to loft. *O* shows the position of a root house that can be built, if required, and entered from the stable by the passageways. The partitions between the stalls are 6 ft. long and 4 ft. 4 inches high, boarded up with 2 inch plank, each partition requiring four pieces of 2 by 6 plank spiked to the studding, the two top pieces having a small bolt through each end, making them firm and secure.

Fig. 3 is hay loft; *a*, *a* are feed shoots for delivering hay into centre of passageways. The hay can be thrown in at the tops or through small doors in the sides, according to the height of hay in the mow. *B*, entrance to loft from passage below. *A*, shoot, the same as *a*, *a*, to deliver hay into feed room for calf pen and loose box.

Fig. 4 shows stall partition and manner of tieing cows; *a*, *a*, end view of manger; *b*, a two-inch round stake, the bottom end let into the top piece of the manger and the other end bolted to the top bar of stall partition. *C* is tie chain to slide up and down on the stake. Instead of the stakes, rods of inch iron 14 inches long can be bolted on the slats of the stalls for the chains to slide on, but they would add $18 to the cost of the building, and the stakes answer equally as well. The partitions are boarded up 5 feet high. Height of stable 7 feet from floor to loft; the upper floor is laid with inch lumber. If poles are used instead of lumber for the upper floor, it will lessen the cost in the estimate about $30.

QUANTITY OF LUMBER REQUIRED.

17 pieces, 2 x 8 = 30 feet long = for joists.	680 feet
4 pieces, 2 x 10 = 30 feet long = for plates.	200 feet
22 pieces, 2 x 6 = 18 feet long = for rafters.	396 feet
2 pieces, 3 x 6 = 26 feet long = for mangers.	78 feet
56 pieces, 2 x 6 = 12 feet long = for collar be. & st. partition.	672 feet
40 pieces, 2 x 4 = 14 feet long = for studding.	396 feet
14 pieces, 2 x 8 = 12 feet long = for window & door frames.	224 feet
2 pieces, 2 x 14 = 12 feet long = for calf mangers.	56 feet
Inch lumber 14 feet long	= 1386 feet
" 12 "	= 3512 feet
Total number of feet,	7600

ESTIMATE COST.

7,600 feet of lumber, at $30 per thousand	$ 321
24 thousand shingles at $4 50 "	108
4 140 cubic feet of concrete, at 15c. per foot	621
Nails and hinges	20
Windows	6
Carpenters' work	100
Total cost	$1176

I have made no estimate of kind of floor to be used, as lumber and other materials are expensive. And as D. S. is in the neighborhood where stone

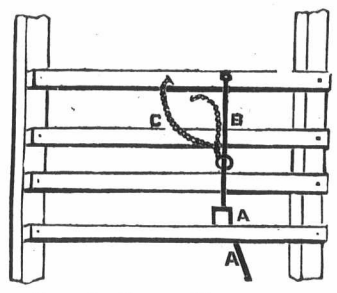


FIG. 4—STALL PARTITION.

is plentiful, a floor paved with stone will be the cheapest and best floor for him to make, and he can do the paving himself at spare times, and the cost will be small. He can also change the plan as regards width of stalls, passageways, ventilation, &c., if necessary, for no person can possibly know so well what an individual wants as himself, if he be a reflecting man.

J. S. IRELAND, West Lynne, Manitoba.

Onslow Agricultural Society.

The Onslow, N. S., Agr'l Society met in the court house, Jan. 18th, F. Tupper, jr., in the chair. About 100 members were present. The meeting had been called to support the application of the Onslow A. S. for the Provincial Exhibition of 1882. At the meeting Counsellor Jas. Fleming read a paper on "Agricultural Education," from which we take some extracts. The essayist fully endorses the opinion we had advanced, to wit, instructions in the principles of agriculture in public schools:

If we could by any means give such information to the rising generation of farmers in this Province, as would enable them to raise five, six, or ten bushels more per acre, than their fathers are now getting, the effect on every profession, trade, and department of business in the country would be marvellous. Hence the time and means spent in teaching agriculture is not for one, but for every class of the population. I therefore claim on behalf of all classes of people that without delay steps should be taken to introduce and make compulsory the teachings of the first principles of agriculture in our rural public schools. The mere reading of books on such subjects, as the origin, nature and most important constituents of soils; the relation of the plant to the soil, the atmosphere and the animal, the composition of and uses, of various manures, tillage operations, rotation of crops, stock raising, &c.—I say the mere reading of such books, on such subjects, without any teaching whatever, would be of great value to our farmer's sons, it would excite their curiosity, and teach them to make a right use of their eyes, in observ-

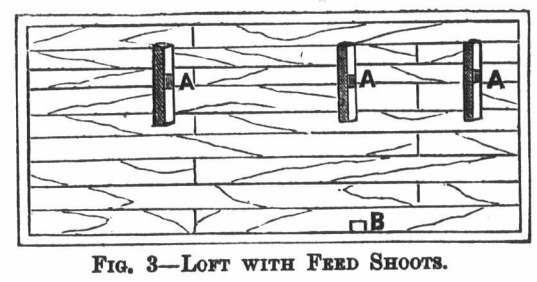


FIG. 3—LOFT WITH FEED SHOOTS.

ing the common objects and scenes of every day life, would foster in them a love of nature, and form most valuable habits of observation, would cause them to think, and inquire into the causes of things; and above all would develop in them a taste for reading books and papers, that treat of the operations which they are called to perform, in the daily routine of farm life. In this way a desire for agricultural education would be created, and before long the Government would be justified in establishing in every agricultural district, or county, an agricultural school, and a competent master with a good laboratory, where young men could be taught the principles of agriculture and agricultural chemistry, botany and fruit culture, veterinary science, geology and physical geography, reading in agricultural books and papers, writing, spelling, and English composition and arithmetic. I venture to say a school of that kind in any of our counties, would be one of the most popular, and one of the best attended schools, especially during the winter season. After the student had received instruction in a county or district agricultural school, he could apply the principles on his own farm.

Durable Whitewash for Outbuildings.

As the season will soon be here when whitewashing outbuildings will be in order, we print the following excellent receipt:—Slake half a bushel of good lime in boiling water in a covered vessel, and strain it through a fine sieve; add a peck of salt dissolved in a small quantity of hot water, three pounds of rice boiled with water to a thin paste, one pound of Spanish whiting, one pound of glue softened by soaking in water and then dissolved over a water-bath, and five gallons of hot water. Agitate, cover from dust, and allow to stand several days. Apply hot. Slaked lime or hydraulic cement mixed with skimmed milked makes a cheap and durable paint for outdoor work.

What is Muck?

As to the question, what is muck and its value as a fertilizer? I will say facts are stubborn things, scientific gentlemen's opinions notwithstanding. There are as many different grades of muck as there are kinds of soils. For the poorest article, take a deposit made up of a cold spring or swampy place, with level surroundings, with a heavy growth of moss, and you have a bed of peat of the lowest vegetable organization and of very little value for any purpose. Or, if the surroundings are pine barrens and sandy, it will be but a grade higher; or washings from poor gravelly soils, and even from clayey soils, are a cheat and a snare.

True muck that is of value as an absorbent and fertilizer, in the first place requires a natural place for a deposit of considerable depth, with a stream flowing through and overflowing the surroundings, being hilly with a good soil and the timber hard wood. The overflow naturally leaves a deposit of leaves, sticks, vegetation and fine soil from the surrounding hills, and eventually forming a rich deposit of sterling value to the farmer, both for reclaiming and as an agent for mineral purposes.

I do not write from theory or a scientific standpoint, but from actual experience, having tested the value, and never found it to go back on me or others when used in an intelligent way. I would as soon have one load or cord of good muck thrown under my stock and composed of half muck and half manure, as the same quantity of pure manure.

I have planted corn and other crops on both standing side by side, and no one could detect any difference, only in potatoes, and that in favor of the muck being a better yield and nicer and smoother potatoes.

I could go on multiplying my experience and that of my neighbors, in favor of muck, but will come to a close before I become tiresome.—[Corr. Germantown Telegraph.

Octagonal Barns.

If a barn is wanted to accommodate a certain number of animals, the proper space is better and more cheaply obtained in the octagonal form, for this gives an equal space in every direction, and requires the least outside wall. It would require a 66-foot octagon to accomodate 40 head of cattle and give six box stalls (9 x 10 feet), with plenty of room for calves besides. This form of barn might also be enlarged by building on a wing when wanted. Four wings would look well on such a barn, and might be built wide enough for two rows of cattle. On a larger octagonal center, eight wings might be built, increasing the room to almost any extent. On the size above given, two wings, in the direction to extend the feeding floor, and the rows of cattle in the octagon, might be built without injuring the appearance of the barn—the octagonal centre relieving the long line by the appearance of an elevated dome. And when wanted, two more wings could be added, still improving its appearance. This form of barn is certainly the most convenient, and is least expensive according to space enclosed. The octagon gives a wider space, which can be laid out more conveniently than in a long narrow barn, and all parts being equi-distant from a centre, such a barn requires less travel in doing the daily work.

Cotton Seed Meal Experiments.

A correspondent of the N. E. Farmer reports a trial of cotton seed meal, which shows what it will sometimes do for cows that are in milk. He was feeding and milking fifteen cows, with a weekly product of seventy pounds of butter. The feed was the usual hay and coarse fodder of the farm, with corn and cob meal, ground with oats. Two quarts of cotton seed meal were given, in place of the same value of the corn and oats, with an increase of the butter yield to ninety pounds per week.

This farmer has been thoroughly converted to the use of cotton seed, in connection with other grain and fodder, for butter cows. His neighbors are also beginning to experiment with it, for the same purpose. We are not prepared to accept the inference that might be drawn from the above single experiment, as conclusive evidence that cotton seed meal is of so much greater value, according to its cost, than the corn and oat provender used in the beginning of the experiment. Experiments of this kind must be repeated many times, and under such conditions as will enable one to feel very positive that the results are due solely to the cotton seed, and to nothing else.

Meadow Fescue.

We have had this engraving made to bring before your attention in a more prominent manner this most valuable grass, the real merits of which are as yet known to but very few in Canada. From various reports that we have seen and from conversation with the Hon. Harris Lewis, who has had practical experience with it for many years, and considering him a person of the highest honor and probably the best authority, we feel satisfied that this is one of the best grasses that we can recommend to you. This grass is as hardy as our June grass; will grow in any part of Ontario, where any grass will grow, and where most kinds will not grow. It will stand drouth excellently well, as it sends its roots to an extreme depth, 12 feet deep. It makes hay nearly, or quite, as good as Timothy; if you can get a good after growth from it, which makes it superior to Timothy, as Timothy will not yield an after

growth. It is also claimed to be equal to Red Clover as a fertilizer. We wish our readers to be the first and leading farmers in their localities. We feel safe in recommending this grass to you, as we have not variety of grasses enough in our pastures or on our farms. If you have not tried this or seen it growing yet, get a small quantity this year, and should it not be even a ½ lb., by sowing more of this grass you will enrich your land, improve your stock and fill your pockets. It will grow on poor land where most grasses will die; it will thrive on rich and it will succeed on clay or sandy soil. It is relished by stock of all kinds, and can be sown either in the spring or fall. One bushel, or 24 lbs. is sufficient for one acre when sown clean. But the greatest advantages in our opinion will be in its value as a prominent pasture grass to mix with other grasses. Mr. Romeo Stephens, on his Jersey stock farm at St. Lambert, P. Q., sowed some eight years ago, in conjunction with other grasses, and it was thriving well last summer.

Clover.

N. Griffin, at the Elmira Farmers' Club, said: "There is no substitute for clover, so far as I know—nothing to take its place. It is better in its effect on land than any other forage plant. It is said that a good crop of clover—say such a crop as will yield two tons of cured hay from an acre—will leave an equal weight of roots for the soil. This is like a coat of manure. I am sorry to hear that clover is falling into disrepute, for its renovating power is greater than that of any other plant. Lately clover does better than in a few years past, so I hope we shall soon have the old measure of success. Many years ago the farms of Duchess county used to give large crops of timothy and they were taken away and sold. The farms are now exhausted—ruined because the crops were taken off. But clover is never taken off when the roots are left. Forty-five years ago a great deal of timothy was raised in Tompkins county and the land that produced it ran down under its production and they had to turn their attention to clover. At first it was difficult to get it established, but little by little under its influence the land grew better. Farmers had to ditch their lands as the first condition, then they used plaster, and at least got full crops of clover and better crops of grain, for their land improved through clover. Hungarian grass has been tried, but, like timothy, when the crop is taken off, nothing is left and the soil becomes poor. The best crop is that which leaves most to the soil, and that is what clover does.

Charcoal on Land.

The absorptive power of charcoal is well known in the arts. Its capacity in this direction is remarkable. Accurate experiment has proved that in twenty-four hours it would absorb ninety times its own volume of ammoniacal gas, eighty-five times its volume of muriatic acid gas, and sixty-five times its volume of sulphurous acid gas. It is this remarkable quality that makes it so valuable in destroying odor, color, taste in many substances, and preserving meats, vegetables and fruits from rapid decay. Its use as a filter in cisterns is well known, and its value here depends upon the same quality. It separates and appropriates to itself the decaying matter and other impurities in water, rendering it pure and sweet. If placed on the surface of the soil, it will gather from the air moisture and gases and impart them to the growing plants. On the same principle its value in the barnyard, stable and hog pens, as an absorptive agent, is incalculable. When used for this purpose to form the basis of manure, it should be in the powdered state.

Red Rust in Wheat.

In a former number of the FARMER'S ADVOCATE, we advised, as proved by our own experience, the steeping of Seed Wheat in strong brine and drying it by quick lime. On this subject Mr. R. A. Perkins, of the Experimental Farm of Mellicent, Queensland, read a paper on Red Rust, from which we take the following extract:—

This fearful pest first made its appearance in this colony about the year 1853 or 1854. Many will remember the year 1854 to their cost. Since then it has been more or less prevalent, and much valuable time and expense has been vested in experiments and researches to try and find an antidote for red rust, but none of those tried have proved a sure remedy, although some are of great value.

First—It has been proved that soft fluffy-strawed wheats are the most susceptible to red rust, so it behooves every farmer to sow none but what will grow a strong glossy straw.

Second—Manure and Pickle. I have tried a great number of different sorts of pickle, and the best results have been obtained from salt and lime, and the worst from bluestone. I consider that we require a stimulating pickle, of which I find lime and salt far the best. Glue and charcoal, saltpetre, sulphate of soda, and many chemical mixtures, have been tried with varying results, but none have proved of any permanent value except salt and lime.

Salicylic acid is a substance used of late years to a great extent in preserving fruits, vegetables, and meat. It is a perfect preservative, but the trouble is that it acts prejudicially on the constitutions of the people who consume it. Among others effects, it produces deafness. In France the use of it in articles which are for sale has been prohibited.

The Dairy.

Modes of Acquiring Dairy Knowledge.

BY L. B. ARNOLD.

An Address read before the Dairymen's Association of Eastern Ontario, at Belleville, Feb'y 9th, 1882, by Professor L. B. Arnold, President of the American Dairymen's Association.

The amount of knowledge which a man in a lifetime may acquire upon any, or all subjects, may be very great or very small, but whatever it may be, he will be indebted to his associates and his race for all he knows. This is the rule. The wisdom of the world consists of knowledge conveyed from one to another by means of oral or written language, or by the aid of some of the senses. It is acquired knowledge. It is neither intuitive nor developed. A few only originate and discover new truths. The number who really add anything to the sum total of human wisdom is so small as to constitute but a few sparse exceptions to the general rule. Those who are diligent and quick in perception often become very learned and wise, but it does not follow that they themselves have added anything whatever to the original stock of human knowledge, all they know having been obtained from their contemporaries or from those who have gone before them. Men thus learned are plenty and are useful members of society, because, without diminishing their own stock of knowledge, they are always imparting useful information to others. But those who originate—who discover, or invent, or develop new truths are not only few in number, but are not always useful, either to themselves or those about them. Their usefulness more frequently comes after they have passed away. Such men may be said to live in advance of the age in which they are born.

What is true of knowledge in general, is equally true in respect to a knowledge of dairying. The dairyman's knowledge is not intuitive. With only a few rare exceptions of items developed by investigation or experiment, it is gathered from sources outside of himself. Since our information upon this subject must be gathered from others, it becomes a matter of interest to enquire how it has heretofore been acquired and what are now the best facilities for obtaining it.

As an art or an industry, our knowledge of agriculture has, for long ages, come to us by tradition. It has been handed down from father to son, generation after generation, with little addition to the general fund as it has travelled down the stream of time, and it is still true that the most we know of the art of cultivating the soil—the art which employs more people than any other, and the one on which the sustenance of the human race depends—comes to us in the same way. We learn some things by reading and studying agricultural publications, but how small a share of the general agricultural education is obtained from this source, may be inferred from the fact that in the State of New York, where there is as much, if not more, agricultural reading than in any other part of the continent, there is but one agricultural paper taken for every twenty farmers in the State! This indicates pretty clearly how little of this kind of reading there is done in that great and enlightened State, and shows unmistakably that what the great bulk of farmers know respecting their own business has been handed down to them orally or by imitation, or by such observations as neighborhood intercourse could furnish.

A knowledge of that division of agriculture in which we are more particularly interested has, of course, come down to us in the same way. Until within two or three hundred years history has said very little about dairying, and during that time what little has been known about it has been transmitted from parent to child like other agricultural information. Nothing more than a very contracted view could thus be obtained There is very little chance for improvement where people do not go outside of their immediate neighborhood or their ancestors for information, and if, perchance, an improvement is made, the isolated condition of dairymen and their consequent limited social intercourse causes it to remain confined to the originator, at whose death it lapses again into the unknown and is lost, perhaps, forever.

With skill obtained only by such narrow means there is no wonder that so little progress was made for the 300 years ending at the middle of the 19th century. Less progress was made in all that time than has been made since.

If one would make improvements and stand high in his calling, be it dairying or anything else, he must by some means avail himself of the advances made by others, or he will fall behind those who do, if, indeed, he moves at all.

The first effort of any magnitude on this continent to push out for information beyond the narrow limits of tradition, was the organization at Utica, N. Y., Jan. 7th, 1864, of what was at first known as "The New York State Cheese Manufacturers' Association."

That the object of this association was educational, and designed to obtain information outside of the customary course, is evident from the preamble and resolution adopted previous to the adoption of articles of association. They were as follows:

"Whereas, it is deemed expedient to organize an association through which, as a medium, results of the practical experience of dairymen may be gathered and disseminated to the dairying community; therefore,

"*Resolved*, that we, the undersigned, do hereby associate ourselves together for mutual improvement in the science of cheese-making, and more efficient action in promoting the general interest of the dairying community."

This was an important movement, as subsequent events have shown, toward improvements in the whole art of dairying, though at first designed to be confined to the manufacture of cheese only. The impulse which this organization gave to the cheese interest was almost magical. It at once greatly improved the quality of cheese, reduced the amount of milk required for a given weight of product, and diminished the cost of manufacture, and thus considerably enhanced profits.

As there was occasion to extend its sphere of usefulness beyond the limits of the State in which it originated, it remained a State institution but two years, when it reorganized under the name of "The American Dairymen's Association," to include in its field of operations the United States and Canada.

Its example has been followed till there are now twenty State or larger associations in the United States and Canada. In the yearly meetings of these associations are discussed the views and experiences of thousands of operators, including the details of successes and failures, and the rules and philosophy in the various operations involved in the different processes.

The influence of this innovation in the mode of acquiring a knowledge of dairy matters has not been confined to this continent. It has gone across the Atlantic, and the British Dairy Farmer's Association, modeled after the original one, is now enlightening the dairy farmers of the British Isles, and another, more local in its field of labor, has recently gone into successful operation. The dairymen of Australia are moving in the same direction, if they have not already organized.

The fundamental idea in this movement was mutual instruction. The amount of information which has been mutually interchanged and disseminated through the dairy public, by way of the addresses, discussions and reports of these associations, has been simply immense, and its value beyond computation.

The publications which have emanated from these numerous associations have not been confined to the single purpose of the original organization—the manufacture of cheese—but they have taken in the whole scope of the industry in all its ramifications and bearings. The comprehensive character of the matter published, and the enormous amount distributed for study and for reference, has originated and established for the dairy interest a literature peculiarly its own.

The work which the dairy associations are now doing is still useful and valuable, but the zenith of their importance is past. National associations and those intended to cover large areas are, in particular, not as much of a necessity now as formerly, since organizations more local in their character can do equal work with less inconvenience and expense. Dairy associations have lost much of their interest and also their efficiency and usefulness by reason of the diffusive character which their proceedings have gradually assumed. Such associations are generally organized in the interest of a specialty, such as the manufacture of cheese, or butter, or, as is usually the case near large towns and cities, in the interest of producing and marketing milk.

When the exercises of an association take on a different character from the one for which the great body of its members organized it, they lose interest in its proceedings and cease to attend and support it. A man who is only interested in the manufacture of cheese listens with indifference, if not with impatience; to dissertations upon raising stock and general farm management, or to learned disquisition upon the relative importance of nitrogen and carbohydrates in cattle food. He even listens with a dull ear to essays upon butter-making, though so nearly allied to his own business. The butter-maker, in turn, cares little about cheese-making, and both grow impatient under a laudatory treatise on Shorthorns as milkers, or on some other thoroughbreds, which details their origin through a long line of ancestry, and gives the precise herd-book numbers which identify them. The farmer who never expects to make cheese or butter cannot by any sophistry be induced to attend meetings only designed for the manufacture of his milk into one product or another, although it is important for him to know how the production and handling of his milk affect the value of the products to be made from it.

A horticulturist is not interested in a wool-growers' convention, nor a bee-keeper in one devoted to the raising of poultry. Specialties, therefore, should each be kept by themselves if an organization is to be formed which will hold together. The American Dairymen's Association was formed originally for advancing the manufacture of cheese, and so long as its conventions were chiefly devoted to that object it was prosperous and useful; but as the topics for discussion led off from this object it lost prestige and usefulness. Its cheese-making members dropped out one by one, till its conventions have come to be attended by those only who feel an interest in the general business of dairy farming. The number that can be called together for this purpose is barely enough to keep the breath of life in it. The organization which is assembled here to-day had its origin in behalf of cheese manufacture. Three quarters of the faces before me I can recognise as devotees of the cheese vat, who have given countenance and support to the association, and I warn the managers of it not to lead the exercises too far away from what will interest and profit them, if they would not see it fall into the channel which has dwarfed the efficiency of the American Association and blotted several others out of existence.

Another means for the education of dairymen has been afforded by the public press, which is always a powerful lever for pushing any object to which its attention is turned. Enterprising publishers have opened their columns to dairy writers who have not been slow to occupy them with matter relating to the dairy. Through their agency a large amount of useful reading relating to the dairy has been spread out before the dairy readers for their pleasure and instruction. But there is a heavy drawback to this source of information. The statements of those who write for the dairy cannot always be taken with implicit confidence, even though the authors have had large experience. Different men do not always see things in the same light, nor in the right one. What is more unfortunate, there is a pretty numerous class of writers for the dairy, as well as for other agricultural departments, who have neither experience nor knowledge of dairy matters, who, nevertheless, coolly assume to write for the edification of those who have. The effect is to confuse and mislead those who cannot sift out the truth for themselves, and to seriously detract from the usefulness of the press as a means of improving the dairy interest.

An exhibition of dairy goods with prizes for the best in connection with agricultural shows, has been resorted to, almost time out of mind, for the purpose of educating dairymen in their art, and of stimulating them to a higher skill by the pride of distinction and the hope of reward. So far as the exhibition of dairy stock and dairy apparatus is concerned, the exhibits in the dairy department of such shows have been the means of doing much good. The display of dairy apparatus has been a very effective means of keeping dairymen posted in regard to the latest and most improved devices for the execution of their work, and for the improvement of their goods. In respect to stock and apparatus, dairy shows may be catalogued with the active agencies for advancing the dairy interest, but so far as the influence of displays and prizes for dairy products with the intent to level up the lower grades of manufacture to approximate those of higher grades, is concerned, I question whether they will ever pay for the ink and paper used in advertising them. The mode of exhibiting and of awarding prizes precludes the possibility of any material benefit. The nature of dairy products is such that they cannot, like stock and tools, be judged by inspection with the eye only.

They must be touched and tasted to form any correct idea of comparative merit—a privilege accorded to nobody but the judges. Butter is so sensitive to atmospheric influences that it cannot stand open at the shows, so it is kept closely covered. The judges can look at the contents of the packages—the spectators can see only the packages. How much information they will gain by looking at the outside of a lot of butter packages, you can judge as well as I. The decisions of the judges are of no practical benefit, except to those who receive awards, because nobody but the judges themselves knows on what particular characteristics their decisions are based. The reasons for preference are never published, and probably not one time in a hundred ever analyzed in the minds of the judges so clearly that they could state them intelligently if called on to do so. But few are equal to such a task. Similar remarks are applicable to cheese. The recipients of prizes get money and reputation. The visitors pay their money and get nothing. Who among you ever went to a dairy show and returned home with any new light to guide you in the improvement of your butter or your cheese? I never was more forcibly impressed with the inutility of dairy shows for the purpose of benefiting the general manufacture of butter and cheese, than when attending the Second International Dairy Fair in the city of New York. It was a great show, that is, there was a great amount of goods there. On one side of the building were arranged butter packages—clean, nice, tidy-looking packages—artfully arranged in long and beautiful rows comprising multiplied hundreds. But there was the end of all knowledge about them so far as the visitors were concerned. Not a visitor ever knew, or ever will know, whether these clean packages contained butter good or bad, or whether they contained oleomargarine or some other grease, or were empty, for no spectator was ever allowed to investigate them any further than he could do by looking at the outside of them, for he was strictly forbidden to open or touch them. On the side where cheese was located, were packages still more numerous and more beautiful to look upon, but of the merits of the exhibits there was equal ignorance on the part of exhibitors. No one was allowed to taste or touch them, nor to make any inspection which would enable him to knew whether they were good, bad or indifferent, or whether they were whole milk or skimmed, sweet or sour, oleomargarine or lard cheese, or nondescripts. Neither will the visitors to that fair ever know why one exhibitor's goods were awarded a prize in preference to those of another. The guests to that fair paid their money and came and went by tens of thousands. To what good? At the close of the display some of the cheese which received the highest awards were cut and eaten by the citizens of New York—the manufacturers had gone home—and they were relished, no doubt. The fair was a huge thing, and it cost the New York city dealers a good many thousand dollars which they hoped to get back in trade and advertising. It cost the dairymen of the country a great many thousand dollars in admission fees, railroad fare and board, which they never got back. The transportation companies and victualling houses in New York made money by it, but wherein, or in what way, the manufacture of dairy products in the United States has been improved thereby—the purpose for which it was claimed to be instituted—I am unable to discover, and I would like to see the one who can tell. The practice of competing at shows, agricultural or otherwise, for the purpose of stimulating improvements in manufacturing dairy products, by displays and awards, is a time-honored custom, and is annually repeated in hundreds of instances, and very likely will continue to be in the future, but so far as any benefit to the average producer is concerned, the competitors might as well throw dice for the prizes, for it amounts to little else than a species of agricultural gambling.

These remarks are made with reference to dairy shows as generally conducted, not with reference to their possibilities of usefulness. I can easily conceive of ways in which they might be conducted with marked advantage. If at a meeting like this an exhibition of dairy products were to be made, and prizes for the best awarded with the agreement that the packages receiving awards should be the property of the association for the purpose of being examined and tested by the audience, good might grow out of it, for the examination of finest products by an assemblage of dairymen like this, would do much toward educating them in respect to what are the characteristics and actual qualities of the best goods, an education very much needed by a large share of producers and manufacturers. Then the mode of making should be given full and complete, and the makers should be present to answer such questions as the audience who are desirous of information might like to ask. In this way those who give their time and money to maintain a show can all get pay for their investments and all concerned be benefited, whereas those who now get premiums are the only ones benefited; the rest support the show and get nothing.

More recently another mode of acquiring the art of manufacturing dairy products has, to some extent, come into use, which may be called transient or movable dairy schools. The first systematic schools of this kind that I am aware of were taught by Professor Thomas Segelcke, of the Royal Agricultural College of Copenhagen, Denmark. Professor Segelcke, with whom I became acquainted by being associated with him upon the same board of judges at the Centennial, is among the best dairy authorities of Europe, being an able scientist and a thoroughly practical dairy operator and expert. His mode of instruction, as he described it to me, was, when not doing duty at the college, to go into the country and arrange with some dairyman who was making butter or cheese or both, and who desired instructions, to stay for twe or three weeks to teach the family of the dairyman and such others in the neighborhood as might be desirous of learning. The professor usually stayed at one place about two weeks. His practice was to direct the work in all its details, and the attendants executed it and thus became familiar with all the manipulations. Butter and skim cheese were almost universally made. In the course of two weeks the attendants would become experts and the professor would then go to some central location to repeat the same course of instruction.

While in Western Ontario in 1879, I took a similar course when giving instructions in cheese-making under the directions of the Western Association, except that I stayed a shorter time at each place. My route was arranged by the Board of Directors, and notices were sent to the factorymen in the vicinity of the factories at which I was to stop, in advance of my arrival, that they might be present during my stay. From five to twenty were usually in attendance, besides the hands in the factory. The course I pursued was to direct the work and explain as it went along the nature of the changes which were occurring and the causes that were operating to produce them. Objections, criticisms, questions and suggestions were always welcome and invited. These were frequent, and together with the visible evidences of what was transpiring, made the occasion interesting and the impressions upon the minds of the manufacturers distinct and lasting. I have pursued a similar course in other localities. In the season of 1880 and 1881, J. B. Harris, of Antwerp, N. Y., followed the same course of instruction in Eastern Ontario, adopting the same mode of making pursued in Western Ontario, with very marked benefit. In Ireland a migratory dairy school, carrying with it all the apparatus necessary to operate with, travels from place to place, giving practical lessons in the art of manufacturing butter and cheese. All accounts from the working of the school indicate that it is doing a most efficient and satisfactory work.

I regard the general course here indicated as the most effective means ever adopted for improving the faulty modes of manufacture, as well as the most rapid means. There is nothing like object lessons or ocular instructions for making forcible and lasting impressions. No matter how fully or clearly a process may be described, it never makes an impression like seeing.

SHOWS VS. TEACHING.

I can think of nothing which would give so great an impulse to improvement in the manufacture of butter and cheese in any dairy district, as a system of teaching embodying the essential points in the mode just described. Judging from what has been accomplished in Eastern and Western Ontario, and elsewhere, by this mode of imparting instructions, I am confident that if this association would employ the money it has expended in cheese shows, in carrying out the system it inaugurated in 1880 by sending out more of its expert cheese-makers—and you have plenty of them to select from—more improvement would be effected in one season than all your cheese shows have ever made, and more than your conventions could effect in many years to come. The enhanced price the cheese of the section traversed would bring, would require but a very short time to pay the whole expenditure back. Theoretical and descriptive dairying, such as you get at the conventions, has done much good and may yet do more, but there has been rather a surfeit of it. Something more practical and direct is needed, and I can see no way in which to secure the desired practical results so well as to lay before the cheese-makers of the country the practices of your best manufacturers.

So far I have spoken of the requirements and modes of instruction practiced in the past and present. In the future something different will be needed, something in addition to the knowledge we have been in the habit of seeking, and which we have deemed, and which really is, very essential.

The part which the dairy associations have played in the education of the dairy public has been that of the primary schools of literature and science. They have formed the basis of an education which calls for a higher knowledge than they themselves are able to furnish. Their work has, for the most part, been practical and initiative. Such lessons having become familiar, something more exact and scientific is in order—some means of tracing the relations between cause and effect, or the reasons *why*. The agencies which have been operating upon the minds of dairymen have set them to thinking and they can no longer be satisfied with working by arbitrary rules, between which and results no necessary relation can be traced. More philosophy is wanted, and more light, so that men can work understandingly instead of empyrically, and for this an appeal must be made to scientists, investigators, experiment stations and agricultural schools and colleges.

The dairyman of the future will be compelled to a different course from the dairyman of the past or present. He will be obliged to put more brains and more science and learning into his business. The competition which the future dairyman is destined to meet in all the older districts of the East, in the way of cheap lands in the West, made accessible by cheap transportation; cheap meat, extended production and cheap imitations of his products, which are all the time more closely approximating the genuine, will compel him to abandon the loose and wasteful methods of the past, which have given small products of poor quality and at needless cost, or he will be driven to the wall. He must produce milk at a reduced cost. To do this he must better understand the laws of feeding and breeding. He must turn out products of higher quality. To do this he must understand the chemical and mechanical forces which operate in converting his milk into products. These are ends which it is possible, as well as desirable, to attain, and the means for obtaining them lie in the direction of a more exact economy, more skill, and a better and more exact knowledge of the materials he must employ in his business. In short, the dairyman of the future must be equipped with a fund of knowledge far beyond that of the dairyman of to-day, and for this knowledge his first appeal will be to the sources above named, but in the end he will drain it from technical schools which are yet to be created.

Effect of Stable Air on Milk.

The effect of stable air upon milk is therefore no exceptional case. It is in perfect accordance with the general effect of the inhalation of every other odor, and is an effect which may be avoided. There is no necessity for it. There is more difficulty, it is true, in caring for the stables of cows than of horses, owing to the peculiar nature of their offal and the greater quantity of urine, it being estimated thirteen times that of horses. But it can be got out of the way. There is no good excuse for leaving it under them, or behind them, or anywhere within the stable, so that its fumes, or the malarious exhalations from its fermentation, can reach the cows. By having the manure frequently removed, and keeping the scent down with absorbents aud disinfectants, some means like that described in another place being used for keeping what little scent there may be away from the cows heads, as sweet and pure milk can be made in winter as can be got at any time in the year from the same material. Stagnant and impure water which cows drink while at pasture is one of the most prominent causes of bad odors in milk.

An immense flock of crows passed over Cote des Neiges, back of the mountain at Montreal, on 11th Feb., said to have been hundreds of thousands and darkened the sky as they persued their flight.

Useful Hints for Dairymen.

The following excellent advice, given by the Hon. Harris Lewis at the recent meeting of the American Dairymen's Association, is well worth notice and study by all persons interested in dairying. He said:

"The first question asked by dairyman is, What shall I do to cheapen the cost of milk? The speakers before have told us truly that we must improve our stock. And how? By carefully selecting cows adapted to your farms and the particular branch of the dairy business you wish to pursue. If you want to make butter or cheese, the Holstein is well adapted to your purpose if you have level lands. If your lands are hilly you must select a smaller, more active breed. If your purpose is to make cheese, the Ayrshire is good. If you want to make butter on hilly pastures, take the Devon or Jersey. The Guernsey is a little too large. Having decided upon what you want to do, select from some of the old established breeds to suit your object in view, and then breed for it with the common stock for a foundation. I believe that there is nothing so good for the cow, and to produce good rich milk, as our native long leafed, long-rooted grasses Our bulbous-rooted grasses cannot stand the trampling of the cattle in our dry seasons. A good mixture for the pasture is two bushels of orchard with one bushel of Kentucky blue grass to the acre. In seeding for pasture, a little clover is an advantage, but not much. I never sow more than eight pounds of clover to the acre. On lands costing less than $100 per acre you can pasture cows profitably. If the cost is much over $100, it is doubtful if you can rely entirely upon your dairy. I feed my land in proportion to the quantity I take from it. I cut my grass thrice. The first cutting I put away for spring feeding; the second and third for immediate use. The aftermath proves very attractive to my cows. This mode of cutting is very successful, and cheapens the cost of milk. Another way to lessen the cost of milk is to treat your cattle with uniform kindness. You can lessen the pasturage by judicious soiling. Ensilage is good for this purpose, and may even be fed in summer for a change of diet. Ensilage, in the craze that has prevailed over it, has been over-valued. We have not yet found the genuine value of it. I think that by feeding roots with dry feed in winter you can increase the production of milk and cheapen the cost. Regular milking will cheapen the cost of production. Milk as nearly as possible at the same moment and in the same order at fixed and regular intervals three times a day. You can cheapen the cost of production by keeping your cattle clean in their winter quarters. Card them at least once a day."

Churning Sweet and Sour Cream.

Science and the best practice would seem to be on the side of churning sweet. Dr. Voelcker, chemist to the Royal Agricultural Society of England, has recently taken strong ground against churning cream sour. He lays as much stress upon having cream sweet when it is churned as he does upon having it clean. Common sense would seem to coincide with Voelcker. That milk, when it has turned sour, is started on the road to decomposition, is not questioned by anybody, even the advocates of souring cream. What advantage it can be to the stability of butter fats to hold them for a time, either long or short, mingled with a mass of decomposing animal matter, in whatever stage of decomposition it may be, common sense is unable to understand.

For years I have provided roots for milch cows and have experienced no trouble in churning, coloring butter or other unnecessary dairy work. If others would devote as much extra time as they use in churning and caring for the milk to raising mangels or turnips they would find no difficulty about getting butter and plenty of it. My method has been to feed each cow half a bushel of roots, beets preferred, morning and night, and four to six quarts of wheat bran daily, also a bundle of corn fodder once a day. With this treatment they do as well as on pasture in summer, and there will be no trouble in making good solid butter. What cows need is plenty of green watery food. I have followed this method for years, and no matter what chemists say about oilcake, hay or other food element, I know no food can be better or cheaper than a liberal supply of green food for milk or butter in winter. I do not give my cattle salt, and when we follow the above method we can always churn in winter in from five to fifteen minutes.—[C. B, in Tribune.

Poultry.

Description of Farm Poultry.

BY R. A. BROWN.

There are six varieties of Polands; but there is so little difference between four of those, that we do not think it necessary to describe their relative value and difference of feather, any more than a passing notice.

WHITE-CRESTED BLACK.

Cock—Head is large, having a crest of long hackle-like feathers falling over and about the head in similarity to a girl's hair, and white in color with a narrow band of black above the eyes. Comb, red, shaped like the letter V; ear-lobe, white; wattles, thin and pendulous, bright red; tail, large and well expanded; plumage, a rich clear black throughout; carriage erect and strutting.

Hen—Crest on head, round and even; narrow black band above the eyes; plumage, white; tail, fan shaped, plumage throughout, rich black. Weight of adult cock, 6 lbs.; hen, 4 lbs. Are non-sitters. Are very good layers; eggs, 9 per lb.; will bear confinement exceedingly well; but to be profitable layers, require a range. Are not suitable for farm, and are kept by fanciers, generally, for show purposes. These remarks are in conjunction with the properties of all the Polish families.

GOLDEN POLAND.

Cock—Head, large; crest, large and flowing; hackle-like feathers; rich golden bay in color. Comb, brilliant red, shaped like the letter V.; wattles, bright red, thin and pendulous; ear-lobe, small, pure white; neck, well hackled; golden bay, each feather laced with black; tail, large and flowing, each feather ending with a black spot or spangle; shanks, slaty blue; carriage, erect and strutting.

Hen—Large round crest; golden bay; each feather laced with black; comb, same as cock's; ear-lobe, white; wattles, red, small and thin; breast and body color throughout, golden bay; each feather ending in black lacing or spangle.

SILVER POLAND.

Cock—Crest large; flowing hackle-like feathers; color, silvery white, laced with black (or a white feather with a black edging or border), as in all Polish cocks, should fall over each side in a regular even mass; comb, V-shaped; ear-lobe white, small and round; wattles, red, thin and pendulous; plumage throughout each feather ending in a dark spangle or lacing; tail, silvery white. each feather ending with a black spangle or laced with black; shanks, slaty blue.

Hen—Crest, round and full; each feather spangled or laced with black; plumage throughout, silvery white, laced or spangled with black; tail fan-shaped; carriage, upright and coquettish.

WHITE POLISH.

Crest, large thick-flowing feathers, similar to those of neck hackle, rising well in front and falling over each side in a regular even mass; plumage, pure white; comb, V-shaped; wattles, red, thin and peudulous; ear-lobes, white; plumage throughout, pure white, as free from yellowish tinge as possible; tail, large and erect; carriage, erect and strutting.

Hen—Crest round and full; comb, V-shaped; wattles, red, small and round; ear-lobes, white; tail, largeand well expanded; plumage throughout, pure white; carriage rather upright and coquettish.

There are Bearded or Muffled Golden Polish, and Bearded or Muffled Silver Polish. In plumage they are throughout similar to the unbearded, and qualifications equal. The beard is thick and full, running back of the eye in a handsome curve, each feather laced or spangled like those on other parts of the body; wattles so small as to be nearly imperceptible.

The Golden Polish is very often known among farmers as Golden Pheasants.

Any of those varieties or all of them are much sought after amongst fanciers on account of their being unequalled amongst all poultry as ornamental pets.

HAMBURGS.

There are six varieties of these—like the Polish—but only four are recognized in our show bills. The Pencilled and Spangled varieties are classed under one head.

GOLDEN HAMBURG.

Cock—Comb, rose, square in front and ending in a peak behind, sitting square on the head and level on the top, without hollow in the centre, with small points all over the top; ear-lobes pure white; wattles, broad, thin and rounded; face free from white; tail, greenish black and well expanded; plumage throughout, golden bay, each feather ending in a black spot, whether spangled, pencilled or laced.

Hen—The counterpart in marking and plumage throughout; shanks are slaty blue.

The qualifications of the Hamburg family are so near alike that there is little difference. Are good layers; eggs, 9 per pound, are white and thin-shelled, and on this account are not much sought after by shippers of eggs, as the eggs are so liable to smash in packing and carriage. Flesh good while young. Are non-sitters. Weight of adult cocks, 6 lbs.; hens, 4 lbs; mature to lay in about five months if well fed. Are kept by breeders generally for fancy and show purposes.

(To be continued.)

The Ontario Poultry Exhibition

Was held at Brantford, on the 10th to 15th of Feb'y, inclusive, in Palmer's Hall. Notwithstanding the high entrance fee (65c.) for each bird shown, $1 members' fee, the outrageous express charges, the cost of going to and fro, and board and lodging for a week, the chance of winning one prize out of 30 showing for that one, as it has been this year—the show has been a success in every way. There were 1,087 entries of stock, consisting of turkeys, geese, ducks, hens, pigeons, parrots, pheasants and song birds.

It is considered by every one that this was the best poultry exhibition ever held in Canada. Stock has been shown here from all parts of the Dominion, and several from the States.

The prize list admitted but single birds, excepting song birds, which were shown in pairs. The usual custom has been to show all poultry in pairs or trios. This year the directors decided to try the exhibition on the plan mentioned of showing each bird by itself. It was looked upon by a good many breeders as a doubtful venture, but that risk is now over and won.

This exhibition has been gotten up with the intention of bringing breeders and fanciers together in a season of the year when their ime could be best spared, that they might t lk about their pets, or troubles and victories, of which one could hear on every side. It makes a very profitable and pleasant pastime for breeders to get together in a place by themselves, "alone in their glory," and untrammelled by other attentions. At the fall exhibitions there is but little time for any to stock their minds with useful knowledge, with the many sights to be seen, or the annoyance of so many money-grabbers with their Punch and Judys, pounding, throwing, 3 card monte, etc., which are a disgrace for any set of directors to let into any show ring. I believe there is often more evil communicated to these fall show visitors in one such show, than all the good they could learn by attending half a dozen. I am glad to say that there are no such features to contend with at one of these annual poultry shows. Here a man may sit and talk to his heart's content, or move about from coop to coop comparing the different points of each bird, finding out why some were beaten or how they won, describing each victory or being taught the cause of a failure. One visit to a show of this kind is cheaper to learn the object required, to make a man master of his business, than years of experimenting, or a cycle of time lost in reading

some man's description, which is more liable to faults than the opinions of a good committee.

Here birds are seen side by side in their best appearance, "full-furnished." There can be no excuse for foul feathers, deformed combs, wry tails or bad coloring, for at this time of the year poultry are at their best feathering. There can be no excuse for moulting as there is in the fall shows, when poultry are at their worst. If one wants to know what a fowl really is, this is the time to view him. All poultry breeders know this, and spare neither time nor money to take a peep through a poultry show at this time of the year.

The Poultry Show for 1883 will be held in Toronto. The President elect is Mr. Doel, Doncaster; 1st Vice-President, Allen Bogue, London; 2nd Vice-President, Thos. Gowdy, Guelph.

No doubt many readers of this paper would like a description of the show just past and know something of its contents. This will have to be very limited, as it would require much space to describe each class in its turn. Light Brahmas were out in full force. There were more of this stock on exhibition than any other breed except Games. The Brahmas were the centre of attraction, but not of criticism, as a better lot of birds never before came together anywhere. There were any amount of imported birds here, but only a small portion got premiums. The Canada-bred stock carried off the prizes. The under color has caused a good deal of discussion, as breeders have not yet determined whether it should be light or dark. When the dark outer color is required in neck hackle and tail, the under color requires to be dark also; when the under color is light, it is very apt to show light colored hackles, especially in cocks. The Dark Brahmas were also good, but a very limited number were shown. Cochins were out in full force as usual. No one could conceive how such monstrous large birds could be produced with such an immense feathering on their feet, and style and symmetry so perfect, from the original specimens that were known to every one by the name of Shanghais about 20 years ago. Then those birds were "all legs, neck and appetite." Now we have huge bodies, deep and broad, prominent breasts, and the greatest flesh producers for the amount of food consumed of any among the poultry tribe. White, Buff, Black and Partridge were well represented, the Buffs being most conspicuous. A pair of young Buffs were claimed for $40, and money paid down, the highest price paid for any pair of stock sold at the show; they were Canadian bred and found a Canadian buyer. Langshans were really good, but shown only by two parties, who have the honor of all the prizes in that class and have well merited the place given them, as the Langshans are able to stand the test as a breed with anything yet represented in the poultry line. There have been several breeders sadly taken in on this breed, as they are not yet well known, and other varieties somewhat resembling this meritorious breed have been palmed off on the innocent public. The States are full of such men, and they have practiced several such deceptions on Canadian fanciers, but they are now getting on the right track by purchasing the genuine stock regardless of cost.

The lover of sport could revel in Games to his satisfaction. All varieties were in full force, but one thing was a general remark, that the real "usefulness of this breed had gone," been sacrificed for points to suit the show pens. Black, Crested and Brown were the greatest in number, but for fancy birds having contrasting colors to please the eye, the Duckwings gathered the most admirers. Pyle, Black and White Georgian were good birds. The last named are considered poor pit birds by many game fanciers, but any one of them would stand in the battle ring longer than I should wish to witness. The Hamburgs were the poorest in comb points of any show I ever saw, for birds to be shown in so prominent an exhibition. Other points were really pleasing to fanciers of this class. Black, Brown and White Leghorns were very attractive, filling a very important place in the exhibition. The Whites were a sight that will be long remembered, as they were situated on the top coops in a centre row, and they are very showy birds. Magnificent specimens were arranged to attract attention, of which could be heard the greatest praise and admiration. After all the blowing of some breeders, the Rose-comb Leghorns failed to put in an appearance, and justly so. The breeders of Spanish have very poor ambition when they would exhibit the quality of stock to be seen here. There must be surely a very limited demand for Spanish in Canada, when, as has been the case here, the breed is defined down to seven or eight pair of very inferior birds. Dorkings were beautiful in plumage, size and fancy points, though breeders seem to ignore the *standard* as a reference to breeding some fancy features. Some handsome prices were paid for good birds of this variety. Plymouth Rocks were few and good. Houdans and Creve-Cœurs sought to gain popularity, but filled a very small corner. Polish, White-crested and Silver-spangled were very much better than is usually seen, and are somewhat improving both in size and appearance. Golden have rather too much dark color in plumage, to my idea, to look well or fill standard requisites. The Whites were rather small, but erect and well crested. Bantams were nearly all of the game varieties. Some Africans were on hand. Pigeons were of all varieties, but confined to nearly one breeder. Turkeys large in the old class, but the young ones were poorly represented. Geese and ducks were not so numerous as at the fall shows, nor any better represented. There was a pair of Golden Pheasants (imported) here, the handsomest birds I ever saw in a show booth.

Duck Culture.

It is often thought a bother to raise ducks, but where they can conveniently be kept, any of the improved breeds will pay well by marketing early, inasmuch as this class of poultry is in very good demand in early cold weather and until after New Years.

It is both economical and sensible to raise ducks. A great deal of the coarse vegetable food used in a family, with some small potatoes and a little grain, is all that will be required to keep a small flock in thrift the year through. Ducklings mature early in their lives; one would not feel the time passing before they are ready for market. For this reason they are profitable. At five or six months old they will, with ordinary care, dress ten or twelve pounds per pair, and give besides a nice lot of feathers, which can be sold at a fair price, or be used to increase the family stock of beds and pillows.

Ducks are easily kept from the shell, after they have passed the critical period like chicks and poults, are industrious foragers, and thrive rapidly. Their keen appetite, capacious craws, and strong digestive organs enable them to assimilate any kind of coarse or refuse food. They are at home in the stubble field, gleaning what the reaper left behind, will turn into a pasture and be contented on grass, and they are happy in a pond or brook or marsh, diving in the mud, searching for animal, fish or insect food, larvæ, and vegetation. They do not require an expensive domicile for their use. Being generous feeders, they grow right along when once they get a start, and their predisposition to mature early is one of the best recommendations in favor of the general cultivation of ducks for the market or table.

Black Poultry.

An "Old Poultry Raiser" gives his experience about poultry in the *Country Gentleman* as follows:—

All black varieties of chickens are poorly suited for market poultry. They show the pin-feathers, and are not so saleable as white or light colored fowls. Those with yellow legs and skin are more saleable than blue or white-legged ones. Asiatic are among the best winter-laying fowls, and the chicks can be raised in early spring, when they command a high price as broilers. The small breeds are tender and may die if hatched early; they cannot stand cold or wet. Asiatics grow and thrive, even when snow is on the ground. In starting in the poultry business do not build one large house, but several small ones. They need not cost much to hold thirty, or near that number without crowding. The smaller flock always does the best under all circumstances, provided they are fed in proportion. Divide the flocks into several buildings, and healthy fowls and best results are sure to follow, if food and cleanliness are also provided.

Turkeys.

It is not best to breed from turkeys the first year. Persons commencing with a pair of young birds cannot well avoid this, but if you are going to make a purchase do not take birds less than two years old. Some breeds attain maturity at two years, but bronze turkeys not until they are three years old. If possible select those for breeders that are not only two years of age, but that have been bred from well matured birds.

Roup.

This is a disease that nearly every keeper has heard of, many of them have seen it; some know what it is at sight, and know how to manage it, but the majority do not.

Roup is a disease affecting the mucous membranes of the eyes, nostrils, mouth and throat. It is a fall, winter and early spring ailment, and not usual in the warm season. It is generally brought on by exposure to cold rains, damp, filthy quarters, and general neglect. At first the fowls' eyes will be watery; a clear viscid discharge at the mouth is generally seen at the same time. Soon the eyes swell up and close, and an accumulation of matter closes the whole eye-ball. The fowl will often scratch its eye-lids open and rub its eyes against its shoulder or wing, making a dirty spot where the matter from the eye adheres to the feathers. Soon, however, the eye gets too sore for this, and the fowl cannot scratch it open. The secretions accumulate and get thick and hard, and the whole side of the face or cheek is swollen and the eye is destroyed. When it has gone to this length the nostrils, mouth and throat are apt to be filled with a yellow, mattery, bad smelling exudation, and the fowl presents a very distressed appearance.

When the disease takes this form it is contagious, and will spread through a flock, resulting in the destruction of large numbers. If the ailment is taken in hand at the very start it is not very difficult to manage; but when it is not attended to promptly, it will entail a great deal of trouble and loss. In this case, as in many others, prevention is better than cure. Where fowls are properly housed in comfortable, dry, sunny quarters, roup is seldom troublesome. If, however, a fowl is seen that shows symptoms of roup it should be separated and put into a dry, warm, clear place, and have its eyes, mouth and throat bathed with a solution of sulphate of zinc of a strength of ten or twelve to the fluid ounce of water; or a solution of carbolic acid of ten grains to the fluid ounce of water. These two preparations may be used in alternation. The fowl is to be fed on warm, soft food into which a smart sprinkle of cayenne or ginger or black pepper is mixed. Put a few drops of hartshorn in the drink every time the fowl is fed and it will soon be well. It will not pay to doctor a fowl unless it be a favorite or valuable one. If it is doctored at all it ought to be carefully and conscientiously done, or the fowl should be killed and buried.

Any poultry keeper whose flock is attacked by roup will have much trouble and loss from it unless prompt action is taken to stop it. It is better to give such care and attention to the fowls as to prevent the occurrence of the disease, but when it does occur it should be promptly attended to, either by killing and burying the fowl or by careful treatment. In cases where it occurs and several of the fowls are attacked before it is noticed, the quarters should be cleaned up and fumigated, first by burning some sulphur in them and then by whitewashing and afterwards by spraying or sprinkling carbolic acid in solution freely in every part of the house and runs where the fowls mostly congregate. —[Poultry Journal.

Ontario Poultry Show.

The Ontario Poultry Exhibition closed Feb 14th. At a meeting of the members the following were elected officers: President, W. H. Dale, Toronto; 1st Vice-President, Adam Bogue, London; 2nd Vice-President, E. Kester, Brantford. Board of Directors—S. Butterfield, Sandwich; J, W. Buck, Brantford; F. G. Spragge, Guelph; James Saulter, Peterboro; J. Eastwood, Hamilton; Chas. Bonwick, Toronto; Ulysses Boddy, Toronto; Lewis Thorn, Blyth; Jas. Maine, Boyne, Ont.; Wm. Saunderson, Stratford, Secretary; John James, Toronto, Treasurer. Auditors—John H. Hill, Toronto; J. O. Widdow, London. Delegates to Toronto Industrial Association—W. H. Doel, Joseph Delworth, Toronto. The next show will be held in Toronto. The bird's prizetakers, H. Wade, W. H. Hill and G. H. Pugsley, captured 48 prizes; Mr. Butterfield, 30; F. J. Greeny, 12; A Bogue, 30; J. Main, 24; W. M. Smith, 43. O. Weldon has taken 27 prizes in pigeons.

H. R. S., of Toronto, writes as follows:—"I see by the February No. that one of your correspondents has about forty hens, and is getting three dozen eggs per week. I had ten dozen and seven eggs. In January I had twenty-three dozen and ten eggs. They are only common fowls."

Stock.

The Jersey in the U. S. and Canada.

BY FRANK E. VANCE.

The first Alderney cow (as they were then known) in the United States, was owned by one William Wurts, and was imported by him in the year 1815. In the year 1846 Mr. Nicholas Biddle imported three Alderney cows. Since that time they have steadily increased in numbers and popularity, and to-day number many thousand.

RICHNESS OF CREAM.

Col. Waring, in his essay, says: "An experiment was made by Mr. Chas. M. Beach with three pure Jerseys, three Grades and three Natives, the experiment being carefully conducted for a week. The animals were in the same condition, and kept on the same food; each lot averaged about the same time from calving. It was found that to make one pound of butter, the following quantities from each sort of cow were required:

3 Pure Jerseys.....6⅔ quarts
3 Grades.....8¼ "
3 Natives.....11 "

So that a Jersey cow giving 12⅔ quarts, or a grade giving 16½ quarts, would make as much butter as a native cow giving 22 quarts."

Mr. Thomas Mothey makes the following statement of the result of a test made by him with his Flora, imported by him on the 25th May, 1851, two years old at that date. She first calved 18th June, 1851, she dropped her second calf 3rd June, 1852, and her third 28th April, 1853: "Her butter was made by itself and carefully weighed for nearly a whole year (fifty weeks). The total was 511 lbs. 2 oz., or an average of 10 and one fifth lbs. a week." She was not forced, having nothing but good ordinary food, summer and winter. He tried her milk, placing it by itself one week, measuring the milk, and weighing the cream and butter. February 3rd 1853, 40 quarts of milk gave 10 quarts of cream, weighing 25½ lbs., and 7 lbs. of butter. February 9th, 38½ quarts of milk gave 9½ quarts of cream, weighing 23 lbs., and 7½ lbs. of butter, 5 quarts and 1 pint of buttermilk weighing 15 lbs. She calved on the 28th April following—two months and nineteen days after the trial.

I give the remarks made thereon by the *American Agriculturist*, referring to the enormous yields of Eurotas and Jersey Belle, of Scituate: "We have no authoritative system of testing the butter or milk yield of cows. If a horse is vaunted as trotting in less than 2.20, the claim is discredited unless it is done in public. He has no records unless a public one. With cows it is different. They have, and at present can have, no public record. The two butter cows which are above all others famous in this country really had public lives, everybody interested knows, or may know everything about them. As trials go on they are reported in the papers, the butter is shown and seen, and the cows have numerous visitors. Prying and inquisitive some are, no doubt, and if a suspicion of unfairness had been breathed every one would have known it."

Eurotas, above referred to, calved October 31st, 1879, and again Nov. 4th, 1880. All her milk was weighed, set, skimmed, the cream churned and the butter weighed, from 10th Nov. to 15th Oct, 341 days, and she gave a total yield of milk 7,525 lbs, and from this 778 lbs. of butter, in 341 days. The butter average in May was 2 lbs 13 oz. daily; average in June 2 lbs. 15 oz, and in June there were days when she made over 3 lbs. per day; making in one week, 24 lbs. of butter. Eurotas has made one pound of butter from less than 5 quarts of milk.

Jersey Belle, of Scituate, made 705 lbs. of butter in one year. During this time her daily feed was two quarts of cornmeal, hay, grass and nothing more. In the month of June, 1880, she was again tested and gave in one week, 312 lbs. of milk, making out of same, 25 lbs. 3 oz. of butter. She received as food for the first four days: one quart cornmeal, two quarts shorts, cut grass at night, a run in the pasture in the day, and the last three days one quart of cornmeal was added.

Pansy 1019. Sired by Livingstorm, dam Dolly 2nd, made 574 lbs. of butter in 1 year, by the record of its sale in the market. This was when she was four years old, and was not presumed to be at her best milkings at so early an age.

Couchys Lilly 3237, dam of Rex, and great granddam of Cash Boy, made 71 lbs. of butter in 31 days, on moderate feed.

Jersey Queen, of Barnet, is reported to have made 770 lbs. of butter in 12 months, but I have never seen the statement corroborated.

Spiræa (3915), in mid-winter 2 lbs. per day, on 1 quart of cornmeal and 3 quarts of bran with hay, all fed dry.

Marjoram (3239), dam of Stoke Pogis 3rd, lately owned by Romeo Stephens, of St. Lamberts, and whose blood is fortunately so well impregnated in the Jerseys in Canada, 16 lbs.

As to the percentage of cream in a quart of milk, Mr. J. Milton Mackie states, that in 1870, having procured a set of glass tubes for the purpose of testing the percentage of cream in milk, he obtained the following result:

Two year old heifer, dropped April 2nd, 1867. Her first calf, June 11th, 1869, gave 3½ inches of cream in a tube of 11 inches of milk and cream together. The milk was taken straight from the cow, poured into the tubes and the measurement was made after the milk had stood 14 to 15 hours. The average yield of Mr. Mothey's Jerseys, tested by the tube (Jannary 29th, 1867) was 20.45 per cent. of cream, after standing less than 15 hours.

This butter can be, and is, sold in New York and Boston at a dollar per pound, and I, this summer, visited a Jersey farm in the State of New Jersey, when selling their butter at a dollar per pound in New York; I was told the demand far exceeded the supply. The price of ordinary butter is fifty cents per pound in New York and Boston. Even in Toronto an additional five to ten cents a pound is given for the Jersey butter.

Not only is the quantity greater and the quality superior, but the much greater ease with which it is manufactured, the short time required for churning, the less amount of working needed to produce the proper consistency, the less care required in sending to market in warm weather, are strong arguments in favor of the breed.

GRADE JERSEYS.

Let us now consider what is probably of the most interest to the general farming community, the benefits to be derived by the crossing of the Jersey with other breeds, and I do not think that I can do better than by taking an extract from the *Country Gentleman*: "My first bull (only seven-eighths bred) was procured from a breeder in Owego, Fioga County, N. Y. His mother made 311½ pounds of butter bettween April 1st and Jan. 1st, at four years of age. I used this bull with sixteen native cows, and succeeding in raising five heifer calves the first year. They all came in at two years of age. On the 28th May I set the milk of each cow separately, having at that time fifteen natives from five to nine years old and five grades. After the milk had stood thirty-six hours I churned the sixteen cows' milk, each separately, with a result as follows:—One native yielded 10 ounces of butter, one yielded 12 ounces, one 13 ounces, two 14 ounces each, three 15 ounces each, two 16 ounces each, and one 18 ounces. Two Grade Jersey *heifers* yielded 22 ounces each, one 23 ounces, one 24 ounces, and one 26 ounces.

Many farmers who have neither the inclination nor the means to establish a herd of Jerseys, may object that, owing to the high prices realized for Jerseys, they are beyond their reach, but for the purposes of improving the "Dairy Cow" through the instrumentality of the Jersey, a large expenditure is not necessary. Let him purchase a young Jersey bull of pure blood, and if he selects one from a dam and sire both registered in the American Jersey cattle club, or imported from the Island of Jersey, he is *absolutely certain* of the purity of blood, owing to the stringent rules of such Club (to which I shall refer at another time). If he purchase the bull when quite young, he can probably be bought at a comparatively low price, and, with the ordinary care and attention, he will be fit for service at one year of age.

PRICES OF JERSEYS.

At the public auction sale, held at New York, on the 1st inst., Cooper, Haddux & Co., by their stock numbering 65 head, realized $26,810, or an average of $412.38, including many calves of but a few months old. The highest price bull being "Forget-me-not," 18 months old (a son of "Farmer's Glory" (5196), who sold at $2,150. The cow commanding the highest price was "Silver Chud," 5 years, $1,400; next highest cow "Rose of Oxford," 2 years (one of the "Sweetest of Arthur's Roses,") $1,110; the next "Belle Dune 2nd," 4 years, $765, and the next "Marjoram 2nd," 4 years (by Rioter's "Vulcan" and "Marjoram") $750. "Marjoram 2nd" is very closely related to "Stoke Pogis 3rd," formerly owned by Mr. Stephens, of St. Lamberts, and whose blood is so much scattered in Canada; "Rioter's Vulcan" is sired by the sire of "Stoke Pogis 3rd."

At this sale the stock of Thomas H. Dudley was also sold. "Farmer's Glory" (4 years) 5196, who was himself a great prize winner on the Island, bringing the large sum $3,200. Six cows, one heifer 14 months, and one calf 6 months brought $3,610.

In this sale fifteen heifers by "Farmer's Glory" averaged $477.34, and four bulls by him averaged $882.50 per head.

In the Cow Class the "Stoke Pogis" stock averaged $550 per head, and the "Jersey Boy" and "Welcome," (who is sire of "Jersey Boy" stock) $563.50 per head.

At the public auction sale, held in Philadelphia, of imported stock, by A. M. Herkness & Co., the result was as follows: Thirty-two Jersey cows, $13,681.60; average $458.80 per head; 12 calves, $1,480, average $190 per head. The highest priced cow being "Reita," 1688 (dam and sire not given) who sold for $1,150; 2nd highest "Syren 2nd" (sire "Kisler" 262, dam "Syren") $1,050; 3rd highest "Blossom" (dam and sire not given, but served by "Welcome," the winner of the great Guenon prze over the whole Island of Jersey) $900; the heifer calf "Syreus 2nd," but six weeks old, sired by a son of "Farmer's Glory," brought $425, and "Blossom," heifer calf still younger, sired by "Welcome," Guenon prize winner over the whole Island, sold for $350.

Nothing can demonstrate more fully than do the above figures, the high esteem in which Jerseys are held in the United States, and each year they are becoming more valued, judging by the increased prices at which they are sold.

Without questioning the wisdom of the regulations, we in Canada are precluded, by an order in council of our Dominion Government, from importing any cattle of any nature (even for breeding purposes) from the United States, although the same were first submitted to a most severe inspection and a most rigid quarantine. So that the breeders in Canada must either import them directly from the Island of Jersey at great inconvenience, expense and risk, and then have them subjected to quarantine for a period of ninety days in Quebec harbor, or else content themselves to the different Jersey strains in Canada.

Swine Raising.

Pure air helps to make pure blood, which in the course of nature, builds up healthful bodies. Out-of-doors pigs would not show so well at the fairs, and would probably be passed over by judges and people who have been taught to admire only the fat and helpless things which get the prizes. Such pigs are well adapted to fill lard kegs, whereas the standard of perfection should be a pig which will make the most ham with the least waste of fat, the longest and deepest sides, with the most lean meat; it should have bone enough to allow it to stand up and help itself to food, and carry with it the evidence of health and natural development in all its parts. Pigs which run in a range or pasture have good appetites—the fresh air and exercise give them this—hence they will eat a great variety of food, and much coarser than when confined in pens. Nothing need go to waste on the farm for lack of a market. They will consume all the refuse fruit, roots, pumpkins, and all kinds of vegetables, which will make them grow. By extending the root patch, and planting fodder corn thinner, so that nubbins will form on it, and by putting in a sweet variety, the number of pigs may be increased in proportion. A few bushels of corn at the end of the season will finish off the pig. The pig pasture will be ready the next year for any crop, and ten times the advantage accrue to the farm than if the pigs are confined in close pens, for, as pigs are usually managed on the farm, but little manure is ever made from them.—[American Agriculturist.

Is Horse Shoeing a Necessity?

This is a question that, at the present time, is being discussed more or less by intelligent men and thoughtful farmers who have their own and the best interest of the horse in view; and this discussion grows out of two important matters—the cost of shoeing and the manner in which the work is generally done.

To keep a horse shod during the year, requires quite a large outlay of time and means to the owners, that could be avoided if it is not a matter of absolute necessity; but it is not? The almost universal practice says it is, while a few exceptional cases declare it is not, only for the most icy roads, as travelled in winter. Now these exceptional cases go far to show that shoeing is a useless and expensive practice, and does not increase the usefulness or efficiency of the horse in doing all needful farm work, or being driven upon the roads, in a team or carriage. These instances have occurred under such conditions and in circumstances where one, if not familiar with the facts, would say it would be impossible. In this town, for instance, the roads are very hard and gravelly—just such roads as would wear the horse's hoof to the quick, and most persons would say that it would be impossible to drive him constantly upon them without wearing his hoofs so thin, and thus making them so tender that he could not be driven or used upon them; but such is not the fact, nature taking care of the used horse, as it does of the workingman's hands. If he should always wear gloves while doing hard work, of course his hands would remain soft and tender; but when he bears the bare palm to the hard surface of the handle of the hammer, helve of the axe, or stale of a fork, in time he can handle them without pain or discomfort, the palm of the hand adapting itself to the work it is called to do, And so it is with the hoof of the horse. By constant application of it to the bare ground, it adapts itself to its enforced condition, and then does, without pain or discomfort, and what it could not do, had it always been subjected to the use of shoes. But, as example is more convincing than argument, I will state what has occured in our very midst.

One of our industrious and progressive farmers has a span of horses, weighing at least 1,100 pounds apiece, with which he does all the work on a 150-acre farm, and drives on the road for business, labor or pleasure, just as the circumstances require, and yet with the exception of a short time last winter, these horses have not been shod for two years, and they have not been lame, nor suffered any inconvenience whatever. He drives them on frozen ground and soft ground, on stony roads, gravelly roads, and sandy roads; up and down steep hills, and on level land, and they do not slip, or trip, or flinch, but do all their work freely and faithfully as any work horses, what is required of them. Now, if these horses do, and can do this (for they are not exceptional animals,) why cannot all horses? We believe that they can, and would, if they were only gradually subjected to the same humane treatment, and thus save a large amount of expense to their owners, I say by humane treatment, for, when I see so many lame horses, caused, in many instances, by improper shoeing, raising the heels so high, by heels and long calks, that it is impossible for the frog to touch the ground, causing the poor animal to travel on his toes, it is no wonder that this unnatural position does produce lameness, by straining and misplacing the delicate organs of the foot. But this bad practice will continue, doubtless, till horse owners are so far enlightened as to know that they cannot alter or change the order of nature without suffering absolute loss. If horses are to be shod, they should have light and thin shoes, and these should be placed upon the feet that the frog can come to the ground, and this will give them firmness, ease of motion, and remove one of the producing causes of the prevailing lameness.—[N. E. Farmer.

Breaking Colts.

As this is the time of year colts are taken up and handled, says the Farmer's Union, a few words on breaking colts may not be amiss. A great many of our farmers and breeders prefer to leave the animal until it is three or four years old, and then to commence with everything to learn. It is better to begin early, as he is more easily managed, less able to offer resistance, and will acquire more permanent habits. The first thing is to accustom him to the presence of man, and then to be freely handled. This may commence when he is but a few months old. It should be done gently and repeated so often and continually that he will become perfectly familiar with his keeper. Take care never to frighten him or awaken a feeling of resistance. Avoid touching the ears or other parts that would startle or annoy him; these parts may be gradually approached after he is perfectly familiar with handling. It may be well to observe at the outset that no person should ever be allowed to have the care of a colt, or to attempt breaking him, who has not perfect control of himself at all times, and whoever allows his temper to become excited in the least degree is entirely unfit for the work. The whole course of breaking should be attended with uniformity and gentleness. No man can be uniform who allows himself to get into a passion with a dumb animal, or to exercise any brutality towards him; and if the owner or hired man has not perfect self-control, the former should at once sell his animal or put it into better hands, and the latter should be discharged.

The second lesson is to accustom the colt to the halter. This should be leather and not rope, which is harsher, and would be more likely to chafe him. Use it often, but not long at a time, until he is accustomed to being led about. There should be no impatient jerking, but never give up to him—everything will yield to constant pressure.

The regular system of breaking may be commenced between two and three years of age. First, try the bridle and bit, at first a few minutes at a time, or not over half an hour, but frequently. Annoy him with the bit as little as practicable. Do not strain his head up to an unnatural position. Portions of the harness may be next applied successfully, put them on slowly and carefully. Then light drawing may be gradualllly practiced. He may next be put in a carriage with another horse, and, after becoming well accustomed to standing, driven gently. The saddle may be used in the same careful way. In driving or riding on the road, if he sees an object which causes him to shy, take but little notice of it; do not beat him, but approach it at a greater distance, and successively nearer till he becomes familiar. In this way, one thing after another may be taught, and when he has once learned anything, keep repeating it till practice renders it familiar and easy.

Nearly all the bad habits which horses have, come from improper management, and especially from harsh and brutal treatment. Anyone familiar with cause and effect will know that an animal may be taught a bad habit as well as a good one if the keeper gives way to his temper.

Never require anything of an animal which he cannot be made to understand; and after he understands you, a gentle, uniform and a patient and persistent course will overcome nearly everything—never allowing him to get the upper hand.

In-and-In Breeding.

The English papers are beginning to advise their breeders of thoroughbreds, says the Michigan Farmer, to go outside for an infusion of new blood, and point out that the successes of the American horses now in England entitle them to be considered fully the equal of any in the world, and that no deterioration of form or quality need be feared from such action. It is hinted, at the same time, that the English have bred too closely and that the consequence is a lack of stoutness in their stock. While there is no doubt a falling off to some extent in the stoutness of the English race horses as compared with those of thirty or forty years ago, it is more owing, we believe, to the system of early training, the sacrifice of stoutness to speed to meet the requirements of the four and five furlong and mile races, and the hot-house system of forcing they have followed so as to be able to bring their animals to the starting post long before they would have matured or acquired the form and endurance necessary to a race horse in a natural way.

In-and-in breeding is frequently held responsible for anything that the breeder cannot understand. But there is not a single domestic animal of superior excellence that is not indebted to this very system for its most valuable characteristics. The race horse, the various improved breeds of cattle, sheep, swine, dogs and poultry, have all been improved by in-and-in breeding, and those who have acquired fame as breeders have invariably done so by adhering to this principle.

There are undoubtedly many cases where in-and-in breeding may become positively hurtful, but the judicious breeder can easily avoid them. If a breeder has an animal of peculiar excellence, how can he retain and fix this excellence upon the animals he is breeding except by following this principle? Where an animal is faulty in-and-in breeding will just as surely fix those faults in a type as it will fix good qualities. A judicious breeder would avoid such a mistake as this, and it is the judgment that enables him to select our proper animals to breed from that is at the bottom of his success. In-and-in breeding is absolutely necessary, and is not hurtful if the animals chosen are free from blemishes and have only good qualities to impart to their offsprings. It is positively hurtful where the animals bred from are ill-formed or lack constitution. Bad qualities can be bred into an animal just as readily as good, and in-and-in breeding will fix the one just as surely as the other.

The Touch in Shorthorns.

The Endinburgh Quarterly Journal of Agriculture, writing on this subject, says: "The skin affords in what is technically and emphatically called the touch, a criterion second to none in judging of the feeding properties of an ox. The touch may be good or bad, fine or harsh, or, as it is often termed, hard or mellow. A thick, firm skin, which is generally covered with a thick set, hard, short hair, always touches and indicates a bad feeder. A thin, meagre, papery skin, covered with thin, silken hair, being the opposite of the one just described, does not, however, afford a good touch. Such skin is indicative of a weakness of constitution, though of good feeding properties. A perfect touch will be found with thick, loose skin, floating as if it were on a layer of soft fat, yielding to the least pressure, and springing back to the finger like a piece of soft, thick chamois leather, (or a piece of the best silk velvet) and covered with thick, glossy, soft hair. It is not unlike a fine, soft moss, and hence such a skin is not unfrequently called 'mossy.' A knowledge of touch can only be acquired by long practice, but after having acquired it, it is of itself a sufficient means of judging of the feeding qualities of an ox, because, when present, the properties of symmetrical form, fine bone, quiet disposition and purity of blood are the general accompaniments."

The Best Bull to Head a Herd of Dairy Cows.

The Holstein is the largest breed of milk stock known; the cows at maturity averaging 1,200 pounds, and the bulls from 1,600 to 2,000 pounds. They are moreover excellent milkers, the best, so far as quantity is concerned, and this makes them peculiarly useful when milk only is wanted. Their milk is pre-eminently adapted for making cheese, and there are not wanting individual animals that have excelled as butter makers.

The Short-horn has been known in the past, is indeed to-day, as an excellent milk and butter animal. It is true that many breeders have bred for beef, and it only, and in that way neglected the milking qualities of their herds; but on the other hand many breeders have kept the one as much as the other point in view, and always have good milking cows. It would not be a difficult task to name a dozen herds of Short-horns from which representative milkers could be selected, and a bull from such a herd tracing through a line or family so known would make an excellent sire to head a dairy herd. There are many large dairies in England in which nothing but a Short-horn cow or bull can be found, either thoroughbred or grade; large, stately animals, that would turn the beam from 1,500 to 2,000 pounds, and give a pail of milk morning and night.

Advanced Prices of Horses in England.

Horses for quick, light carriages, both single and double, with good action, are in extra demand at present in England; also those of a larger sort, in Paris, for coaches. Government horses, for artillery purposes, are likewise much required. Hunting horses are selling at from 100 to 200 guineas ($500 to $1000). This would indicate that little agricultural distress exists in England; but these hunting horses are more particularly for the enjoyment of the wealthy land-holders, who have been only partially cut down in their rents, while many of their tenants have lost their all and become bankrupts in consequence of disastrous harvests and diseases among their live stock, whole flocks and herds of which have in some cases been cut down from one-tenth to one-half, and in others utterly destroyed.

Vitality and Endurance of Well-bred Cattle.

LOSS OF STOCK IN THE UNITED STATES.

The Kentucky Live Stock Record, speaking of the fatality of the closing season to herds in the ranches and plains of the Great West, says :—

The communication of our able and well posted correspondent upon the "Cattle Trade of the West," will attract the particular attention of cattle breeders. The best authority on such matters places the losses of western cattle at about from 9 to 10 per cent., while hundreds of examples can be cited that would make it figure much closer to from 30 to 50 per cent. Our correspondent makes the bold assertion that the loss was less, the stronger the infusion of high bred blood, especially the shorthorn blood. The chief losses were among the females, which is demonstrated by the light drop of calves reported branded. The losses in this particular reaches, he thinks, 40 per cent. without a doubt.

Mr. B. A. Sheidly admits a general loss of 33⅓ per cent.; Snodgrass & Co., report a loss of 66⅔ per cent.; Denny Corrigan a loss of one-half; J. W. Bosler a loss of nearly 40 per cent.

"Owners of two or more herds of different stages of breeding, in every case discovered that the proportion of loss was invariably lighter among the best bred ones."

Speaking of the quality of cattle brought to market th s past year, our correspondent says: "among the best cattle brought to market this year, were those of Conrad Kohrs, Poindexter & Orr and their Montana neighbors. The original parentage of this stock is the old '17' cattle. Mr. Orr driving a large number from Missouri across to California in '57,' and then again up into Montana about 20 years ago, where they have kept up their stock with superior strains of shorthorn blood. Mr. Kohrs started his shorthorn herd in '71 with several cows of different Kentucky families, and has since been almost a regular patron of the annual shorthorn sales. But the most impressive illustration of the superiority of rich blood on the plains is the experience of J. L. Driskell, of Austin, Texas, on his Northern ranche on the Little Missouri river in Dakota. Out of seventy-two head of pure-bred Kentucky shorthorn bulls turned loose on the range last fall, sixty-nine head in fair condition were found; while the loss of six thousand head, which were well-bred up, was scarcely perceptible. The count was close, from the fact that he sold out and delivered that herd.

"The loss of Dickey Bros., in the same range, was about two-thirds, while that of Mr. Connors was about one-third."

We are not surprised at the result of these breeders' experience with shorthorns. It is nothing more than experience has taught breeders of a superior race of any kind of animals. The superiority of shorthorns over the commoner grades of cattle will be found to consist, first, in a greater quantity of brain and nervous matter; secondly, they are less liable to disease, from a superior organization; and, thirdly, they will endure the vicissitudes of heat and cold better than inferior bred animals.

The experience of these great Western cattle breeders, which shows the better the cattle are bred the less percentage of loss, will give a renewed demand for shorthorns, thereby keeping up prices.

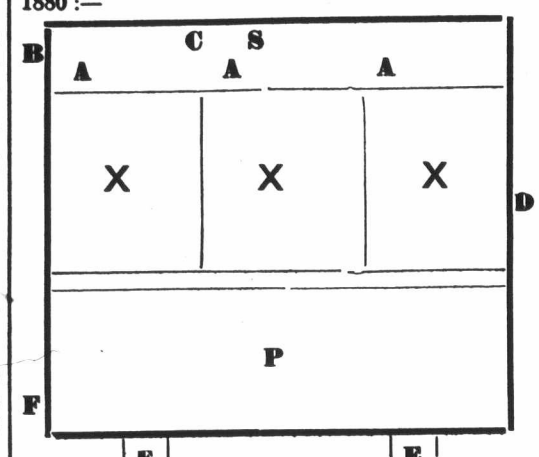
The Ayrshire Breeders.

The Ayrshire Breeders' Association held its annual meeting at Providence, R. I., Jan. 19. Fifty-six members were present from various parts of the country. About forty new members were admitted, including John Lorne Stewart, of Scotland. Officers were elected as follows : President, J. D. W. French, North Andover, Mass.; Vice-Presidents, Peter Coutts, Mayfield, Cal.; J. F. Converse, Woodville, N. Y.; John L. Gibb, Compton, P. Q ; Alonzo Libby, Saccarrappa, Me.; H. W. Blodgett, Chicago, Ill ; Executive Committee, S. M. Wells, Wethersfield, Ct ; Herbert Merriam, Weston, Mass.; C. H. Hayes, Portsmouth, N. H.; Obiah W. Brown, Providence, R. I.; H. R. C. Watson, West Farms, N.Y.; Treasurer, Jos. F. Brown, Providence, R. I.; Secretary, Chas. M. Winslow, Brandon, Vt.

Sheep fed on dry feed are frequently troubled with sore lips. An application of sulphur and lard once or twice will generally effect a cure.

A Profitable Hog House.

Knowing by some experiments the true value of hog manure, and that myself and most other farmers were losing a large part of the profits of our hogs, I set myself to work to find some cheap way to build a hog house that would save all the liquid as well as the solid part of the manure from my hogs. Here, on a small scale, is the plan of my hog house, which was completed October 1st, 1880 :—



PLAN FOR HOG HOUSE.

It is 22x30 feet, with 14-foot posts. The building stands on ground that descends towards the side where the manure is thrown from the pit. It also stands with one end to the horse stable, so that the horse manure may be shoved into the pit through a shove door at F. The foundation is laid up with common field stone, but the walls of the pit are laid in water-lime or common cement, and under the wall of the pit there is a drain that leads all the surface water away from the bottom of the pit, which is also cemented to make it water-tight. The pit, P, is 30 feet long, 8 feet wide and four feet below the bottom of the sill. The object of making it so deep is to get it below the frost, so that the water underneath will not affect the cement. It will be seen by the plan that I have three pens, X, X, X, with feed way, S, in front. The space marked A, A, A, are slide doors, through which I can shift hogs from one pen to the other. B is a door from the horse stable to the feed way. C is a door to the feed way from outside. D is a door to the pig yard. E, E are doors above the sill, through which I throw the manure from the pit. Some may ask how can I get the manure out, as the pit is so deep. As the ground descends a little towards the doors there are about 2½ feet from the ground to the sill, so that when a sleigh or a truck waggon is driven alongside the doors the manure has to be raised but little above the sill, and the work is not hard. The floor is laid tight from the feed way, and is about three inches higher at the feed way than at the other end, where it projects over the pit 20 inches, so that all the liquid runs into the pit.

Now for one year's experiments and the results: October 1, 1880, I placed in the pen four hogs that I was feeeding to kill and did kill about December 1st, and then I placed in it two sow Spring pigs and four barrow pigs. From the two sows I got, this Spring, 10 pigs, a part of which I fatted and a part I sold, and this Fall I sold $100 worth of pork, and have put down for use $75 worth, and have as many pigs to start on anew as I had one year ago. Moreover, from October 1, 1880, to October 1 1881, I obtained 100 two-horse waggon loads of manure worth at least $100, and over 600 gallons of liquid, the value of which I am unable to estimate. I cleaned the pit out the 1st of June and let it stand 20 days without any absorbent, and in that time the six hogs made over 700 gallons of liquid. Over 600 gallons of this were taken to the hop yard and corn field and applied, and one need not imagine the results, for the consequent growth could be distinctly seen. I would say that I did not use any absorbents for the 20 days for three reasons :—1st. I wanted to know if my pit was water tight; 2nd, To see how much liquid my hogs would make, so that I could estimate my former loss; 3rd, In order that I could see the effect of the liquid alone on growing crops. For absorbents I use in the Winter some horse manure and some straw. In Spring, Summer and Fall I use dry muck and sod. I prefer the dry muck and sod, as the hogs are fond of them and I think them healthful where hogs are confined to the pen. Under the floor plank that projects over the pit I placed a wide plank, the lower end of which rests on the bottom of the pit; on this plank I nailed some cleats, and the hogs walk down along it into the pit, where in hot weather they seem to be perfectly at home. A house of this size is large enough for from 10 to 12 hogs, and it does not require a few years to make manure enough to pay for it, for it will pay for it in one year if well attended to.—[I. P., in Rural New Yorker.

Food Wasted in Fattening Cattle.

The general rule followed by persons who attempt to fatten animals is to give them all they will eat up clean. A careful man will regulate the quantity of meal so as not to over-feed so that the animal will refuse to eat at all. This often happens, and when it occurs there must be a cessation of meal feeding for a few days in order to allow the overtaxed stomach to regain its tone, and the renewal of meal feeding must be begun with a small quantity at first, and be gradually increased until the animal will again consume the amount which the owner desires. I am satisfied that a great deal of meal is wasted in the fattening of animals. No two animals are alike in their ability to digest and assimilate rich food such as corn meal. Very few farmers ever think of this and generally feed all alike. They imagine that a cow is a cow, and a steer a steer, he ce they give each of the same species the same quantity. This is a mistaken idea. As long as the manger is emptied they think the animal must be gaining rapid.y, as much food as been eaten. A careful inspection of the excrement in many cases would reveal the fact that a considerable portion of the meal put into the manger pass through the stomachs of the cow, or steer, without being digested at all, and is voided without having lost any of its substance. When particles of meal can be detected in the excrement it is evident that there is a waste of food. Very few farmers pay any attention to the manure of their cattle to examine its condition or consistency. This lack of observation leaves them ignorant of the proper condition the excrement should be in to indicate perfect digestion, and a healthful condition of the stomach—hence they will continue to pour feed into the manger without stint until a cloyed appetite, or an attack of scours, which is another indication of an overtaxed stomach, warns them that they have made a mistake I have known the scours to be attributed by farmers when it affected their beef cattle to a cold, slipping on the ice, or to something else, they never thinking that too much meal was the actual cause. I am satisfied that fully one-third of the corn meal fed to beef animals is wasted, because they are given as a rule fully one-third more than they can digest. A farmer should have some notion of what the appearance and condition of the excrement should be of a thriving beef animal. With such a standard he can better regulate the amount of feed for his animals to keep them healthy and in the most thriving condition than by the amount of meal put into the manger.—[F. D. Curtis.

Middlebury, Vt., shipped 6,777 head of registered merino sheep last year, against 5,965 head in 1880, and 4,000 head in 1870 Of the shipments this years, over 5,000 went to Ohio, Michigan and Texas.

Sixty million sheep and twenty million cattle roam the pampas of the Argentine Republic; nearly all, it is said, the descendants of one bull and eight cows taken there from Europe in 1653, by two Portugese brothers named Goes.

Cattle disease is extending in Lancashire. At Preston pleuro-pneumonia has broken out on the premises of Mr. Ralph Platt, Breakneck Farm, Haighton, where one cow has ben slaughtered in consequence. Foot-and-mouth disease prevails on the premises of Mr. George Ashburner, Low Hall Farm, Kirby Ireleth, near Ulverston, where 50 cows are affected in a herd of 71 ; on the premises of Mr. William Kaye, Great Stone Farm, Stretford, Manchester, three animals being affected in a herd of 14 ; and on the premises of Messrs. George and Thomas Yates, Duckworth Hall Farm, Oswaldtwistle, where there are 20 cows suffering from the disease in a herd of 27. In Yorkshire the parishes of Middleton and Gledmore (East Riding) and the townships of Kirbymoorside and Melburn (North Riding) are infected areas under the Contagious Diseases (Animals) Act. There is very little disease in Scotland.

The Apiary.

Comb vs. Extracted Honey for Market.

James He don, of Dowagiac, a correspondent of the *American Bee Journal* says :

"The question is frequently asked, "which class of honey production pays best—comb or extracted?" In reply, one writer argues in favor of comb, and another in favor of extracted honey. Each produces some arguments that are valid, and makes us wish we were devoted exclusively to his choice.

"Answering that question, from a standpoint of the present, I would say that the difference in the nature of the production and present market value of each class, is so slight, that greater reasons for choice lie in the adaptability of your climate, flora, market, and your natural choice in the different styles of labor connected with them. Owing to the successful employment of our best comb foundation, I think that I prefer comb honey production.

"From the length of time that I have been engaged in the business, and the amount of shipping and jobbing of honey I have done, I am continually receiving orders from abroad, and some of these are for extracted honey. To hold this trade it is really necessary to keep an assortment of styles on hand. But I am not going to mix the two classes of production together in one apiary. I see little good, and a great deal of damage in such a course. The extractor (a thing no man should be without), used in the comb honey apiary, will be used only in a case of emergency, as a mechanical necessity and to empty the partly filled sections in the fall.

"If all my honey crop was to be sold at wholesale, I should choose which class I would produce, and become a specialist in that class, were I running a dozen apiaries.

"Comparing the profits of the two classes of production, in the near future, I have no reasons for any choice, in the probable prices. Both will be leveled to the cost of production with our necessary margin added, if such is not already the case. For the production of extracted honey, as for both kinds, I should start in an unoccupied field, or not at all. I should try to form some sort of an estimate of the amount of nectar annually secreted on an average, within my area of say six miles in diameter. Next, of about how many colonies working in this field would give me the most surplus honey.

"Both of the above problems are very knotty, and there is no doubt but that less had been learned for the amount that has been said about them, than about any and all others, the winter problem thrown in. All I can say is, notice that nearly all the large percentages of increase and surplus that are reported are from small numbers of colonies. We often see 'from 10 to 70 colonies and 1,200 lbs. of surplus and how I did it,' but we never see from 100 to 700 colonies and 12,000 lbs of surplus, unless it ends with, 'how I didn't do it.'

"The one who looks over the field must form the conclusion as to keep, for the best number of colonies to the best results, and then 'cut and try' till he is satisfied."

The opinion is expressed that the honeybee, though seldom guilty, will in rare cases acquire the habit of biting through the tough skin of grapes. It is true that some species of bees do even more curious things. Professor A. J Cook has seen bumblebees bite through the base of the long honey-tube of wild burgamoc to enable them to reach the honey otherwise beyond their reach. He has never seen the honeybee bite the holes, but has seen them use those already made. Professor Tracy reports seeing the honeybee visit verbena blossoms after they had fallen and sip nectar from them. The celebrated naturalist and traveller, Fritz Miller, mentions that one of the stingless bees of Brazil, gnaws through the bark of trees in order that it may get the juice. He also states that one species only visits flowers of the sweetest scent, and so the honey is greatly prized.

HIVING BY ELECTRICITY.—Among the many unexpected developments of electrical science is an application for the hiving of bees when they swarm, successfully trie by German experimenters. It was thought that by utilising the electric force the bees might be stupefied for the necessary period of time without being injured, and the result proved the correctness of the idea. The first attempt was made upon bees that had gathered upon trees, the insects falling upon the ground in a kind of trance which admitted of their being safely handled.

Agricultural.

Talks With Young Farmers.

I.

Having been a young farmer up to within a few years, it may be allowable for me to say a few words which may interest my brother farmers, as I can talk to or rather write to them from the same standpoint. On the farm I was dissatisfied with the sameness and humdrum of every-day work, and, of course, as many young farmers think, I thought the occupation of farming was to blame. The bustle and activity of the city attracted my fancy, and I entered a commercial office, and now I have found out that the "sameness and humdrum" of figures, invoices, etc., is fully as wearisome and more so than that of agriculture. Plow, plow (which is not always the work) in the fresh air on the one hand ; put that against 9 and 9 are 18, 18 and 6 are 24, etc.,(which is always the work) on the other hand, and which do you really think the healthier and better? You pass the same stores on your way to business every day, do the same work; in the same office you often remain for long years in order to gain a promotion, and the firm frequently fails leaving you no adequate reward for your services, as the competition is so great that you are prevented saving much money, your salary being as a rule small:but I was attracted by the picture, only my mind gave it a different aspect, and I have discovered my mistake. I am well aware that all of us are not intended for farmers, no more than we are all born poets or engineers or naturalists, but most of us can live better and happier and more worthily on the farm than we can in commercial speculations and enterprises. Do not for a moment think there is no enterprise on the farm ; this is exactly the mistake so many make ; there is always enterprise enough if we would only make it our duty to see it and fellow it out to its proper end. I know that in some cases on some farms, through adverse circumstances, a young man may deem the task of advancement and self improvement somewhat hopeless, but if he will only stop for a moment and consider how much more creditable it will be to him to overcome them and also how much more beneficial in the development and improvement of his character, he will soon determine to bravely fight them. Do your work well, with all your strength and heart,and you will find pleasure therein ; work with a will, improve everything that you can, and you will soon see how different farm life will appear to you.

There is one point which young farmers too frequently overlook, and that is : Why certain effects follow certain causes. Why does a certain manure produce a certain effect? Can you tell why? Many of you doubtless know that it may be or is beneficial, but do you ever try to know why? Therefore, investigate these things and many others and you will be surprised what an interesting field of inquiry will be before you. You will then not have to complain, as I often did, that there is no fun on the farm ; you will find that it is better than fun ; you will understand your work and go about it in a proper way, and not merely mechanically. Read in your spare hours and read works that are to the purpose, and examine the truth of what you read, and see if it stands the test of your experience, no matter how limited; if it does not, then investigate and see why ; whether your experience has not been wide enough or whether what you have read is wrong. You will find that there is no end to your "fun," if you will only adopt that of a rational kind, and I know you will.

There is one point I would like to impress and that is, do not be over anxious to make money on the farm ; never forget that you are having a good comfortable living, which represents a good deal of money, and which, if you had to pay for in hard cash as you will if you come into the cities, you would find making a serious inroad on your salary. Of course it is important to make money, but you will find that the money will come fast enough if you do your work well, and even if you do not lay by a large sum of money, you will have *lived*. Do not be envious of the city clerks and their style ; it is often nothing more than style and not manliness; it alone never carries respect with it. Better it is to be in homespun ,and have a free conscience than all the style in the world and a load of debt. To some of you what I have written may appear commonplace and unnecessary, but it has caused me trouble enough to find it out, and I have jotted it down without presuming to advise anyone in the matter, but merely to ask any young farmers who may be thinking of changing their occupation in life to consider well the matter before changing, or as the adage has it : "Look well before you leap." In my next communication I shall give a few notes on some important factor in agriculture.

The Loss of Ammonia.

The loss of ammonia is a question frequently discussed. The experiments of Dr. Voelcker with fresh horse-manure, gathered from the stables before being mixed with the heap, will,no doubt, interest and surprise many. In one experiment the amount of ammonia which was drawn out by long continued boiling, amounted to 9 6 pounds per ton, which, at twenty cents per pound, would amount to $1.32 per ton. The loss, however, on the land would not amount to a quantity anything like this, for in this case the ammonia was extracted with boiling water. A second experiment, with a sample of hot, fermenting horse manure, emitting a strong and pungent odor,lost in like manner less than two pounds per ton, or 39 3 10 cents in value. As the excrement, even as hot as this, soon cooled when spread upon the ground, and as the fresh earth absorbs the ammonia very rapidly, these experiments would indicate a loss in practice of too small a value to be taken into account, when the convenience of time is taken into consideration. A large majority of our farmers are frequently deterred from drawing out manure at times when the hauling would cost very little, on account of the teams standing idle in the barns, for fear of loss by exposure, but so small a loss should never be considered when a question of convenience arises.—

Sowing Seed.

The time will soon arrive for general seed-sowing, and a hint or two in regard to it may not be out of place. Much that is sown never appears, and the seedsman is charged with selling old or poor seeds. Sometimes this may be so, but very often it is the sower's own fault. There is much more art in sowing seeds successfully than people suppose, and yet it is very simple when understood. Many seeds are sown too deep, and yet if not deep enough they will dry up and not grow at all. The depth must be determined by the size of the seed and the character of the soil. If the soil be light and sandy, there is not so much danger of the seed rotting from deep sowing as if the soil be stiff ; and even in stiff soil the depth will have to be determined by the condition of the soil. Suppose we are to sow a piece of oats, in land that is liable to become clotty, and this is the distinction between light and heavy land. If we can roll the land after sowing it would not matter much about sowing deep ; but the seed would have to be harrowed in pretty well if left in a clotty condition unrolled. Indeed, if the seed were sown on ground simply first harrowed and then rolled, in such land as we have described, many more seeds would do well than if harrowed before rolling. In other words shallow sowing, if the ground is well pulverized and pressed firm, is more favorable than deep planting with a rough surface. Finely pulverised soil, with a well-pressed surface, is indeed the very best condition for success with all seeds; and the shallowest kind of sowing, so that the seeds be firmly imbedded in the soil, is the essence of good seed-growing.

Value of Root Crops.

Farmers who neglect to provide either carrots, parsnips, beets or turnips for their stock when winter approaches make a serious mistake, if they anticipate the best profit, and large results. We often see the feeding of roots argued from an English standpoint, but many things in this country in an agricultural point are quite different. Nevertheless there is no question of the value and economy of feeding roots in this country to a larger extent than is done at present. Probably the most easily raised, most productive and most profitable root crop for us to raise, is some of the varieties of beet, some of which grow very large and yield 800 to 1,000 bushels to the acre, if the land is well manured and thoroughly tilled. The best way to grow them is to let them follow some deeply worked, highly manured crop, on thoroughly good land, putting on no manure the year the beets are grown. There will then be few weeds to trouble, which is often the plague of root culture,

How to Kill Wheat Moths.

I know of but one efficient remedy for this insect, and that applies as well to the weevil and to the Angoumois Grain-moth, which is said to do no little damage in the southern and southwestern part of our country. I have frequently seen every kernel of corn in samples from the Gulf States perforated by this latter moth-larva. The remedy proposed is Bisulphide of Carbon. We have only to pour a quantity of this into the bin at the bottom of the grain to kill all of the insects. It is very penetrating and volatile, and equally deadly to all of the insect tribes, I think that a half pint of the liquid would destroy the insects in a bin of 50 to 100 bushels of grain. Not having experimented with grain in such quantities, I cannot give the precise quantities of the liquid to be used in different sized bins of grain, but this can easily be determined by trial. To try the remedy it is desirsirable to pour the liquid in at the bottom of the grain. To do this we can take a hollow iron cylinder—a gas pipe will do well—and fit into it a wooden rod which shall be a little longer than the iron tube. One end of the rod is to be made sharp; now place the rod inside the tube, and, with the sharp end down, force them both to the bottom of the grain; then having withdrawn the red, turn in the liquid through the tube, which should be pulled out. The insecticide of course is left at the bottom of the grain, and being very volatile, soon diffuses through the mass and converts the bin into an insect cemetery.—[American Agriculturist.

The Best Seed Wheat.

As a rule, heavy glutinous wheats are the best seed. The germ is stronger and makes a more vigorous growth from the start. The old rule used to be to cut wheat early for flowering, but that for seed should be left till fully ripe, as it then made stronger plants. We should now leave wheat till ripe for all purposes. The reason why wheat on low, black soils contains more gluten is supposed to be becouse such soils are usually richer in nitrogen and ammonia. The fact has been noted that mineral (and especially phosphatic) manures make whiter and starchy wheats. The reason is that the mineral manures furnish those elements of the plants, while the nitrogen for the highest development of the seed is lacking. The potash in most mineral fertilizers has the effect of making available what nitrogen or ammonia is stored in the soil, and this, rather then the potash itself, is what makes potash manures valuable. In whatever way we increase the nitrogen in the soil available for plant food, we increase the yield and comparative value of our wheats. Nitrogen in most forms, however, is so expensive that it is scarcely strange, when large crops of wheat may be grown with little nitrogeneous manure, that farmers are discussing the propriety of dispensing with them.—[Correspondence Country Gentleman.

Oshawa Farmers' Club.

At the meeting of the above club held at Oshawa on the 11th February, a very interesting lecture on "Success in Farming" was given by Mr. John Dryden, M.P.P., to the 160 members present. He said there were three indispensably necessary conditions: First, a good farm; second, a good locality; third, sufficient capital and proper management, The farmer must be a man of thought and a good planner, and must work and carry his plans out. His business did not differ from any other business, and the man who worked, and in the right channel, was the man who succeeded. He must not be above his business, and must be able to control and direct his men, knowing every detail himself. The work must be kept well ahead in obedience to the old adage "Drive the work or the work will drive you." While the weather could not be controlled, by keeping the work well ahead, it could most certainly be taken advantage of; this was very important, as we had such short seasons in Canada. He gave particulars as to drainage, thorough tillage, and believed entirely in early sowing and a regular rotation of crops. Regarding the raising of animals, the importance of their proper care during the first year was well brought out. A lazy, brainless fellow would not make a successful farmer, and the sooner the idea was got rid of, the better.

A wealthy landowner in Essex, England, rather than see his fields altogether out of cultivation, thinks of planting 100 acres of very heavy clay to oak and elm trees—counting on a good rate of interest, payable to himself or heirs fifty years hence.

Surface Manuring.

Geo. E. Waring, Jr.: "Practice has gained a triumph over the old theory. Manure so spread (on surface) is subject to some waste, but what is not wasted is so much better incorporated with the soil by the rains that the effect produced is better than if the raw manure had been immediately plowed under. Ammonia is formed only during decomposition, and as there is very little of this process going on in manure which is thinly spread upon the surface of the land, especially during cold weather, the loss from this cause is not great."

Farmers' Clubs.

One has recently been organized in Ingersoll, Ont., under favorable auspices, and we wish it all success. One has also been organized at West Oxford, Ont., styled the "South Oxford Farmers' Club." The following were elected officers:—Wm. Wilkinson, President; Geo. Chambers, Vice-President; T. R. Maybery, Secretary-Treasurer. An Executive Committee of five was also elected. We congratulate them on their successful organization.

Imported Potatoes.

The statement that potatoes were being imported from Holland in large quantities excited some surprise a few days ago, but an importer says that the business has been carried on for a long while. According to his statement, wealthy foreigners who spare no expense in following their tastes, buy Holland potatoes every year, even when the American potato can be bought for one-fourth the price. This year, however, the high price of the home product makes the Holland potato a luxury that is not, comparatively speaking, very costly, and therefore, bring more than the usual demand for them. Holland is said to be as famous among epicures for potatoes as she is for tulips and hyacinths among horticulturists—a reputation founded, perhaps, on the remarkable patience and industry of the Dutch gardener.

Ensilage.

Several hundred practical farmers and others interested in ensilage met in New York to compare notes and recite their experience. Ensilage is the method of preserving green crops in pits called silos. It was first practiced in France by Auguste Goffart in 1873. The first to try it on a large scale in this country were the Hon. Orlando B. Potter, of New York, in 1875, and Mr. Francis Morris, of Maryland, who began in 1877. It is claimed that there are enormous advantages in this method of preserving crops, not only in the curing, but in the increased value of the product as food, because crops may be gathered in any weather, put away without drying, and all the succulent and nutritious juices of the food are preserved. Many prominent speakers addressed the meeting, and, just before adjournment, the meeting adopted the following resolution, introduced by farmer Brown:—Resolved, that is has become a well-established fact by six years successful use in this country, and by the concurrent testimony of many intelligent farmers, that the ensilage system is of great advantage to the farming interest, as to all mankind.

Frozen Cabbages.

It has been discovered, says an exchange, that cabbage may be prevented from rotting after freezing simply by cutting them open or by making one or two incisions in them with a knife. After freezing the cabbages commence to decay in the centre, caused by the heating inside. When opened sufficiently to let out the heated gases and enable them to become cold at the centre, they will not decay. Mrs. G. T. Boatman, of Ruby Valley, M. T., is entitled to the credit of making this very important discovery, Our farmers who have had the misfortune to let their cabbage become frozen, will do well to take the precaution to cut them when gathering and thus avoid loss. The frost will draw out if left standing on the ground or by covering with earth, but in storing they should be opened to the centre to prevent decay.

The capacity of the California squirrel for mischief to the crops of the farmer can be judged by the fact that one killed a few days ago while carrying away a load of wheat from a warehouse was found to have no less than 1,803 grains of wheat stowed away in his mouth.

Killing Off Spruce Trees.

The lumbermen in Maine are much disturbed by the destructive insects which are killing the spruce trees not only in that State, but in the adjacent British Provinces. The white pine has lost its pre-eminence, and the spruce was getting into a position to be the representative tree, but the Urocerus albicornus, if the thing has been correctly identified, the Augusta Journal says, is killing off the spruce faster than the lumbermen could have done it, and greatly to their detriment. The white-horned Urocerus, for that is what his name means, is about an inch long and with wings which spread to two inches. They are as likely to destroy the pines into which they bore as the spruces, so far as the entomologists know. These insects are very prolific, and not at all uncommon.

To Destroy Plant L .

To destroy green lice upon plants: These pests will appear and increase in numbers as the days lengthen and grow warmer. Use plenty of water upon the foliage. Burn tobacco in the room. Use whale-oil soap in watering; steep up tobacco and tobacco stems, and sprinkle the plants with it. Be careful not to make the soap or tobacco water too strong. The Persian Insect Powder is good for these pests.

Clearing L

It is sometimes a question with owners of farming lands, how much they can afford to do in the way of clearing land of stumps and stones before commencing to plow and crop it. In this as in everything else, circumstances undoubtedly alter cases, and one must use his own best judgment when deciding how thoroughly he shall fit a field for handling before he begins to use it. On general principles, we should say put the land in good order to work before attempting to work it. It does certainly seem foolish to plough and cultivate around a rock for forty years, and then conclude to get it out. It is true there is much land which, at the present time, is not worth the cost of clearing, but there are other lands which have a few rocks scattered here and there, over the surface, just onough to prevent the use of the most improved machinery, and enought endanger such as is used, and which might be cleared at a comparatively trifling expense.

Good, strong grass land that can be easily worked with improved tools, ought to be worth a hundred dollars per acre in every favored locality. It certainly ought to be made to pay the interest on that sum. Light, sandy land is not worth so much, as it requires a greater and more continuous outlay for manures, nor does sandy land usually cost as much in market as good loamy grass land. If we had land that would be worth a hundred dollars per acre after clearing it, we should not hesitate to spend nearly that sum in putting it in first-rate order to work, for until land is fitted for the use of improved machinery, it cannot be appraised at a very high figure for purposes of cultivation. A great many rocks can be sunk where they are cheaper than they can be disposed of by any other means. A sunken rock leaves no hole to be filled, nor does it reduce the grade of the field and bring the surface down nearer another crop of underground rocks. Having sunk all that can be profitably disposed of in this way, dynamite or powder may be used for such as are too large to sink.

A subsoil plough run a little deeper than an ordinary plough, will help very much in loosening up small stones that would throw out common ploughs. There is nothing that will pay better than the labor of a man to follow a plough with a light crowbar, and pry out what stones can be easily lifted after the plough has uncovered or loosened them. If land, after clearing, cannot be made worth the cost of clearing it, then it will be better economy to devote it to some other uses than cultivation, until such time as land is in better demand. Very rocky land, if naturally good, may be worked over by swine, if they are kept in pens that can be moved from place to place, as often as desired. Orcharding may sometimes be made very profitable on such land. But do not work round rocks half a life time, which ought to be taken out now.

Harrowing the land just before the seed is sown is an easy and efficient method of securing the prompt germination of a large proportion of the grain which is used for seed.

Ontario School of Agriculture.

Your liberal offer of a prize for the best essay on the future of our public agricultural expenditures last August, called up some ideas on this school: First. Can we, by lessening the government grant, make it self-supporting? Second. Shall we, by increasing the grant, raise it to the highest point of excellence?

yone who would speak of doing away with any of the professions at colleges would be put down at once, and where the line of difference is drawn we fail to see. This school for the combining of theory and practice, is a want long felt by our foremost farmers; it is over thirty years since the Presidents of our Provincial Exhibition urged upon the government the need of establishing a model farm, for the better training of our youth in the theory of farming. Some tell us that a boy or young man may learn farming with a practical farmer; if merely plowing and sowing is all that is required he may be fit, but that is only the A B C of the first book, he has not got any more education than just enables him to know a horse from a cow. What does he know about the different kinds of soil, the various breeds of cattle, sheep, and swine? no more than just what that particular farmer may know about these; his ideas must necessarily be one sided, and suppose this student start farming, nine chances out of ten he gets a farm of totally different soil; where is he? Just where his teacher was when he started. It will take the young farmer years of patient labor before he finds out the right crops to suit his place, by the old method. The same rule applies to the stock; in what way is the boy to learn the different points of excellence in the many breeds of stock that are in our Provinces? At the school matters are totally different; they have seven different breeds of cattle, four or five breeds of sheep, several of swine, and two or three classes of horses. It will be seen at once the advantage a student will have by having the points of the different breeds pointed out, their merits and demerits and, by experiments in crossing, which will attain the points desired, and whether for beef or milk. Then they are shown the different soils, and are shown how to analyze and be able to tell whether grass or cereals will do best and the different kinds of either best suited for the land, a very important point, as one farmer out of five hundred cannot explain today. Next, the different kind of manure, such as barnyard and artificial; he is able to analyze and tell which is best suited to the land he has to deal with and not have to wait for years, and by experiment to find out what a couple of years study at the beginning would have given. Draining is also taught at the school, and with it levelling, which must be a great help as three-fourths of the farms in this part of the Province require draining to a greater or less extent; if there was more draining there would be better crops, because farmers could get on their land earlier in the spring, and get their crops well started before the dry weather set in; also there are lectures on arboriculture, a subject beginning to be greatly heeded over the length and breadth of the Dominion. The sooner farmers begin to plant for use more than for ornament the better; and lastly taste in the laying out and decorating of the farm; what a difference there is between a farm poorly looked after and one tidy and clean, words cannot express. One thing we forgot to mention of great importance, is the experiments on the different kinds of food for feeding purposes, which must help the country, as they are printed from time to time. Now, then, having shown the superiority of theory and practice combined over practices alone, let us compare the cost with the other educational institutions of the country. The University of Toronto is endowed to the neighborhood of two hundred and fifty thousand dollars, with about one half of the students at the school; the Normal School of Toronto, twenty-two thousand six hundred and fifty dollars; the Normal School, at Ottawa, nineteen thousand dollars; the grant to the Ontario School of Agriculture, including a large amount required for extra buildings, is twenty-nine thousand six hundred and thirty dollars; some will say this is a large sum, but let those just consider for a moment the number of students, and this is the cheapest educational institution in the country; we have no hesitation in saying that in supporting the school we are doing the best work for our country at large it is possible, and why not bring here the Veterinary College, and give those students going out on the boundless prairie the opportunity of being able help to alleviate the sufferings of the animals he may be possessed of. If, as, some think, the grant is too high, let it be endowed by a grant of land or otherwise as the goverment may see fit. We cannot see why farmers should be so blind as to believe all the soft soap of politicians against their own institutions, when if they went and looked through other colleges faults could be found as well as here; the want of unity among the farming community is greatly to be deplored; they come to the college and expect to see one of the seven wonders of the world, in the shape of crops, or worse still, to see if they cannot find fault; they should remember that this school is managed by human beings who are likely to err as well as the rest of humanity. Then, again, having a college ranking second on the continent, why not be content with that by liberal support and combined action, raise the standard to the first in the world, so that it would be considered an honor and privilege to be a Canadian? we have the perseverance and pluck if only bent in the right direction, and let our aim be to get beyond party cry, make our school what it ought to be, Canada's best, the world's best.

PLOWBOY.

Provincial Agricultural and Industrial Society of Manitoba.

The annual meeting of the Provincial Agricultural and Industrial Society of Manitoba was held in the Council Chamber, Winnipeg, on February 15th, at noon.

The meeting having been called to order by the Secretary, Mr Acton Burrows, the chair was taken by the President, Lieut.-Col. W. Osborne Smith.

The minutes of the last annual meeting were read by the Secretary and confirmed.

The Secretary next read the Annual Report.

The meeting re-assembled at 1:15 p.m., when the scrutineers reported the following persons elected to the council for the current year:

Winnipeg—Messrs. A. G. B. Bannatyne, Acton Burrows, A. F. Eden, D. Young, and Lt.-Col. W. Osborne Smith.

Lisgar—Messrs. S. L. Bedson, S. J. Jackson, W. W. Macalister.

Provencher—T. Carney, C. S. Douglas, and W F. Crosbie.

Marquette—K. McKenzie, W. R. Black, and Thos. Collins.

Selkirk—James Harrower, W. B. Hall, and J. H. Bell.

The meeting at the close of the election adjourned.

Barbed Wire Fences.

The following has been introduced into the Legislative Assembly of Ontario:—

"No owner or occupier of any lands in the Province of Ontario, shall, upon any division line, erect or keep any barbed wire fence, unless the same is protected by a scantling at least two inches thick by four inches wide, or by a pole at least three inches in diameter, or by a board six inches wide, running along the top of such fence.

H. S. in the N. Y. Times, says: "Certain it is, however, that the successful sheep-feeder is always on the best of terms with his flock, and a mutual regard, if not affection, always exist between them. He never forgets to feed them; he watches over their comfort, provides them with abundant fresh water, and would feel wretchedly to see them sipping filthy manure water, to slake their thirst. This care pays; without it the flock fails to thrive, and daily becomes poorer, until disease comes in and makes short work of it. 'The good shepherd loves his sheep," and the sheep seem to reciprocate the feeling and to devote themselves assiduously to making flesh and fat and profit to their owner."

A farmer's club has been organized in Lobo, Ont. The President is Alex. Sinclair; Sec.-Treas., A. D. McClellan. The object of the society is mutual improvement in discussing subjects pertaining to agriculture. The debate on Wednesday night, 22nd ult., was—"Which is the most profitable, grazing or grain growing?" The speakers on the "grain" side were Messrs. Alex. McKellar, Arch. McClellan and Malcom Grey. Those who contended for the "grazing" were Alex. Sinclair, John McKinley and D. McKellar, whom the Chairman, Mr. Alex. Sinclair, decided had won the day. The subject for the next debate—a most important one to this country—is, "What are the Best Modes for the Province to Pursue to get rid of the Canada Thistles?" The debates are held the first Wednesday in the month and the first Wednesday after the 15th of the month.

The Double White Primrose.

These still stand unrivalled as hardy edging plants. Like other members of the Primrose family they delight in cool and shaded quarters in summer, for if fully exposed to strong sunshine they lose most of their foliage, and if dry at the root for any length of time, die away altogether, a mishap which may possibly account for the comparative scarcity of this variety. We find it to do best on the north side of a hedge or other screen, and the best time to increase it is directly after it ceases flowering, or hot dry weather sets in. Every crown of it should be planted separately on rather stiff soil, and kept moist until well established. A few evergreen branches may be used to produce shade if north borders are not available. In nurseries where large quantities of similar plants require protection more from summer heat than winter cold, a thin layer of straw is frequently employed for this purpose with good results. We find this primrose to succeed well as a permanent edging plant for beds of choice evergreen or deciduous shrubs, as the shelter afforded by the latter in spring when the primroses are in bloom protects the purity of their blossoms, and the shade in summer is just what the plants require. Well established clumps produce such a profusion of bloom as to quite hide the foliage, and the blooms are so very double and of such pearly whiteness, that they form a good substitute for choicer flowers in floral decorations. We sometimes use them for spring gardening, but in freshly dug beds the purity of their blossoms gets marred by heavy rains much more than in permanent plantations in sheltered positions.

A "Farmer's Union of the County of Ottawa" has been organized and a committee appointed to promote said Union. A public meeting will be held at the town hall in Upper Chelsea, on Monday the 6th day of March, at 6 o'clock P. M. The following subjects will be intrsduced: 1st. The best method of raising wheat. 2nd. Potato raising as a profitable crop 3rd. The basis of the Union and the advantages to be derived by it to the farmers. A cordial invitation is extended to every one having the interest of the farming community at heart.

J. C. Niven, of the Hull Botanic Garden, recommends tobacco fumigation (in the "London Garden") for cleaning green flies from certain house plants infested by them. His plan is to lay the plant on its side in a wash tub, throw over it a damp towel, or better, "a bit of glazed calico lining," and then through an opening at the bottom have "your husband" insert the end of a pipe, and through it let him blow tobacco smoke until the plant gets a good fumigation. The flies will be found at the bottom of the tub when the operation is finished. The plants should be perfectly dry when the operation is performed, but if a towel is used it should be freshly washed and wrung out before using, and be without holes. The pipe stem should reach the bottom of the tub.

The Russian Mulberry.

This tree, which has lately attracted so much attention, has been practicularly brought into notice through the planting of them by the Mennonite colonists in the North-west. These people, formerly a clan of Russian citizens in Germany, left that country in order to be exempt from military duty, such being against their religious convictions; they were offered a tract of land and exemption from military duty by the Czar of Russia, which they accepted and remained in Russia up to within six or seven years ago. The Czar, wishing to introduce silk cul ure, forced each landholder to purchase a certain uumber of trees and they soon voluntarily propagated them, discovering their many advantages. The timber is desirable for fuel, is the finest for cabinet work, and fence posts made from it are exceedi gly durable, while it has the further advantage of bearing a pleasant and highly prized edible fruit. The Mennonites, on coming to the Northwest, brought seeds of this tree with them; those planted six years ago, are now from fifteen to twenty feet high, and suitable for fence posts. It resembles the apple tree in its growth. The Mennonites say it grows quite large, reaching a height of fifty feet, and from three to five feet in diameter; they bear fruit at two or three years old and bear every year. The fruit varies somewhat in flavour, also in color, being, however, generally black, the remainder being reddish white. The bark grayish white and branches drooping. It can be used as a hedge-plant, as it stands shearing well. It is said to be more easily propagated from cuttings than any other mulberry. It will, doubtless, prove a valuable acquisition to the Dominion. Last year these trees, in the Mennonite settlement, were heavily laden with fruit.

"Hardy" in Horticulture.

Of the meaning of the term "hardy" in reference to its use as applied to plants and fruits, the Rural New Yorker says:

"Of all the words used in horticulture and agriculture the word 'hardy' is the most misleading. The word is generally accepted as meaning that a given plant will endure the climate, soil and situation of a given section; whereas there is not the plant on the face of the earth that can be said in this sense to be 'hardy' in all parts of any extended area. There are hundreds of plants that are never harmed by the cold of the climate of Chicago or of New York, that are 'winter killed' in Ohio and Pennsylvania. There are raspberries that are 'winter killed' in Illinois and New York that will stand the winters of Canada. The injurious effects of the summer upon certain plants, which are not apparent until the ensuing spring, are often attributed to the cold of the winter. So also many plants which are injured or killed by the sharp changes of early spring are supposed to have been affected by the winter. We are first to ascertain whether a given plant can endure the cold of a given climate, and then to ascertain whether it requires more or less sun; a sandy, clayey, dry or moist soil; shelter or exposure. And even when all this has been ascertained, exceptional seasons will sometimes reverse the conditions we hope to supply. Whenever a plant, from an unsuitable soil or situation, is restricted in its season of growth, that plant must in some way suffer. But as the damage is not apparent until it has passed through the trying seasons of winter and spring, the remote causes thereof are lost sight of while the severity of winter is alone held accountable."

Hoof and horn shavings contain more than twenty-five times as much nitrogen as is contained in average stable manure.

Notes for March.

There is no month of the year which is more difficult to write directions for than this, as it is so variable, and, therefore, any that may be given can only be general in their character. The most important point is to have everything in readiness, the seed purchased and implements in good order. No delay should be allowed to take place; but sometimes the ground is worked up before it is in a proper condition, that is, before it is sufficiently dry, so that it afterwards cakes, and much loss of extra labor and decay is occasioned before the ground is brought into proper condition again. The ground should be apportioned so that no space is lost, and so that each portion will have its proper crop at the proper time. Nothing should be left to haphazard.

Any trees which may have injured branches should be looked after. The broken portions cut off, and the cut covered with thick paint to prevent bleeding. Any partially girddled trees should be treated with a plaster of cow dung, and

THE RUSSIAN MULBERRY.

the earth piled up to cover the place girdled. In cases where valuable trees have been completely girdled, the only means of saving them will be to graft both from above and below with cions cut from the same tree.

See that all young trees are properly staked, and a good mulching should be given each tree, and extending on each side of the tree a considerable distance, so as to feed all the roots. A good search should be made for insect eggs, as much future labour will thereby be saved. If the orchard is a young one, crops such as potatoes may be taken therefrom; but if not a new one, it is not desirable to do this.

Any pruning that is necessary should now be looked after, and all useless or damaging branches removed. Grapes, currants, etc., should be pruned at once, and all the necessary trellises, stakes, etc., got into proper shape for use when required.

Hot beds and cold frames should receive very particular attention, as the least inattention will cause the loss of all the young plants or cause them to grow weak and sickly. Air must be given judiciously—more on a warm day and less on a cold day; a little attention will soon determine the proper mean, and the amount of labor is not great, but *it can not be neglected in the slightest degree.* The watering must be carefully looked after and the soil kept mellow. The plants must not be allowed to grow long and spindly, but should be short, healthy and strong. Too little ventilation, causing too much heat in the frame, draws plants up. As soon as large enough, the plants should be pricked out in order to give sufficient room.

See that the manure is turned over, if it is not yet sufficiently rotted, as it should be if it has been properly looked after.

Flower cuttings should be well under way and re-potted before setting out. Geraniums, verbenas, etc., are so easily propagated that there is no excuse for any shortcoming or failure in their cultivation. Towards the end of the month bulbs, such as tulips and snowdrops, may have the protecting mulch of straw or manure removed, should the weather be mild enough and in districts where the thermometer does not fall very low during night. Seeds should be sown in shallow boxes so as to be in readiness for spring, especially those whose tender nature prevents their early setting out; this, it is evident, must be done in order to secure early blooms. Arrange and decide upon plants and plans for bedding-out designs. Above all, be in readiness to take advantage of an early spring, should such happen to be the case.

Tree Planting.

The Gardener's Monthly reviews some of the many practical things brought out in experience and now confirmed as good doctrine. It says: It is now established beyond all question that a tree or shrub taken out of a poor soil, will not bear transplanting as well as one that has been well fed. For instance, if five years ago two Norway spruces were planted, both of same age and in soil just alike, but one should receive no manure for all that time and the other have a little manure every year, the chances of success in removal will be very much in favor of the well-fed tree. Numbers of trees with good roots and well planted, die after removal simply from a very weakened constitution brought about by poor living. Another capital fact of practical value to transplanters has been developed, which is only just now becoming well known. It has always been understood in this country that a transplanted tree is safer for being pruned, but the pruning generally consisted of shortening in all the branches, strong as well as weak. But it is now found that the tree should not be shortened in, but merely thinned out. All the weaker branches should be cut out and the strong ones left. And there is the practice becoming now better known than others, also first learned through our pages, that it is not possible to pound the earth too tight about the transplanted tree. It is not possible to avoid all risks in transplanting. The art will never be so perfected that some will not die; and mortality, where all the conditions can be controlled, will be less than ever before.

Wash for Fruit Trees.

A correspondent of the Fruit Recorder writes as follows: "I notice in a recent issue a number of recipes for killing the coddling moth. I have tried various remedies in my orchard, some of which have been suggested by scientific men. I will now give you my experience with them. My orchard consists of trees ranging from one to fifty years of age. Last year, when pruning, I made a wash of my own, and tried it with good results. The following ingredients compose the wash: One quart of lime, such as used by plasterers in "white-coating;" one peck of leached wood-ashes, two pecks of cow manure, one quart of soft soap, and one large tablespoonful of Paris Green. I wet the mixture thoroughly, to make it like paste, beating it thoroughly until it became tough I added twelve quarts of water, or enough to give the trees a thorough coating. I find on old trees so washed, that the old bark is dropping off and leaving the new bark perfectly smooth. On all the trees I have washed I see a perfect improvement."

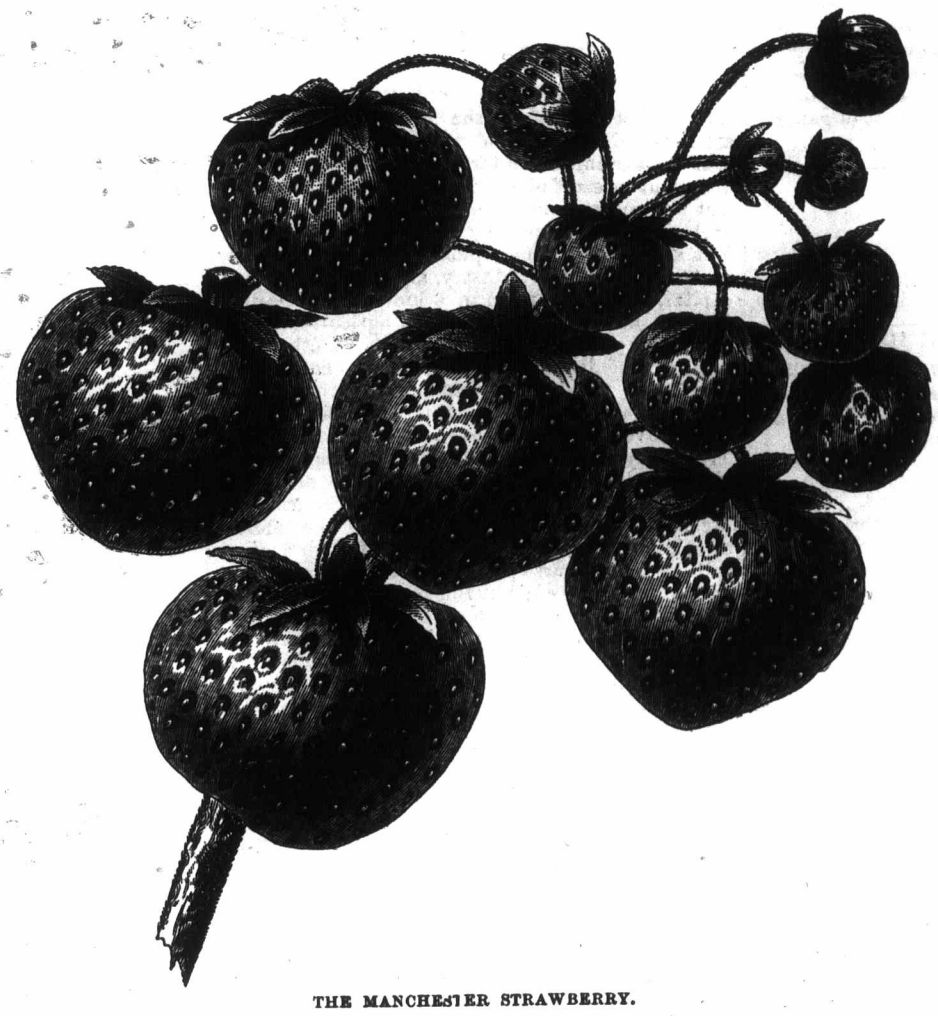
It is said of the native grasses of Nebraska that hay from them cures heaves.

A New Strawberry.

We give our readers a cut of a new strawberry, being introduced by Mr. Lovett, of Silver Hill, Monmouth Co., New Jersey. It is described by a competant horticulturist as follows :

"Form, oblate conical, large size, rich sub-acid juice and decided aromatic flavor. A robust and very productive plant, and of a very high quality. The plant is seemingly well adapted to very light soils, and will doubtless find itself at home through a wide range of country, and prove itself to be especially valuable for market, whether near or distant."

It is a chance seedling, found growing in a neglected spot in an old garden at Manchester. N. J., about ten years ago. Even while overgrown with weeds, it was so large and fine that it was transferred to the garden, and with extraordinary results. It is not a rampant grower. It is very firm, keeping its color and remaining firm longer than any other variety. It is large and of nearly perfect form, ripening through at once, never having the slightest "green tip," and keeping its color longer than any other berry. In quality it is sweeter and richer than any other productive variety, resembling in this the famed Hovey's seedling. It is wonderfully prolific, continuing in fruit for a long season, commencing early and continuing late. It stands drouth well; its fruit stalks are tall and very strong, admitting of mulching and in a great measure holding the fruit from the ground. The Am. Garden speaks thus of it: "The Manchester has more good qualities than any other strawberry in cultivation."



THE MANCHESTER STRAWBERRY.

The Winter Care of Young Orchards.

When the snow comes in deep drifts, so as to cover the limbs of the young trees, it should not be permitted to remain and slowly melt and settle down, for if it settles into a body so compact that it clings to the limbs, when it will carry the limbs with it, and thus split them from the trees. We have seen trees entirely ruined in this way. To prevent it the snow should be dug away from the limbs as soon as it stops snowing.

Young trees should be as strictly guarded from cattle in the winter as the cabbage field is in the autumn. If it has not already been done the first pleasant weather should be improved, to carefully look over the young trees, and cut out any small limbs that indicate a disposition to cross other limbs. The peach orchard should be headed in before spring opens.

The orchard that is to receive a heavy mulching of evergreen brush should be attended to at once, as there is no better time to do it than when the ground is covered with snow ; it is much easier to load and unload the brush from a sled. Always leave a space between the brush and the tree for fresh earth.

Grafting Wax.

Three parts resin, three parts beeswax, and two parts tallow, will make an excellent grafting wax. A cheaper wax, that has given good satisfaction, is made by melting together four parts good, clear resin, two parts beeswax and one part tallow. When the ingredients are all melted and mixed, pour into a pail of cold water, when the wax will harden sufficiently to be worked and pulled, as in working molasses candy. If used in cold weather, it will be necessary to keep it in warm water ; and in hot weather, cold water will be needed. For nursery grafting, this wax is sometimes melted and spread on narrow strips of cloth, which are wound around the graft.

Buying Seeds.

"Order early" is a standing request of nearly all seedsmen to their customers, and it is a request which the customers, for their own interests as well as to accommodate the seedsmen, will do well to heed.

By sending his order early the purchaser is far more likely to obtain just what he wants, than he is if he waits until the season for planting is at hand. It often happens that the stock of seed of the most desirable varieties is exhausted before planting time. Then the men who order late must either take up with poorer sorts, or else devote their land to other purposes than those for which it had been designed. Either of these courses will be almost sure to involve considerable loss.

Then, too, during the last part of the season seedsmen are extremely busy and are unable, even with a largely increased force of clerks, to keep up with their orders. Consequently, the man who does not order his seeds until he is just ready to use them, is liable to have to wait several days for them to come to hand. This delay is always vexatious, and as with many crops early planting of the seed is one of the great essentials of success, it often leads to heavy losses.

So we say to all who intend to obtain a supply of seeds, and the same rule also applies to the purchase of plants and trees, that it will pay to heed the request of the seedsmen and send your orders early in the season.

COMPOST HEAPS will need turning over this month to make the manure fine for spring planting. This is an important part of the preparation for spring work, for fine manure is not only much easier to spread evenly and to mix thoroughly with the soil, but it is necessary to have it fine in order to grow good, smooth crops of roots, especially of radishes, carrots and parsnips ; moreover fine manure is much more quickly assimilated by plants than the coarse article, and where rapid growth is an object, and it is an important object in gardening, the fine compost is worth much more ; in fact there is no point where the skill of a good gardener is more conspicuous than in the proper preparation of his compost heaps ; it frequently makes all the difference between early and late crops to have the manure thoroughly prepared.

Protecting Vines and Early Vegetables.

The French make much use and find great profit in attempting to protect their spring plants from early frosts. Not only young and tender vegetables, but fruit trees are protected, and schemes and devices for the work are numerous. The very fact of the attention which seems to be given to plants of this character, is an evidence of how useful they are regarded. We have not done much in this way, and yet it ought to pay very well and in many cases it ought to prove among the most profitable practices. Late spring frosts are common occurrences, and plants are destroyed by them. If a few in a district save theirs, they come earlier than other people's, and of course to a greater profit.

In France the most popular plant protectors seem to be common drain-tiles ; at least, tiles made of the same materia, though rather wider than drain-tiles in ordinary use. They stay erect when placed over the plants better than the ordinary narrow ones. These are then placed over the plants at the prospect of a cold night, and are said to be very effective.

Even grape-vines are protected by the tiles. These often suffer both in this country and in Europe, by early frosts destroying the first leaves and young bunches of flowers. To protect them horse-shoe tile—tile open at the bottom—are employed. The branches are bent to the ground and the tile put over them. In this way the protection is perfect ; and really the late frost becomes a blessing to that man, for there are always some too lazy or unenterprising to cover their vines and they lose, making it all the better for those who have saved some to sell.

The cost of these tiles does not seem to be great. It is said that to a vineyardist who always protects, or rather has the tiles always ready to protect his vines, that it will cost about $10 an acre. It has been found that with our improved machinery we can make tile as cheap as Europeans can ; and if good, large protecting tiles could be made here, it surely would be worth the while of many vegetable and fruit growers to have them on hand. Many vegetables which we may have to wait some weeks for before we get good weather, might be set earlier and protected, the product coming in much sooner in consequence. This matter of early protection is worth considering, if it can be done as cheaply with these tiles here as abroad.

A strip of land bordering on the Mediterranean, about one hundred miles long and five or six wide, is the raisin producing territory of Spain. The Muscatel grapes are carefully cut in August, laid on a sort of bed made of fine pebbles, and dried, being turned often till they are sufficiently cured. Then they are taken to the wine presses, where after being laid in trays, they are subjected to heavy pressure, when they are ready for market.

The Gardener's Monthly calls attention to the recently demonstrated fact that a dead branch on a tree makes almost as great a strain on the main plant for moisture as does a living one. It is one of the most important discoveries of modern botanical sciences to the practical horticulturist, as by this knowledge he can save many a valuable tree. When one has been transplanted some roots get injured, and the supply of moisture in the best cases is more or less deficient. Any dead branch or any weak one, should therefore be at once cut away.

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. 3. Do not expect anonymous communications to be noticed. 4. Mark letters "Printers Manuscript," leave open, and postage will be only 1c. per ½ ounce. We do not hold ourselves responsible for the views of correspondents.

AL NOTICE.—We receive numerous communications to which no names are attached, and asking for very lengthy and full information without enclosing stamps for reply. We require that the name of the subscriber should be signed, not necessarily for publication, but as a guarantee of good faith. Letters sent without conforming to the above, find their way into the waste paper basket.

SIR,—I am much pleased with the useful and entertaining matter your paper affords; it is a good companion to our Agricultural Gazette (England.) Farmers should read more. Silent friends are frequently of greater service than a host of gabble. Prosperity to yourself and journal.

Surrey, Eng. Yours truly, R. T. S.

STABLE PAVEMENT.

SIR,—Please inform me how to pave a horse stable with cedar block? What length should the blocks be cut? Can the blocks be put in all sizes without being squared up?

W. F. Hatchley, Ont.

[The length of blocks is eight or ten inches, and should be stood in as solid a bed as you can afford to make; salt is good, also cement. They are placed in position as cut—*not squared.*]

SIR,—I intend going into small fruit. I would like to get the names of the best varieties of fruit and the hardiest kind. The best in strawberries, raspberries, black-caps, goosberries, currants, grapes and apples, two kinds of harvest apples, and you will oblige me by letting me know through your paper. A. R. Trafalgar, Ont.

[We would respectfully refer you to Mr. J. Ross, Leicester, Ont.]

SIR,—I think that Prickley Comfrey is a poor article. I got $3 worth of it and I trenched it as the agent said. I set it out next spring, but it made no growth hardly last summer. I do not think it worth 3 cents. W. W., Ranelagh, Ont.

QUICK CHURNING.

SIR,—Your paper with my article inserted on "What I Know About Churning," came to hand a few days ago, and I wish to correct one or two mistakes. The milk as stated being churned right from the cream in 40 minutes, should read 47 seconds; and the cow at Pine Bluff that required 90 degrees to make butter was the exception, not the rule. As a rule, cows in this climate require the same degrees of temperature as up north, but there are freaks of nature sometimes that we cannot account for. I will mention a cow at Depier, Wisconsin, that was an extraordinary milker, but was never known to produce either cream or batter. I battled away on her milk for half an hour with no effect, when with other cows four minutes was the extreme limit. I still hold to the time of ten minutes for the average with the old dasher, provided they pay attention to the temperature test with a thermometer, not with their fingers, and churn milk instead of thick cream, and don't fill the churn more than half full so as to give a chance to work the dasher freely without causing the milk to overflow the churn.

G. C. H., Little Rock, Arkansas.

[We publish the above corrections, though we doubt if butter can be produced in the time mentioned.]

SHEEP FOR MUSKOKA.

SIR,—What breed of sheep would be suitable for Muskoka? R. H. M., Monsell, P. O.

[Try some of the Downs.]

SIR,—My experience in green manuring:—Three years ago I drew part of my manure out and put it up in large heaps to heat and rot. I got thinking about the time and trouble of hauling and making heaps, and I came to the conclusion of spreading it on the fall plowing as I made it, or as quick as I had a half day's or a day's hauling, as I had time. I got about 2½ acres manured, spreading the manure right off the sleigh as I went along. Then when the ground was fit, I took my gang-plow, turned it under about three inches, and sowed it to barley and had a good crop. The rest of the field I sowed to peas; then in the fall I plowed the field for wheat. I manured the pea ground with the manure I piled in the yard before I sowed the wheat, and gang-plowed it in the same as I did the green manure. Now for the result:—The wheat on the barley ground was a quarter heavier than on the pea ground. I forgot to state that I seeded it to clover; the clover was fully the best on the green manure. Since then I have been hauling out every year with good results, spreading off the sleigh. I use an old fashioned long sleigh, steel shod, and I find it very handy. I hope you will publish this, and let us hear from brother farmers.

WM. MCK., Braemar P. O., Ont.

THOUGHTS ON MORE ATTENTION TO BETTER CULTIVATION.

SIR,—The efforts of the FARMER'S ADVOCATE are in the right direction. It must be conceded that the agricultural interest is the great, the predominant interest of the Dominion—of the world. Yet few occupations seem to be more overlooked or looked down upon by men in other callings. You seem like a lonely pioneer in a vast and important field where industry, aided by science and capital, has ample room to achieve grand results. It may be safe to assert that agriculture, as a science, is yet in its infancy. Men in other callings, commonly supposed to be higher ones, rightly have their various organizations to protect their interests and to extend their knowledge. But what have the farmers to show in this direction? True, they sometimes have their agricultural societies and their exhibitions, but those alone can never educate the farmer up to his true position. Mechanics must "serve their time," and professionals must master the principles of their various callings by a course of severe study and drill, if they would succeed; but the farmer, with little or no education, and no training but what he got from men who knew as little as himself, is expected to prosper! It is time that notion was exploded. No other occupation doubtless requires such an amount and variety of knowledge as the farmer's. The soil, with its simple elements, but almost infinite variety of proportions and conditions, is nature's great laboratory in which is worked up the foulest material into the finest products of garden, orchard and field. The farmer should be nature's chemist. His knowledge should be as extensive and varied as the materials he manipulates. But the chemistry of the field is doubtless a different thing from that of the schools. In other directions one science, with its necessary adjuncts, is generally enough for one man; but a number of sciences meet in agriculture, and no one mind, no matter what its powers, should be expected to master them all. Nor is it necessary. Any department of agriculture may furnish full employment for the highest order of mind. To illustrate this idea, let us take a single plant, wheat, for instance, and inquire into its constitution and capabilities. But who can answer a tithe of the questions that present themselves? We are told it was originally a species of eastern weed or grass, but developed by culture up to its present great value. It will now grow all the way from nothing to over fifty bushels per acre, according to its opportunity. But who can say that its limit of development, either in quantity or quality, is yet reached? Perfection of development can come only from a perfect adaptation of its food and treatment to the constitution of the plant. We cannot, however, in view of our hitherto limited knowledge on this line, suppose that this has ever yet been done, and we therefore incline to the belief that the wheat plant is still capable of a much better development. These remarks apply to all our cultivated plants, as well as to the wheat. Here, then, in a single department is a vast field waiting to abundantly reward the labors of the scientific farmer of the future. It is quite possible that many of our weeds and grasses might, by skillful culture, be developed into valuable products. They are clearly the production of Divine skill and wisdom, and must serve, or be capable of serving, wise purposes in the economy of nature. A perfect crop requires not only perfect seed, but a soil containing all and enough of the elements the crop feeds on, together with a proper pulverization, dryness and cleanness of soil to permit the crop to perfect itself. But the full supply of plant food brings on the subject of manures, for whatever supplies to the soil a deficiency of any element the plant feeds on, is a manure for that soil and plant. J. B., Athol, N. S.

BUDDING CHERRIES.

I would like to know which way is best to graft cherries, crown, cleft or splice. I have grafted them on crown (on large seven or eight years wild cherries), but they all missed. I would also like to know where to get the most reliable garden seeds. Sometimes we get old laid over seeds from year to year, when we buy them from town and village store-keepers. I believe I got such last season, for lots of them did not grow.

Yours truly, M. P. C., Walkerton, Ont.

[Cherries are budded not grafted. Get your garden seeds from a reliable seed store. They who advertise in the F. ADVOCATE are reliable.]

SIR,—Could you give me any information regarding French Spring Wheat; please reply in your next. I consider the FARMER'S ADVOCATE indispensable in every farmer's household.

J. S., Manchester, Ont.

[If you refer to the black bearded wheat, we have seen it growing but have heard no favorable reports of it.]

USE OF MANURE.

SIR,—I have a quantity of manure of this winter's make which I wish to put on corn and potato ground about the 15th May. It has a good deal of unrotted straw amongst it, which I used as an absorbent and for bedding the cows. The manure is in the open air. Would it be of any advantage to fork it over a month or so before drawing out? and would it be better to plow the manure under and spread it evenly and thoroughly? Is horse or cow manure best for corn?

R. W., Springbrook, Ont.

[Horse manure is the best. Horse and cow manure do well compacted together. The principal benefit from forking over the manure would be the killing the seeds of weeds.]

SIR,—Let me know through the ADVOCATE if the President or Vice-President of the agricultural society is eligible for the office of treasurer, as there is a dispute in our society on that head?

R. A. J., Algoma, Ont.

[The President or Vice-President is not eligible for the office of Treasurer. The Secretary and Treasurer may be combined in one individual.]

A GOOD YIELD.

SIR,—I beg to inform you that the wheat that I got from the Canadian Agricultural Emporium, when I left the Dominion, did very well; also the St. Patrick potatoes, from three pounds of seed I got nearly four bushels of fine potatoes. I like the country very well; it is well adapted for stock, oats, corn, flax and roots, and vegetables of all kinds, also small fruits.

W. N., Garner, Iowa, U. S.

"Subscriber," of Dominion City, Man., is respectfully referred to J. W. Mann & Co., Brockville, Ont., or to J. O. Wisner, Brantford, Ont., for their catalogues.

A PRIZE.

SIR,—The pound of Beauty of Hebron you sent me last spring turned out a strong bushel and a half. I put them in a box and sprinkled a pint of lime on them; they are keeping splendidly.

Yours truly, M. A., Amherst Point, N. S.

[Who would not endeavor to win an ADVOCATE prize? The above is conclusive.]

SIR,—I hired a man for seven or eight months; if he goes away in or about the fifth month, can I hold his boxes until he puts in his time? W. T. C.

[Do not think of holding your laborers' boxes. You can retain wages if any be due him, or you can sue him.]

SHORT-HORN REGISTRATION.

SIR,—Thanks for publishing my questions on pedigrees. I hardly expected that you would answer them, as I might appropriately have asked the Revisory Committee of the new herd book to decide upon them, but they probably would have been returned marked "Not up to standard." I suppose that I may interpret your silence by the old adage, *i. e.*, it gives consent that they are all imperfect. In your remarks on "Agricultural Expenditure," you say "'Fair Play' would not have caused such loss to the farmers by the vacillating management of the herdbook." I asked the question relating to the increased value of each cross from four to six, with a view of ascertaining the pedigree value of all this class that they resolved to exclude from future registration. A friend has kindly furnished me with catalogues of public sales of an eminent breeder for the years 1872, 1873 and 1874, at which a number of this class were sold in connection with others with pedigrees tracing to importations and the price of each animal is marked. In 1872 there were five sold, of from three to four crosses, at an average of $115; in 1873 ten, at an average of $163, and in 1874 twenty-two cows and heifers, some with six crosses, that averaged $183. The lowest price, a four cross, at $100, and the highest, $245, for a two-year-old heifer with five crosses. These sales show an increased value in pedigree of $20 in each cross. At the discussion by the Board of Agriculture it was stated that 4,000 grades were registered in the 5th volume, and 3,200 would be excluded by this rule, leaving 800 with seven crosses. The Board have recorded pedigrees sufficient in number to complete the 6th volume, and we may safely conclude that 4,000 of six crosses and less will be excluded, leaving 1,000 with seven crosses. Now I would ask the breeders of this class of Short-horns if they are going to submit to this exclusion without protesting strongly against it? If I were a breeder of this class to be excluded, I should consider it one of the grossest acts of injustice. The Board have received, as fees for registry, at least two thousand dollars, and the breeders are defrauded of this amount, but it is small in comparison with the pedigree value, which it will destroy. If I am correct in my estimated value of each cross at $20, it will destroy pedigree value of $60 on each animal, and on the four thousand it will amount to the sum of $240,000. Not having experience in breeding Short-horns, I may have placed too high or too low a pedigree value. I will, with pleasure, be corrected by any breeder of this class of Short-horns. No doubt the first Board of Agriculture adopted the system of registering from crosses, as being based on the most intelligent understanding of public policy, they considered the practice of keeping written pedigrees, and their public registration would have a marked influence in stimulating improvement with care and management of stock, and it was obviously important that as large a proportion of breeders as possible should be encouraged to record their pedigrees; but the present board has destroyed their interest and blasted the expectations of this class of breeders. Will the owners of the seven crosses and those that can register in the new H. B. be benefited by compelling those that wish to purchase pedigreed Short-horns to resort to their herds. Above all, will it not be a detriment to the great majority of farmers in Canada, who are at present availing themselves of this class of animals to feed for the British market. It is very evident that the present Board of Agriculture does not possess the capacity to deal with the important agricultural interest entrusted to them, for some of the cities will not allow them to hold their annual exhibition in them, and the most eminent of Short-horn breeders have withdrawn their patronage from their Herd Book. I would suggest that the Board reconsider their proceedings at the last meeting, and publish the fifth and sixth volumes by registering all animals that the owners have paid fees for. If they then consider that their dignity will be affected by keeping a registry for imperfect pedigrees, let them give up the registry to Short-horn breeders to manage as they deem best for their interest. From the proceedings that have taken place by those Short-horn breeders that considered that their interest is damaged by associating their herds with a class of grades and imperfect pedigrees, it has become impossible to register in Canada without two herd books. This difficulty must be dealt with by breeders themselves. Short-horn breeders will expect the Revising Committee of the new herd book to give a pure, reliable and accurate registry. Let there be no seventeen importations; none ending in the American woods; none where three of the cows have dropped into darkness and a convenient imported pedigree attached; none with a stigma of an asterisk, and continued to the third or fourth generation; no Canada grades even if they have seven crosses. Let them take for their motto, "Hew to the line, let the chips fall where they may." See to it that every animal they register has its ancestors registered in the English herd book—the home of the Short-horns. Then if a farmer wishes to engage in breeding pure Short-horns, and is unacquainted with pedigrees, he may rely upon the book.

MECHI, Falkland, Ont.

HOW TO RAISE POTATOES.

SIR—Having been asked by your agent to contribute an article on raising potatoes, I will do so in as few words as possible. First, have good dry soil; second, good seed of some of the newer varieties, as the older varieties keep running out, then put all the manure you can afford on the land, say fifty loads to the acre; if sod or stubble, plow four inches deep early in May, planting every fourth furrow the setts 12 to 14 inches apart, then harrow thoroughly till the plants are above the ground, then cultivate with horse hoe every week till the tubers are as large as hens' eggs, keep the bugs off by dusting with 100 parts of plaster and one paris green thoroughly mixed; pull out all the weeds as they appear, and you will succeed sure.

SUBSCRIBER, Oxford.

SIR,—I wish that some of your correspondents would tell us how best to raise calves without new milk. I see in the January ADVOCATE that a prominent member of the Markham Farmers' Club, says he raised a calf and made it fit for the butcher at a large price, on dishwater. Will that gentleman kindly give us the particulars, as, if it can be done, it would be a boon to us who send our milk to the cheese factory.

DAIRYMAN, Ingersoll, Ont.

CONTAGIOUS DISEASES.

SIR,—The above is a subject in which I have taken a considerable interest, and I have noticed with pleasure the closeness with which you have been watching the agricultural interests of this country. There is on the part of the U. S. authorities a disposition and tendency to deny the existence of contagious diseases in their country, but in such cases their statements have been shown to be unreliable and untrustworthy. I do not consider anything is gained by concealment or prevarication of the truth, and such a course must result in more damage to the farming interests than the full, accurate announcement of the existence of the disease, and the prompt establishment of measures for its eradication. The *Hamilton Times*, speaking of the importation of cattle for breeding purposes into Canada from the U. S. and the recent order in council relating thereto, says: "Of course the imported stock will be examined by a qualified inspector at the frontier, and every precaution taken to protect the Dominion against the importation of diseased animals." Quoting which, the *Michigan Farmer* in retaliation replies: "In not a single instance can the Canadian authorities point to a diseased animal having been imported from this country into the Provinces. There has never been even a complaint of such a thing. But we know, and know it for an indisputable fact, that in more than one instance breeders in the States have suffered severely from importing breeding animals from that country. We also know that at least one large herd of cattle there is in a diseased condition, and that the only safe thing our breeders can do is to keep entirely away from the Provinces until the disease is rooted out. We can furnish ocular demonstration of the truth of this assertion. What our Government should do is to at once institute quarantine regulations on this side of the line, and protect American breeders from contagious diseases which have already cost this State a good many dollars."

What I would like to know is whether the above statements of the *Michigan Farmer* are correct. I have been informed by reliable parties, though I did not ascertain the particulars, that diseased cattle have been imported into Canada from the United States, and that the cold weather was the effective means in those cases for the prevention of the spread of the diseases. The *Farmer* makes the serious charge that there is at present one large herd in Canada in a diseased condition; will it please particularize? Who is responsible in Canada for this? If there is disease in Canada as stated, let us have the facts. I am imformed through secondary sources that anthrax exists in Nova Scotia. The subject needs, and must have, thorough ventilation; these matters should not be kept in the dark to suit the views and objects of speculators and others interested more in personal gains than in the public agricultural interests. Prof. Law, a member of the U. S. Commission on the cattle plague, says "the area of the disease is confined to the country between Putnam county, N. Y. and the district of Columbia, including New York city, Philadelphia and Baltimore. *The disease is sometimes carried west by calves bought in the east, but it is always promptly checked.*" I would draw attention to the words I have italicised. The Canadian government before passing the order in council permitting the importation of American cattle subject to a ninety days quarantine, were in a somewhat anomalous position, as they permitted English and European cattle to be imported, subject to a ninety days quarantine, while that of American cattle was entirely prohibited; how could this be justified? I do not see the consistency of this fermer position held by our government, except the means taken for the stamping out of the disease in Britain and Europe are much more effectual than those taken in the United States; one thing, at least, is certain, no denial of the existence of the disease is ever made, as in in the United States, and a district is at once "proclaimed" or "prohibited," and the infected cattle at once killed.

I have jotted down these few notes on the subject with the desire of ascertaining the following points: Have infected cattle been imported into Canada from the United States? Does it, as stated by the *Michigan Farmer*, exist at present? Is it to be found in the Maritime Provinces, in one or another of them? Is not the quantity and quality of high bred stock in Canada at present sufficient to properly supply the demand? Let the subject be thoroughly ventilated.

S.

SIR,—I have an ox that has a rash; it comes out in a rash and then gets sore. I will be greatly obliged if you will tell me what it is and a cure for it in your next number.

H. C., Baker's Settlement, Lunenburg Co.

[Wash the part well with castile soap and warm water, and dress the part every second day with corrosive sublimate, one dram; alcohol, four ounces. This will be applied with a feather or small brush.]

SIR,—I would like if you would let me know through your paper, what to do for a mare when her milk has left her bag and gone up along her belly; there has been a lump there all summer and she has lost her colt by it. Will she be any more use to raise colts? SUBSCRIBER, Riverbank, Ont.

[Give her a purgative drench once every two weeks; and it would be well to give nitrate of potash in dram doses every night. Have the swelling fomented well every day with hot water, and dress it afterwards with some sharp stimulating liniment.]

SIR,—Please let me know what Orchard Grass is, as I think I have never seen it.

T. M. C., Williamston, Carleton Co., N.B.

[In our March number, 1875, we gave a cut and particulars relating to Orchard Grass. It grows well in the shade, should be cut before it is ripe and should be cropped closely. It grows in stools or tussocks and furnishes several crops throughout the season.]

SIR,—I have a horse which is troubled with itching all over; he bites the hair of his ribs and back; there is no sore to be seen; he is worse in winter than in summer; he has had it now two years; he appears well enough. What can I do for him?

T. R. M. Bridgenorth, Ont.

[Give a dose of purgative medicine made as follows: Barbadoes aloes, 6 drams; carbonate soda, 2 drams; ginger, 1 dram; water, 1 pint. This you might repeat once every two or three weeks. Give a powder every night of suphur, 2 drams; nitrate potash, 1 dram; in soft feed. Curry the animal well with a sharp curry comb every day, and apply the following mixture twice a week after a brisk rubbing with a sharp curry comb—carbolic acid, one part; water sixteen parts, to be applied with sponge.]

GOOD SEEDS.

SIR,—I would like to set you right on the Pea question—Day's Early Sunrise is not a first early variety in this locality; nor, as far as I can learn, on this side of the water. It is as good as Champion of England, but not any better, nor does it bear any more freely. Telephone is the largest wrinkled Pea I have seen. The best early Pea, and the earliest, is Bliss' American Wonder; and is a credit to a Canadian horticulturist—L. B Arnold, of Paris—to have invented it. Its very dwarf habit, and its wonderful productiveness, will cause it to take the place of the Little Gem, as soon as it becomes cheap enough to get into general cultivation. It can be planted in rows a foot apart, dropping the seed like beans, which is better than thick sowing. Tomatoes can be planted every fifth row and trained on trellises, and when the pea vines are pulled, celery can be planted; thus getting three crops on the same ground. Bay View is a splendid Musk Melon—as good as Montreal Green, but a little larger and different shape. The finest Lettuce, new or old, is, in my opinion, Bruce's Gardener's Favorite; no one who has grown it will have any other. White Elephant Potato I found last year to be unusually prolific and very large tubers. It ought to become a standard variety. C. W. Y., Stratford, Ont

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SIR,—I wish when you get on the wing, you would wing your flight as far as British Columbia, so that we could get your opinion of Spillamacheen.
C. A., Okanagon P. O., British Columbia, Feb. 1st, 1882.

[We are in receipt of kind invitations from friends of the ADVOCATE requesting our presence in British Columbia, Nova Scotia, New Brunswick, Manitoba and Quebec, and from nearly every county in Ontario. We sincerely thank you for such marked appreciation; we feel honored and should feel great pleasure in being able to comply. We wish to return our sincere thanks to all that have invited us, and particularly to those whose hospitality we have already partaken of, for, in every instance where we have responded to the invitations, we have had every attention and kindness shown to us and really enjoyed our trips. But time is, or ought to be, equal to money, and those long journeys cost a good deal of both time and money. We purpose, if all is well, to take a few trips this year, but we have not yet decided to which part we shall go; it will be to the points that duty and business may happen to call us.]

SIR,—Are there any good ditching machines which you can recommend; if so, would you kindly give me the address of a good reliable farmer, who has given it a good honest trial, and what is the price of such a one. I have seen several, and none are satisfactory to my mind. I have about 40 acres of land which want ditching badly, and I want to do it as cheaply as possible. I am not a practical farmer myself, and would be pleased to receive any instructions, and pay for the same, from a friend or practical farmer.
G. Z. P., St. John, N. B.

[We have seen four kinds, but none have, up to the present time, proved satisfactory. Many improvements are yet required to lessen the cost and adapt them to anything like ordinary use. Further enquiries will be made and reported as to the Carter-Rennie ditcher mentioned in Oct. No. 1881.]

SIR.—In regard to breeds of sheep, if there was a step taken, same as registering shorthorns, it would be much the better. In show fairs, Leicesters, Lincolns and Cotswolds, all come from one flock. If Leicesters should have top nots on shave them off; but as you cannot put them on, take them in Lincoln class, and out of 25 lambs, surely there will be 3 or 4 Cotswold lambs. I would put them in that class. It has been done in township shows, county shows and other great shows. I have been a breeder of sheep over 20 years myself.
G. G., Florence P.O., Ont.

KEEPING PAINTS.

SIR,—Can you inform me if there is a good reliable paint or coating of any kind that will cover and preserve a roof of either tin or wood and prevent leakage? QUERIST, Wilton Grove, Ont.

[We are not prepared to recommend any that we have ever tried. If any one who has had satisfactory experience with any to stop leakage we should be pleased to hear from them.]

SIR,—What would be good to give a stallion to make him fierce for mares? He is three years old I only got him to serve two last year, and they are with foal I tried him to ten others, but he would not get ready. He is fat. Please let me know through your paper. SUBSCRIBER, Bath, Ont.

[You will commence by removing a part of the superfluous fat. Work him or drive him, and do not feed him so well, until you have made him quite thin in flesh. Give him a purgative ball once every couple of weeks. When you commence to fit him again for the season, you will feed him some boiled barley, or what is better, give him a little malt in his feed; this you can get from the brewery.]

SIR,—I have two fall pigs that are crippled in their legs. What will cure them?
Yours truly, R. M., Odessa, Ont.

[Give a dose of purgative medicine. The following you will find to answer well: Epsom salts, from 2 to 4 ounces; calomel, 2 to 10 grains; ginger, 2 drams; dissolved in a little water, and give as a drench. See they get plenty of sulphur in their feed. Keep them in a comfortable and well ventilated place, allowing them plenty of exercise. The strictest cleanliness should always be observed.

Mr. Weld,—Sir,—Inclosed please find my subscription for another year. I thank you for sending the paper right along, as I am well pleased with it and consider I never get better value for my money. H. P. JEFFREY, Blythewood.

A correspondent sends the following. Can anyone suggest a better plan? "Which is the best way to exterminate wild oats? I have been trying to kill them, but they beat me so far. The nearest I have come is to plow the ground in the fall; harrow good in the spring, and give them a chance to grow a few inches, then plow them under. Harrow again and let them come up again a few inches; plow them under again, and let them lie till they rot. That will be two batches killed. Then about the 20th of June sow about ½ bushel of buckwheat to the acre. If that comes up well there will not be many wild oats to be seen."

SIR,—In your February issue, I noticed an article in direct opposition to what I have been daily taught; namely—that dairy farming tends to enrich and restore land from an impoverished condition, without the application of any other manure than that made by the cows. This, if any dependence can be placed on science, cannot be correct; as those elements sold in the milk, butter, or cheese, as the case may be, taken from the soil, cannot possibly be left in the manure to be again returned to the soil. I can quite understand that dairy farms in the vicinity of large cities, are, as a rule, rich in all those elements necessary for plant food; but, I think your correspondent will find that the owners of those farms purchase large quantities of grain and other food which they convert into milk at a profit, and consequently increase the quantity of their manure, quite as much, or perhaps more than it is diminished, by the products sold; or they enrich their land by procuring manure, which is easily obtained in such localities. Johnston's Elements of Agricultural Chemistry and Geology state that every ten gallons of milk contains three and one-half ounces of phosphate of lime, and therefore, if a cow yields annually seven hundred and fifty gallons of milk, she takes forty pounds of common bone dust and converts it into milk. This is taken directly from the soil and the ability of the soil to produce the same returns, as before is diminished by the forty pounds previously disposed of. The writer admits that science is correct, in asserting that selling milk carries away much mineral matter, but denies that the soil is impoverished thereby. He gave no theory for his assertion, and I must confess that I am at a loss to know upon what ground he could possibly base it If the soil improves, there must be a reason, either from direct application of matter required for plant food, or by improving its mechanical properties Dairy farming cannot claim to do this, as it involves none of those principles upon which mechanical improvements are based. Had your correspondent compared dairy farming with grain raising, I would quite understand his position and would acquiesce in his conclusion Until I am convinced of the truth of his article, I shall follow what appears to me the safest course, namely, return to the soil, as nearly as possible, an equivalent of what has been taken from it.

H. C. W., Richmond, Que.

EWES IN PAIRS AGAIN.

SIR,—As Mr. Snell again asks, "why are ewes shown in pairs?" I would just say that it is because most people think it is the proper way to show them; but as I am not a large breeded when compared with such men as Mr. Snell, or the prominent exhibitor that he refers to, as my flock of breeding ewes seldom exceed thirty or forty, he cannot fairly charge me with the selfish motive of his prominent exhibitor, and, rather than be thought advocating any system of exhibiting, in any department of our exhibitions that would be against the interest of our "Mildmay Amateur," or any small exhibitor, I would say show ewes singly, but for the above reason only. I think some of Mr. Snell's arguments are rather weak, for instance in regard to his American customers—certainly showing in pairs does not debar him from selling to them singly or any way they choose to deal. Again, as to the best ewe in the show appearing in a second or third prize, I contend that there are very few men but know better than to mate such a ewe in that way. Again, he alludes to time honored customs interfering with progress and improvement. I fail to see where the improvement comes in by taking lessons from our "American Cousins," who are admitted to be behind us in both breeding and exhibiting stock. And, now Sir, one word to the "Mildmay "Amateur," who asks if I ever saw two ewes that were equal in size and quality? I say no, but I have often seen them near enough alike to prevent the best ewe in the yard from being humiliated by accepting a second or third prize. There are not many farmers for a good many miles around Mildmay who, when they had secured one such, would be satisfied with any thing less than a pair of ewes, and which they would like to exhibit as a pair. R. R., Springhill Farm, Walkerton.

Farming for Boys.

BY THE AUTHOR OF "TEN ACRES ENOUGH."

CHAPTER III.

A POOR DINNER—WHAT SURFACE DRAINAGE MEANS—THE VALUE OF DRAINAGE—THE YOUNG PEDLAR.

As might be expected, the party thus invited to dinner had anything but a hospitable time of it. In a general way, the boys received pretty fair treatment from Mrs. Spangler; but on that particular occasion they saw that they were called in merely to be fed, and, the feeding over, that it would be most agreeable to her if they would thereupon clear out. Things had gone wrong with her on that unfortunate day, and they must bear the brunt of it. The good man of the house was absent at the neighboring tavern, it being one of his rainy days; hence the wife had all the remaining household at her mercy, and, being mostly an uncomplaining set, she could serve them with impunity just as the humor of the moment made it most convenient. The dinner was therefore nothing to speak of, and was quite unworthy of the great noise which the tin horn had made in calling them to it. There was a bit of boiled salt pork, almost too fat to eat, with potatoes and turnips, while the dessert consisted of pumpkin-sauce, which the dinner party might spread upon bread, if they thought proper.

Uncle Benny devoured his share of this rainy-day repast in silence, but inwardly concluded that it was next of kin to the meanest dinner he had ever eaten, for he was too well-bred to take open exception to it. As boys, especially farmers' boys, are not epicures, and are generally born with appetites so hearty that nothing comes amiss, Joe and Tony managed to find enough, and were by no means critical,—quality was not so important a matter as quantity. It is true there was a sort of subdued mutiny against the unseasoned pumpkin-sauce, which was a new article on Farmer Spangler's table, that showed itself in a general hesitancy even to taste it, and in a good long smell or two before a mouthful was ventured on; which, being observed by Mrs. Spangler, she did unbend sufficiently to say that she intended to give them pumpkin-pies, but an accident to her lard had interrupted her plans, so she gave them the best she had, and promised the pies for next day.

As Uncle Benny and the boys all knew that they had been called in merely to eat, and not to lounge about the stove, and were therefore expected to depart as soon as they had dined, when the scanty meal was over, they stepped out on the way to their wonted rendezvous, the barn. The rain had ceased, and there were signs of a clearing up.

When the party got fairly in among these puddles, the old man stopped, and told the boys he would teach them something worth knowing. Bidding Joe bring him a spade and hoe, he led the boys to a small puddle which lay lower on the sloping ground than any other, and in a few minutes opened a trench or gutter leading from it to an adjoining lowland. The water immediatlely flowed away from the puddle through the gutter, until it fell to the level of the latter. He then deepened the gutter, and more water was discharged, and repeated the operation until the puddle was quite empty.

He then directed Joe to open a gutter between the puddle thus emptied and a larger one close by, then to connect a third with the second, until, by means of hoe and spade, he had the whole series of puddles communicating with each other, those on the higher ground of course discharging their contents into that first emptied, as it lay lower than the others. When the work was completed, there was a lively rush of water down, through the gutter first cut, into the meadow.

"Now, boys," said Uncle Benny, "this is what is called drainage,—surface drainage,—the making of water move off from a spot were it is a nuisance, thus converting a wet place into a dry one. You see how useful it is on this little piece of ground, because in a few days the bottom of these ponds will become so dry that you can walk over them, instead of having to go round them; and if Mr. Spangler would only have them filled up, and make the whole surface level, the water would run off of itself, and all these gutters could be filled up, leaving the yard dry and firm. These gutters are called open or surface drains, because they are open at the top; but when you make a channel deep enough to put in a wooden trunk, or brush, or stones, or a line of tiles, for the water to flow through, and then cover up the whole so that one can walk or drive over it, it is called an under-drain, because it is under the surface of the ground."

"But does draining do any good?" inquired Joe.

"Why," replied Uncle Benny, "it is impossible to farm profitably without drainage of some kind; and the more throughly the land is drained of its superfluous water, the surer and better will be the crops. I suppose that not one of you likes to have wet feet. Well, it is the same thing with the roots and grains and grasses that farmers cultivate,—they don't like wet feet. You know the corn didn't grow at all in that low place in our cornfield this season; that was because the water stood there from one rain to another,—the corn had too much of it. You also saw how few and small were the potatoes in that part of the patch that runs close down to the swamp. Water is indispensable to the growth of plants, but none will bear an excessive supply, except those that grow in swamps and low places only. Many of these even can be killed by keeping the swamp flooded for a few weeks; though they can bear a great deal, yet it is possible to give even them too much. Our farms, even on the uplands, abound in low places, which catch and hold too much of the heavy rains for the health of the plants we cultivate. The surplus must be got rid of, and there is no other way to do that than by ditching and draining. Under-draining is always the best. Let a plant have as much water as it needs, and it will grow to profit; but give it too much, and it will grow up weak and spindling You saw that in our cornfield. There are some plants, as I said before, that grow only in wet places; but you must know that such are seldom useful to us as food either for man or beast. Nobody goes harvesting after spatter-docks or cat-tail. This farm is full of low, wet places, which could be drained for a very little money, and the profits from one or two crops from the reclaimed land would pay back the whole expenses. Indeed, there is hardly one farm in a thousand that would not be greatly benefited by being thoroughly underdrained. But as these puddles are nearly empty, come over to the barn-yard,—they will be dry enough to-morrow."

Uncle Benny led the way into a great enclosure that was quite full of manure. It lay on a piece of sloping ground adjoining the public road, in full view of every person who might happen to drive by. It was not an agreeable sight to look at, even on a bright summer day; and just now, when a heavy rain had fallen, it was particularly unpleasant. In addition to the rain, it had received a copious supply of water from the roofs of all the barns and sheds that surrounded it. Not one of them was furnished with a gutter to catch and carry off the water to some place ouside the barnyard, but all that fell upon them ran off into the manure. Of course the whole mass was saturated with water. Indeed it was not much better than a great pond, a sort of floating bog, yet not great enough to retain the volume of water thus conducted into it from the overhanging roofs. There was not a dry spot for the cows to stand upon, and the place had been in this disagreeable condition so long that both boys and men went into it as seldom as possible. If the cows and pigs had had the same liberty of choice, it is probable they too would have given it as wide a berth.

The old man took them to a spot just outside the fence, where a deep gutter leading from the barnyard into the public road was pouring forth into the latter a large stream of black liquor. As he pointed down the road, the boys could not see the termination of this black fluid, it reached so far from where they stood. It had been thus flowing, night and day, as long as the water collected in the barn-yard. The boys had never noticed any but the disagreeable part of the thing, as no one had taken pains to point out to them its economic or wasteful features.

"Now, boys," said Uncle Benny, "there are two kinds of drainage. The first kind, which I have just explained to you, will go far toward making a farmer rich; but this kind, which drains a barnyard into the public road, will send him to the poorhouse. Here is manure wasted as fast as it is made,—thrown away to get rid of it,—and no land is worth farming without plenty of manure."

"But the manure stays in the barn-yard," replied Tony. "It is only the water that runs off."

"Did you ever suck an orange after somebody had squeezed out all the juice?" asked Uncle Benny. "If you did, you must have discovered that he had extracted all that there was in it of any value,—you had a dry pull, Tony. It is exactly so with this barn-yard. Liken it to an orange, though I must admit there is a wide difference in the flavor of the two. Here Mr. Spangler is extracting the juice, throwing it away, and keeping the dry shell and insides for himself. Farmers make manure for the purpose of feeding their plants,—that is, to make them grow. Now, plants don't feed on those piles of straw and cornstalks, that you say remain in the yard, but on the liquor that you see running away from them. That liquor is manure,—it is the very life of the manure heap,—the only shape that the heap can take to make a plant grow. It must ferment and decay and turn to powder, before it can give out its full strength, and will not do so even then, unless water comes down upon it to extract just such juices as you now see running to waste. The rain carries those juices all through the ground were the plant is growing, and its thousands of little rootlets suck up, not the powdered manure, but the liquor saturated with its juices, just as you would suck an orange. They are not able to drink up solid lumps of manure, but only the fluid extracts. Boys, such waste as this will be death to any farm, and your father must make an entire change in this barn-yard. Don't you see how it slopes toward the road, no doubt on purpose to let this liquid manure run off? He must remove it to a piece of level ground, and make the centre of it lower than the sides, so as to save every drop. If he could line the bottom with clay, to prevent loss by soaking into the ground, so much the better If he can't change it, then he should raise a bank here where we stand, and keep the liquor in. Then every roof must have a gutter to catch the rain, and a conductor to carry it clear of the yard. The manure would be worth twice as much if he would pile it up under some kind of cover. Then, too, the yard has been scraped into deep holes, which keep it constantly so wet and miry that no one likes to go into it, and these must be filled up."

"But wouldn't that be a great deal of work?" inquired Tony.

"Now, Tony," replied the old man, "don't expect to get along in this world without work. If you work to advantage, as you would in doing such a job as this, the more you do the better. You have set up to be a farmer, and you should try to be a good one, as I consider a poor farmer no better than a walking scarecrow. No man can be a good one without having things just as I tell you all these about this barn-yard ought to be. Whatever you do, do well. I know it requires more work, but it is the kind of work that pays a profit; and profit is what most men are aiming at. If this were my farm, I would make things look very different, no matter how much work it cost me. 'I can always judge of a man's crops by his barnyard."

"Then I'm afraid this is a poor place to learn farming," said Joe. "Father don't know near as much about doings things as you do, and he never talks to us, and shows us about the farm like you."

"He may know as much as I do, Joe," replied Uncle Benny, "but if he does, he don't put it into practice;—that is the difference between us."

"I begin to think this is a poor place for me, too," added Tony. "I have no friends to teach me, or to help me."

"To help you?" exclaimed the old man, with an emphasis that was quite unusual to him; "you must help *yourself*. You have the same set of faculties as those that have made great men out of boys as humbly born as you, and you will rise or sink in proportion to the energy you exert. We can all succeed if we choose,—there is no fence against fortune."

"What does that mean?" demanded Tony.

"It means that fortune is an open common, with no hedge, or fence, or obstuction to get over in our efforts to reach it, except such as may be set up by our own idleness, or laziness, or want of courage in striving to overcome the disadvantages of our particular position."

While this conversation was going on, the boys had noticed some traveller winding his slow and muddy way up the road toward where they were standing. As he came nearer, they dicovered him to be a small boy, not much larger than either Joe or Tony; and just as Uncle Benny had finished his elucidation of the fence against fortune, the traveller reached the spot where the group were conversing, and with instinctive good sense stepped up out of the mud upon the pile of rails which had served as standing-ground for the others. He was a short, thick-set fellow, warmly clad, of quick movement, keen, intelligent look, and a piercing black eye, having in it all the business fire of a juvenile Shylock. Bidding good afternoon to the group, and scraping from his thick boots as much of the mud as he could, he proceeded to business without further loss of time. Lifting the cover from a basket on his arm, he displayed its flashing contents before the eyes of Joe and Tony, asking them if they din't want a knife, a comb, a toothbrush, a burning-glass, a cake of pomatum, or something else of an almost endless list of articles, which he ran over with a volubility exceeding anything they had ever experienced.

The little fellow was a pedlar.

"What is your name, my lad?" asked Uncle Benny.

"John Hancock, sir," was the reply.

"I have heard that name before," replied Uncle Benny. "You were not at the singing of the Declaration of Independence?"

"No; sir," replied the courageous little fellow, "I wish I had been,—but my name was there."

This was succeeded by quite a colloquy between them, ending with Uncle Benny's purchasing, at a dollar apiece, the coveted knives, and presenting them to the delighted boys. Then, again addressing the pedlar, he inquired, "Why do you follow this business of pedling?"

"Because I make money by it," he quickly replied.

"But have you no friends to help you, and give you employment at home?" continued the old man.

"Got no friends, sir," he responded. "Father and mother both dead, and I had to help myself; so I turned newsboy in the city, and then made money enough to set up in peddling, and now I am making more."

Uncle Benny was convinced that he was talking with a future millionnaire. But while admiring the boy's bravery, his heart overflowed with pity for his loneliness and destitution, and with a yearning anxiety for his welfare. Laying his hand on his shoulder he said: "God bless you and preserve you, my boy! Be industrious as you have been, be sober, honest, and truthful. Fear God above all things, keep his commandments, and, though you have no earthly parent, he will be to you a heavenly one."

The friendless little fellow looked up into the old man's benevolent face with an expression of surprise and sadness,—surprise at the winning kindness of his manner, as if he had seldom met with it from others, and sadness, as if the soft voices of parental love had been recalled to his yet living memory. Then, thanking him with great warmth, he bade the company good by, and, with his basket under his arm, continued his tiresome journey over the muddy highway to the next farm-house.

"There!" said the old man, addressing Tony, "did you hear what he said? 'Father and mother both dead, and I had to help myself!' Why, it is yourelf over again. Take a lesson from the story of that boy, Tony!"

(To be Continued.)

The Family Circle.

"Home, Sweet Home."

Constance Leslie's Bouquet.

CHAPTER II.

Several days had passed; the *tableaux* were in preparation, and the day of the ball was finally settled. The young people had been out skating all the morning; but in the afternoon a thaw having set in, Lady Margaret proposed that they should begin the Christmas decorations. They looked a cheerful, happy party, judging from outward appearances, surrounded by the bright evergreens and scarlet berries, the fire sending a warm glow over the room—Kittie, as usual, flitting about everywhere with a merry repartee and smile for all, good-natured Bee doing the work no one else cared about, and all more or less busy.

Poor Fred Vane was at last desparately in love with Constance Leslie; but he could not understand her—sometimes she would be so kind and friendly, and then again so cold and distant. Lady Olivia told him she was a dreadful flirt, but that he could not believe. To-day especially she had avoided being alone with him, and he was burning with an eager desire to know his fate. It seemed as if Lady Olivia was aware of what he wanted, for she kept him busily employed in waiting upon her, and he could not without being positively rude, leave her side. Once, on looing up he met Constance's eyes looking reproachfully at him, and he started as if he would have gone over to her, but she instantly began talking merrily to Captain Foster, her devoted admirer, but one whom she thoroughly despised.

"Look, Mr. Vane," said Lady Olivia, maliciously; "the Captain's suit seems to prosper, or else, as I told you before, Miss Leslie possesses the art of flirting in no common degree."

Fred experienced a pang of jealousy at hearing the too names mentioned together, and he felt as if he should very much like to take "that coxcomb Foster," as he politely termed him, by the the collar and pitch him out of the window.

"How attentive Mr. Vane is to Olivia!" said Marion Erl to Harry; and Constance, who was sitting near them, could hear every word they uttered. "It would be a good match for your friend as far as money is concerned; but he is worthy of a better fate."

"That he is," agreed Harry, warmly, "for there's not a better fellow living. As for that creature, Lady Olivia, I dislike her immensely—and I am sure the love is all on her side, for Fred told me this morning———"

Here they moved away, and the rest of the sentence was lost to Constance; but, as she glanced across to where the two alluded to were sitting, the thought crossed her the first time, Could he really intend marrying her for her money?—they seemed to be talking together so earnestly. She was aroused from her reverie by Captain Foster exclaiming—

"What is the matter, Miss Leslie?" I have asked you three times if I should get you some more holly-berries for your wreath."

"I really beg your pardon, Captain Foster," said Constance quietly—"yes, you may get me some, please."

"Oh, Miss Leslie," spoke Kittie, coming to where she was sitting, "will you take part in a *tableau vivant*? Please do," she added, seeing Constance hesitate—"We want you so much Don't refuse us."

"I cannot," said Constance, smiling, "when you plead so earnestly. But what have you fixed upon? I have not heard.

"Only four very simple ones," said Kittie—"and thank you for promising to help. The first is to be Flora McIvor—your humble servant," laughed Kittie, bowing—"discovered in the garden singing to her lover, Capt. Waverley—he and the attendants are not fixed upon yet. The second is to represent Marie-Antoinette about to partake of her last supper, while Harry and Lord Alfred Dalton will be the two soldiers playing at cards. *Tableau* number three—The Royal Family imprisoned in the Temple during the Great Revolution—Charles Thorne is to be Louis XVI.; Marion, Marie-Antoinette; Nora, Madame Elizabeth; Bee, the young Princess Therese. And now for the last and what I think," added Kittie, "will be the prettiest. You are to be Amy Robsart during her confinement in Cummor Palace, Mr. Vane will be Wayland disguised as the pedlar displaying his wares to you, and Maud will be Janet Foster."

"'Pon honour," said Captain Foster, who had returned with the berries, "they'll be pretty pictures; deuced shame, though, you don't make me Wayland."

"'Pon honour," thought Kittie, "you are a conceited ape, and Miss Leslie looks bored to death with you.'

So she sent him with a message to Nettie Grey, knowing that she would do her utmost to retain him.

"Anything to get rid of him," said Kittie, laughing—"isn't he a nuisance?"

"He is indeed," answered Constance; "and he seems to think every one is bound to admire him as he does himself. I would rather," thought the young girl, as Kittie moved away, "not be Amy Robsart, especially as they have chosen Mr. Vane as Wayland; but I cannot refuse now they would think it so odd. How foolish I am to care whether he notices me or not!" she reflected bitterly. "At any rate he shall not see what I feel;" and giving her head a little defiant toss, she walked over to where Kittie and Nora were sitting.

"I have finished this wreath," she said, forcing herself to speak cheerfully; "is there anything else I can do?"

"Oh, yes," replied Kittie, "we want——" but stopped on noticing how pale and tired Constance looked. "What is the matter, Miss Leslie?' she asked, considerately.

"My head aches dreadfully," said the young girl, wearily, putting her hand to her forehead.

"I am sorry; you must not work any more, but go and lie down, and I will bring you a cup of tea," proposed the warm-hearted girl.

"Thank you, my dear," said Constance, gratefully; "a few hours' rest will no doubt do me good."

Kittie's eyes followed her to the door. "There's mischief brewing," she remarked, turning to Nora, "and that horrid Olivia Dalton is at the bottom of it," she added, spitefully. "If I do not take care, my romance will be spoilt."

"What do you mean?" questioned Nora.

"I mean," answered Kittie, angrily, "that Fred Vane ought to be ashamed of himself; he is treating Constance Leslie shamefully. He made violent love to her at first, and now all this afternoon he has been flirting outrageously with Olivia Dalton; and that's the fellow who never was spooney in his life! He didn't want much thawing"

"I don't think he cares for lady Olivia one bit," observed Nora.

"Then why does he sit by her side all the afternoon?" asked Kittie, who could not bear that her favorite Constance should be slighted

"I have been watching them," said Nora, "and several times he has tried to get away, but she has detained him; and when Captain Foster was talking to Miss Leslie, I saw Olivia speak to Mr. Vane and glance across at them. He looked so wretched, I felt quite sorry for him. I am sure she is trying to make mischief between them."

"Miss Kittie," said Guy Lynn, joining the two girls, "I want your valuable assistence. Will you come and show me where to hang this wreath?"

"No," replied Kittie; "I can't be bothered," Then, seeing him look hurt, she relented and said she would. "But," she added, "you must promise to follow my advice, even if I tell you to hang the wreath round Miss Frumpy's neck," and she laughed a merry ringing laugh, free from care as a child's, as she followed the young curate to the other side of the room.

CHAPTER III.

For the last two or three days Evie had not been very well. It was a slight feverish cold—that was all; but nothing could induce Miss Leslie to leave her little charge. In the evening, however, she was so much better that Constance had persuaded Mrs. Hartley to let her come downstairs and allow the two children to have tea with her in her sitting-room. Such a cosy little party they looked. Tea stood invitingly on the table, a bright fire was burning in the grate, sending a rich warm glow over the whole room, the sofa was drawn close up to the fire, and on it reclined the little invalid.

"Tea isn't quite ready yet," exclaimed Bertie, a bright, handsome lad of ten. "They haven't brought in the muffins. We are to have muffins for tea,—muffins. What do you think of that?'

"I think it's all very nice," answered Evie; "and it would be nicer still if Miss Leslie would tell us a little story whilst we are waiting and before they bring the candles."

"Capital, Evie," said Bertie—"the very thing. Do tell us a little story, Miss Leslie—oh do!"

"Well," assented Constance, smiling at the boy's eager face; "only it must be a very short one." And, taking a seat by Evie, and resting the little golden head against her shoulder, she began—

"Once upon a time there were two girls. One was very grand and beautiful; the other was very poor, and had to work for her living. The rich lady had a great many friends; the poor one, not any—at least very few," said Constance correcting herself. "One gentleman, who came to the house where they where both staying, was at first very kind to the poor girl; but, after a little time, he was happy only when he was with the grand lady."

"Was the poor one pretty?" interrupted Bertie.

"Oh, nothing to speak of," said Constance. "One day they went out for a long drive; but, as they were coming back something frightened the horses, and they ran away, and the two girls were thrown out. Just as it happened, the gentleman drove up in his carriage, and helped the rich lady up, and drove her home, but never looked at the poor girl, and——"

"What a shame!" cried Bertie, his cheeks glowing with indignation. "And did he marry the rich lady? I like the poor one much the best."

"And so do I," cried a voice from the door; and looking, they saw Fred Vane standing in the doorway, with a peculiar smile on his face.

Constance rose, looking rather confused, and said—

"It was hardly kind of you not to have sooner made us aware of your presence, Mr. Vane. It was taking an unfair advantage," she added, bitterly, and in a low tone.

"Don't be angry, Miss Leslie," returned Fred, gazing with admiration at the young girl's flushed face. "Mrs. Hartley sent me to inquire after Evie. I could not interrupt your story, and you all looked so cosy I thought it a shame to disturb you. Did he marry the rich lady? Tell me, Constance," he said, eagerly.

"Oh, hush!" cried Constance, glancing at the children. "What does it matter? It was only a story."

"Well, Evie," said Fred, "am I to tell your mamma you are better? You look very comfortable, and I've half a mind to stay here. At any rate, you might offer a fellow a cup of tea, Miss Leslie."

"Oh, do stay," cried both the chirdren at once, with whom Fred was a great favorite—"do make him, Miss Leslie."

"I don't want any making, I can assure you," said Fred.

Constance seeing that he was determined to stop, made no further opposition, but commenced pouring out tea, and, catching the infection, was soon as merry as any of the little party.

"Now," said Bertie, when they had finished tea, "do play us a little bit, Miss Leslie. You need not go just yet, Mr. Vane—I want you to hear 'Bicton Bells;' it's so very pretty."

"Well," returned Fred, glancing at his watch, "I need not dress for another hour; so you will not get rid of me just yet, Miss Leslie—I am enjoying myself immensely. And now for 'Bicton Bells.'"

"What would Lady Olivia say?" thought Constance, as she seated herself quietly at the piano and began playing, whilst Fred sat watching the dainty white fingers.

"When I am in my solitary lodgings," he said, with a tender light in his honest brown eyes, "I shall fancy I hear the strain of 'Bicton Bells' wafted to me. And now grant me a favor—sing me one song before you go."

And the young girl, feeling so dangerously happy, yet scarcely knowing why, sang, in a clear, rich voice, the pretty, yet simple Scotch ballad, "We'd better bide a wee."

"I suppose we had," thought Fred, somewhat mournfully; "for how can I ask her to share my miserable poverty? Thank you, Constance," he added aloud—"I shall not soon forget this happy hour;" and then, as Bertie came up, "I shall see you again this evening. Mrs. Hartley tells me we are to have a rehearsal."

"Yes," said Constance; "Miss Selby is coming to fetch me when they are ready."

"Then *au revoir*, but not adieu," said Fred as he left the room.

* * * * * *

"What am I to think?" said Constance to herself, as some time afterwards she was sitting alone. "Twice this evening he has called me Constance. Can he really love me as I do him?" and she blushed as she owned to herself how dear he was to her. "If all is true that Lady Olivia tells me, why does he behave to me as he has done? This evening he looks so noble and true! How lonely I shall be when he is gone!"

"Why, Miss Leslie, you are all in darkness dreary!" exclaimed Kate's merry voice, as she entered the room. "We are waiting for you. Are you ready?"

"Quite," replied Constance; "and you have just came in time to save me from a fit of the blues."

"I am glad of it," said Kittie; "but come along. I promised them I would be back again in two minutes. Olivia is as cross as a bear because we won't let her see the rehearsal; so she has taken refuge in a game of chess with Captain Foster."

"Are all assembled?" presently called Kittie, as she and Constance entered the green-room. "Hallo! Mr Lynn, what business have you here? You don't belong to us."

"But I mean to stay," say Guy; "and I should so like to belong to you," he added in a low voice, meant only for Kittie, and causing the girl's face to become rosy red.

"I suppose wilful man must have his way," she returned, laughing; "so come and help me to arrange the scenery for Number One."

Very pretty looked Constance as Amy Robsart, and so thought Wayland, as he displayed his wares to her. His looks must have conveyed his thoughts, for Constance's face became suffused with blushes, causing Kittie to say in a low tone to her afterwards—

"You mustn't blush, Amy Robsart, on the night of the ball as you did to-night. Never mind," she added, seeing Constance look confused; "it was very becoming."

[To be Continued.]

Church Manners.

Be on time. No one has a right to disturb a congregation or a preacher by being tardy.

Never look around to see who is coming in when the door opens. It diverts your own and others' attention from the exercises, and is discourteous to the leader.

Never talk or whisper in church, especially after the exercises are opened.

Never pull out your watch to see what time it is when the text is announced, or during the sermon. Better to feed on a sermon than to time it.

Never lean your head on the pew rail before you, as though indifferent to the preacher.

Conform, if possible, in conscience, to the usages of the church in which your worship—kneel, stand, bow accordingly.

Never manifest your disapprobation of what is being said, by unpleasant sounds, or sign, or by hastily leaving.

Do not fidget, as though the service were a weariness. Be quiet and decorous to the very end.

Do not put on your overcoat or adjust your wrappings till after the benediction.

No gentleman ever defiles a place of worship with tobbacco.

Never be one of a staring crowd about the door or in the vestibule, before or after service.

Do nothing out of keeping with the time, place, and purpose of a religious assembly.

He Would Quote Latin.

The Duke of Wellington once said to a young member of Parliament, who had asked advice as to getting the ear of the House, "Sit down when you are through, and don't quote Latin."

Lawyer Benham, of the old Cincinatti bar, did not sympathize with the Duke's advice. He was an orator, and very fond of showing off his classical learning before a jury. In a murder trial, in defending the prisoner, he warned the jury not to allow public opinion, which was against his client, to influence their verdict.

"Gentlemen of the jury," he said, in concluding his appeal, "Give up, drop entirely all feeling in this important matter, and be like the ancient Roman in his adherence to the truth, who, in its defence, most eloquently declared, '*Amicus Cato, amicus Plato, amicus Cicero, sed major veritas.*'"

The next morning the lawyer found himself reported in the newspapers as follows:—"*I may cuss Cato, I may cuss Plato, I may cuss Cicero, said Major Veritas!*" We are afraid the orator *cussed* then.

"Remember who you are talking to, sir," said an indignant parent to a fractious boy; "I am your father." "Well, who's to blame for that?" said the young impertinence. "'Taint me."

"It may be," soliloquized an afflicted old lady, "that my troubles are all blessings in disguise, as my friends are all the times telling me, but I do wish they'd just throw off the disguise once in a while."

Uncle Tom's Department.

My Dear Nephews and Nieces.—Poets have a great deal to answer for and they should be careful what they say, for they have no idea what an influence they have. Now, I am told, that about one hundred and fifty years ago, one by the name of Thorusore, sang "Hail gentle spring! Ethereal mildness, Hail!" and made no end of trouble; of course, March being the first spring month, was the first to bear the commann, and so ever since she has been trying her best to hail. Failing in this, as she often does, her only resourse is to blow, and blow she does with a will, and so it remains the breeziest, jolliest, freshest, liveliest, busiest month of all the twelve; and whether it comes in like a lion and goes out like a lamb, or comes in like a lamb and goes out like a lion, its a good honest month, and I hope my children will work well through it, both at school and in making out the puzzles. I was well pleased with the good number of correct answers to February puzzles, also with the new puzzles sent in; the rebuses too are better, and this month Wm. Hull, of North Seneca, Ont., has won the prize.

Uncle Tom.

PUZZLES.

No. 1.—enigma.

My first is in Bob but not in Jim.
My second is in ore but not in tin.
My third is in stock but not in money.
My fourth is in taffy but not in honey.
My fifth is in loan but not in take.
My sixth is in pond but not in lake.
My whole is a city in the United States.

E. McN.

No. 2.—anagram.

Elt sw ehnt eb pu nad ginod
Hiwt a rhtae orf nay tafe
Litsl veihinacg tlils reisupnig
Renal ot ubalor dan ot awti.

Willie Andrews.

No. 3.—charade.

Johnny was sick, and stayed at home
From school one winter day;
He watched his mother making my *first*,
The cat and kittens at play;
Or tired of this he turned his eye
Upon hisgrandpa's crown,
And wondered why it was my *next*,
While his own hair was so brown.
At last, he heard drums beat and shout,
And from the window glanced,
He saw a pony small—my *whole*,
That to the music danced.

Lizzie McLaughlin.

No. 4.—Word Half Square.—A precious stone; a fondling; a preposition; a numeral.

E. E. Ryan.

No. 5.—numerical charade.

I am composed of 13 letters.
My 8, 11, 3, 1, is a metal,
My 9, 10, 11, 5, 13, is an article of furniture,
My 7, 6, 12, 13, is a number,
My 9, 4, 2, is a title,
My whole is a celebrated eastern traveller.

C. W. Finch.

No. 6.—riddle.

I often speak,
But I have no tongue;
I often laugh,
But I have no fun.

A few years ago
I never was known,
But now I'm a favorite
With the Queen on the throne.

Herbert W. McK.

No. 7.—buried towns.

The bat held an insect.
I never ate a supper that was better.
The stun is very severe.
He threw the sod over the fence.
I saw a slim artist.
He read in Greek.

H. W. McK.

Answers to February Puzzles.

1—Tis just as true that black is white,
Or that a door is a gate,
As 'tis that a man can farm aright,
Who does not read the Advocate.

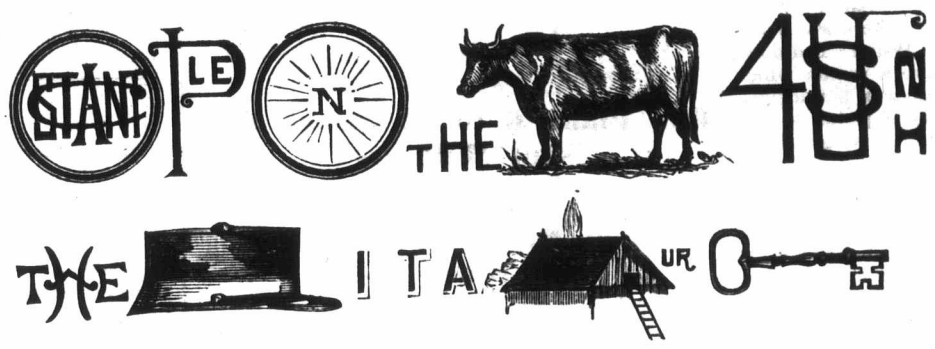
Lizzie.

2—Halifax.
3—Guiteau.
4—Whig, Ierne, Lancaster, Loom, Iowa, Anam, Montmorency, William, Germany.
5—Ada, Amy, Ellen, Estella, and Edith.
6—Thames, Forth, Trent, Don, Grand, St. John, Purus, Nelson, Tweed.

Names of Those who have Sent Correct Answers to Feb. Puzzles.

Nettie Wilber, Gertie Heck, R. F. Kirk, Louie, Charlie S. Husband, Esther Louise Ryan, C. W. Finch, Nellie McQueen, A. J. Taylor, Wm. Hull, Nettie Widden, Minnie Sharman, Frank Sharman, Ada Armand, E. Robson, Richard E. Osborne, Ella McNaughton, Huron Nelles, Sarah J. Fennell, A. Phillips, Charles S. Stevens, Willie Andrews, Robt. Wilson, Flora L. Shaver, Maggie H. McKerron, Minnie G. Gibson, Calvin W. Finch, W. H. Bateman, H. W. McKenzie, Thomas Simpson, Geo. L. Gustin, Maria Anderson, Ella F. Campbell, C. P. Faircloth, Weslay Woonton, Jessie Munro, Ada A. Irvin, Mary Montgomery, T. L. Cousins, Henry Lowland, Arthur H. Mabee, Wilmot Sigsworth, Robt. W. W. Purdy, C. G. Keyes, jr.

"Would you like to look at some mourning goods?" asked the polite dry goods clerk, as he slung down some glazy black fabrics before a serious lady customer. "No, not this mourning; some other mourning; good mourning," she responded, and the clerk was so overcome that he was shortly afterwards carried out to his bier.



No. 8—illustrated rebus.

Robins and blue birds have been singing their tuneful lays for the last few days, and spring appears near at hand.

Dogs in Germany.—Dogs are valued highly in Germany. In Veinna an enterprising man has established a bath house exclusively for dogs, which, after being throughly washed in large tubs, are placed in cages to dry. Dogs of all sizes and breeds and of every social position are admitted and charged only with reference to their size. No one appreciates the spirit of the phrase "to work like a dog," until he has been in Germany. The Arickaree Indians call a horse "a big dog." In Germany a dog might well be called a little horse. About half of the draft power is furnished by dogs and women; and they are frequently hitched up together. It is not uncommon to see a dog drag ten or twelve hundred weight. I have seen a man and a woman get into a cart drawn by two large mastiffs, and then drive down the street at a rate of which Jehu might have been proud. Sixteen dollars will purchase a dog for this purpose—a trifling sum considering his usefulness. A dog team has one advantage over a horse team: it guards the property as well as drags it. In Winter they are often allowed when resting or waiting to jump into the cart and cuddle down in the straw. In Vienna there is an immense hospital and veterinary college were horses, dogs and cats, and all quadrupeds are received. Farriers or boss blacksmiths are required to spend six months at this institution and receive a certificate of graduation before setting up in business for themselves. In this, as in all other matters, the Germans believe in thoroughness.

Minnie May's Department.

My Dear Nieces.—In every well regulated household, where suitable clothing and other necessaries are provided according to the family income, it is an excellent plan for the young girls of the household to keep their own account books, in which is strictly set down every item of expense, even to the pennies. If an allotted sum is given to them quarterly, which is to constitute their principal resource for procuring what they need, it will be still better. In no other way can a young lady so well learn the systematic and economical use of money. Most girls of thirteen or fourteen, are old enough to set up their own account book; it will teach them many useful lessons beside that of economy. It will require self-denial oftentimes to avoid spending the whole allowance on some tempting trifle, but the experience of going without absolute needfuls for a whole quarter will be a salutary lesson. The account book will be a silent rebuke when it is opened, if money has been thus expended. Put down everything therein, black and white, and do not hide your foolish expenditures under the cowardly title of "sundries." Be honest with yourselves as well as with others you deal with. Keep your account book very neatly. Set down the articles one below the other in regular order, the prices in the margin with the dollars and cents exactly under each other. This may seem a trifle, but nothing is a trifle which helps to form orderly habits.

I once saw the large account book of a young married lady in which accounts were kept in this style: "Bought on 5th June, 3 pounds of sugar for 28 cts.; also, on the same day, 4 pounds of beef for 60 cts." It would be a perplexing business to balance her books at the end of the year, whereas a little system would have made that all easy.

Learn to do everything in the best way while learning it; cultivate a quickness in finding out ways of getting the information you want, not idly sit down and wait for it to come to you. Try keeping an account book neatly and orderly from your girlhood, and I will venture that your husband will never have cause to fret because you do not know how to expend his money with system and prudence. Rather he will rejoice that he has drawn such a prize in the world's lottery—that he has such an efficient helper in building up a fortune.

Minnie May.

"Sam, you are not honest. Why do you put all the good peaches on the top of the measure and the little ones below?" "Same reason, sah, dat makes de front of your house marble and de back gate chiefly slop bar'l sah."

Of all musical instruments, the violin is the most enduring. Pianos wear out, wind instruments get battered and old-fashioned, the pipes of organs become scattered and the original construction is lost sight of, all kinds of novelties are introduced into flutes, but the sturdy violin stands on its own merits. Age and use only improve it, and, instead of new ones commanding the highest price, as is the case with other instruments, it is the violins of the few Italian makers of the last three centuries that command fabulous sums. It is impossible to handle an old violin without a feeling of veneration when one reflects on the number of people who have probably played on it, the weary hours it has beguiled, the source of enjoyment it has been, and how well it has been loved.

Falmouth Winter Lectures.

REV. J. G. WOOD ON UNAPPRECIATED INSECTS, AT THE POLYTECHNIC.

Mr. Wood recently gave one of his well-known sketch lectures on the above subject, in the Polytechnic Hall, Falmouth. His treatment of the subject was unique. He illustrated his lecture as it proceeded, and produced on his canvas, by means of coloured pastilles, rapidly drawn pictures of certain insects and their anatomy. The iridescence of the wings of the gnat, earwig, &c., were rendered in a manner quite new and most brilliant in its effect, and the audience were sorry to see picture after picture swept off the canvas.

Mr. Wood began by saying that a child who, following his natural instinct, grasps a bee gets stung, and does not appreciate the bee. Later on, when the child learns that the bee produces honey and wax, and finds that wax is useful in arts and manufactures, he learns to appreciate the bee. This shows the more we know the more we value. The savage, unacquainted with the use of silk, regards the silkworm as a pest destroying his fruit. Every insect was a benefactor to man in some way or other. Ladies who had their sealskin jackets ruined by the caterpillar of the clothes moth might dispute that assertion, but let them carefully examine the matter. The natural food of the clothes moth was hair; hair was indestructible by the ordinary processes of nature. Every sheep shed its wool annually; much was rubbed off against posts and brambles, the birds used this for their nests, and built new nests every year. If there were no insects to destroy this hair the trees would, in course of time, become quite clogged with the wool from the birds' nests, and would die. Man, being dependent on trees, thus owes his existence to the clothes moth. The use of all insects was to prepare the earth for beings higher than themselves. The clothes moth was not created for the purpose of destroying ladies' jackets, but for the purpose of eating hair. Where is all the wool shed by all the sheep since the world began? The answer is, 'Eaten by the caterpillar of the clothes moth." There was a universal dislike to the cockroach. Why? It did not sting, it did not bite. Some gave a reason which might be convincing, but which was not logical, "Because it had legs;" others objected to the smell—this was a matter of taste. A stag disliked the smell of man, and could detect it a mile off. Some called cockroaches "black beetles," but they were not black, and not beetles. Their colour was a rich brown, the æsthetic brown, now so fashionable. His own child was carried to bed one evening holding something in one hand, and when asked what she had, said, "A little cockroach to go to bed with me." Although some of the cockroaches appeared smaller than others, the smaller ones were not perfect cockroaches. Insects never grew. As they appeared on first emerging from the pupa state, so they remained. The smaller cockroaches were really in the caterpillar or pupa stages of their existence. On examination the cockroach would be found of two distinct forms—the male and female—the male the handsomer, as usual in nature, and provided with wings; the female was wider, and generally lopsided. Cockroaches liked warmth and moisture, and were generally introduced into houses by the laundress, as they sought refuge in the folds of the linen. The prejudice against them was due to the objections implanted in the minds of children by ignorant persons. They acted as scavengers; if we wasted no food in our houses we should have no cockroaches. They are never found amongst savages, because food is too scarce among savages for any of it to be wasted. In savage life the men eat the meat and throw the bones to their wives and children, so that there is nothing left but the bare bones, which the dogs eat. Mr. Wood drew on his canvas pictures of the male and female cockroach, with many details of their anatomy; he then proceeded to draw the earwig, with its beautiful iridescent wing; after which the various stages of the gnat were drawn, and much applauded by the audience. He had once had the opportunity of seeing what scarcely any entomologist had had the good fortune to see, viz, an earwig fold its wings. This was done by means of the forceps at the tail. The wing was folded into plaits, and finally tacked under the small wing cover. He exemplified the manner of folding by a paper model of an enlarged wing. The absurd nonsense that earwigs would get into the ear and lay eggs, which would enter the brain, was simply answered by the fact that there was no passage from the ear to the brain. The gnat was an insect of great beauty; the female alone bit. The male, which could be distinguished by plumes on its head, never bit; in fact, no male hornet, bee, wasp, or ant bit or stung. The female gnat might often be seen in a water-butt, or on a pool in summer, with its fore legs resting on some little floating object, the middle legs poised on the water, and the hind legs crossed, approaching the tail, and then being shot out again This was the process of depositing eggs, which floated on the surface of the water, and were in the shape of a carraway seed, or on the lines of a life-boat. There was no admirably-constructed invention of man that had not its prototype in nature. As to the use of the gnat, the late Mr. Frank Buckland found that on the mud of the upper waters of the Thames in summer there was a curious dull red appearance. This, on examination, he found was owing to multitudes of the minute larvæ of different kinds of gnat feeding on the decaying animal and vegetable matter, and so purifying the river.

Ordinary stable manure contains upwards of seventy per cent. of water.

Farmers cannot be aware of the large and varied amount of useful information contained in your excellent paper, else it would be more generally patronized. I have taken in my time many agricultural papers, yet none, in my estimation, has equalled the FARMER'S ADVOCATE.

WM. MUSSIN, Cayuga, Ont.

The strength and durability of concrete walls depend greatly on the quality of the materials used. Good water-lime and clean sharp sand will in time become as hard as stone, and if stones are used with it, as perfect basement walls may be made as common stone walls.

Many dairymen practice milking their cows steadily without allowing the animals to go dry. They feed heavily on corn meal and oil cake until the milk fails, when the cow is replaced by a fresh one. A dairyman who keeps 150 cows says such a practice is more profitable than to lose the time between their going dry and coming in.

We are in receipt of the Ontario Directory for 1882, containing an alphabetical and classified business directory of the cities, towns and villages of Ontario, and much other useful matter. It is a work which can not fail to be extremely useful to all business and professional men, and is a credit to the well known enterprise of the publishers, Jno. Lovell & Son, Montreal.

Carbonized or charred wheat bran is now being successfully used by California fruit shippers to pack tender fruits in and thus enable them to ship safely by slow freights instead of expensive express. Six hundred dollars have been saved thus on a single car-load. Why may not this be used to keep our tender and perishable fruits through the seasons of glutted markets, and thus obtain a good price for them?

It is estimated that the annual demand for railroad "sleepers" in the United States exhausts 200,000 acres of forest trees. As railroads are steadily increasing in numbers and the forests rapidly disappearing from the face of the land, it cannot be many years hence when the trees used for this purpose—the bur-oak, cherry, chestnut, maple and ash—will become so scarce as to largely increase the cost of "sleepers" and all other wooden materials used in the construction of railroads. The only way to remedy this steady depletion is to plant desirable trees. The Legislatures of the different States which have not done so already should offer premiums for the largest number of acres of forest-trees annually planted in their respective commonwealths, as is now done in some of the Western States.

Stock Notes.

Jas. Beith, of Orono, Ont., has sold to Ralph Richardson, of Milbrook, Ont., the Clyde mare "Bessie," 121, recorded in the American Clydesdale Stud Book.

An exhaustive history of the Polled Aberdeen or Angus cattle is promised for publication in Great Britain during the present year in the form of an octavo volume.

Several Percheron horses are being imported this year. Mr. L. W. Adams, of Clifford, county Wellington, has imported one, and Mr. G. Bean, of Denfield, county Middlesex, has also imported another. Others, we hear, are about to import.

The horse disease familiarly known as "pink eye," which has been raging throughout the U. S. for the past two months' has broken out in Toronto. It has spread so rapidly that over thirty are now laid up. It is caused usually by continued damp weather and imperfect ventilation.

The breed of Russian horses known as Orloffs are much esteemed in England now as carriage horses. They have clean heads, wide nostrils, and bright eyes, and show high breeding, no doubt an Arab cross The horses have more weight than the English, and are mostly dapple grays and blacks.

The Irish Farmer's Gazette says: "One of the most remarkable sales of Galloway Polled cattle that has ever been held took place at Parcelstown, near Longtown, on Thursday, January 26th. Thirty-two females sold at an average of $158, and ten bulls brought an average of $102. Forty-two pedigree Galloway, both sexes, brought an average of $145.

At the annual meeting of the Guelph Fat Stock Association, held on 25th inst., it was decided to hold the annual Easter fat cattle show on Thursday, the 16th of March. Subscriptions are being solicited from the citizens and prominent breeders with success, and substantial prizes will be offered for cattle, sheep, hogs and poultry. The following were elected officers for 1882: President, Wm. Brown, Ontario Agricultural College; 1st Vice-President, Preston Whitelaw; Secretary-Treasurer, James Miller.

This association, at its recent meeting in Providence, R I., elected I D. W. French, President, Chas. M. Winslow, Brandon, Vt., Secretary. The three volumes of the Ayrshire record issued by the association, have registered 2,525 bulls, and 5,470 cows.

The prize list of the English Cart-Horse Society for its forthcoming London show, gives us an idea of the standard of height preferred by breeders. Two classes are made for aged horses. In stallions they are divided into those under and those over sixteen hands two inches; in mares and geldings sixteen hands is the dividing line.

Next autumn a large number of Polled cattle from the herd of Lord Airlie, at Cortachy, Forfarshire, will be sold.

Six cows and heifers and three young bulls of the Polled Aberdeen and Angus cattle breed have been recently selected by Mr. Robert Bruce, of Great Smeaton, and were shipped on Tuesday, November 22, by the Royal Mail steamship Hibernia, of the Allan Line, from Liverpool, for the Government of Halifax, Nova Scotia.

Mr. Thos. McRae, of Guelph, has sold two imported Galloway heifers to an Ohio man for $600.

The attention of Australian sheepmen having been attracted to the wool-bearing merits of American Merinos, four of this breed were sent to that country in 1880, and the second shipment of twenty head is now on the Pacific Ocean. The price of the most costly ram was $2,000; the expense of transportation is $2,000; sufficient food is supplied for the entire journey, and an agent accompanies the stock to its destination. The four months' quarantine the animals will encounter at the port of entry is a very serious drawback to importation.

The Hon. M. H. Cochrane, of Hillhurst, Compton, Que., intends holding a sale on April 18th, at Dexter Park, Chicago, of about 30 head of Shorthorns.

At the recent Birmingham fat stock show, a prize pen of three Shropshires weighed 840 lbs; a pen of Oxfords under 22 months, weighed 871 lbs. A Shropshire ewe weighed 374 lbs.

John Snell & Sons, Edmonton, Ont., report a good demand for Cotswolds and Berkshires. Among their late sales were the following:—To Wm. Ruterbush, Bay City, Mich., 1 ram and 5 ewes; to W. F. Jenison, Lansing, Mich., 1 ram and 3 ewes; to W. A. Dinuiddie, Aurora, Va., 1 ram and 1 ewe; to D. Fox, Witchita, Kan., 2 rams; to Jas. Hauk, Industry, Mo., 1 boar and 1 sow; to P. T. Brown, Achor, Ohio, 1 pair; to W. A. Rowley, Mt. Clemens, Mich., 1 pair; to E. Gillogby, Scaboro, Ont., 1 pair; to D. Fox, Kansas, 1 boar; to Geo. Green, Stratford, Ont., 1 trio.

Messrs. H. & R. Beith are the possessors of the following fine Clydesdale stallions: "Autocrat," "Black Knight," "General Roberts," "Young Enterprise."

Mr. Valancey E. Fuller has purchased in Jersey the best bull to be procured, and is to be congratulated on his purchase. It is quite an addition to the Jersey stock of Canada.

Messrs. Anderson & Findlay, Lake Forest, Ill., have in their herd of polled cattle two half sisters to the heifer that won the $525 champion plate last month, as the best animal in the Fat Stock Show of Smithfield, London.

The British Shorthorn Society has issued its balance sheet from the formation of the society in 1874, to December 31st, 1880. The report is somewhat unfavorable, but since that time prospects have been more encouraging. The copyright of the Herd Book is valued at £3,000, and the stock of volumes on hand at end of 1880, was valued at £4,740, and the society has invested £1,803 in consols. The prosecution of the exhibitor of a bull with a false pedigree cost above £532.

Wm. Lang, of St. Mary's, has sold to John Hooper, of Blanshard, young "Lord Cicero," rising two years old, roan colored, Durham bull.

Mr. R. A. Brown, Cherry Grove, has purchased a brood mare of "Royal George" and "Hambletonian" blood, from Mr. John Kasp ll, of Medina.

Mr. John Kerslake, St. Mary's, has purchased of Mr. H O. Sorby, Gourock, Ont., a fine imported Cotswold ram lamb.

Poland China pigs are being sent from Illinois to Germany for breeding purposes.

Messrs. H. & R. Beith have sold their Clydesale colt "Waverley" to an Illinois purchaser for 1,500.

Mr. A trill, Ridgewood, Goderich, has sold his pure Princess bull, "6th Earl of Antrim," to James Cowan, Clochmhor. We have not heard the price, but we believe it to be well up in the hundreds.

James Thompson, of Masonville, Ont., has lately sold the following pure bred Short-horn cattle:—To Mr. S. B. Gorwill, London, four year-old cow "Bracelet 3rd," and yearling heifer "Bracelet 5th;" to Mr. Frank R. Shore, Westminster, two-year-old heifer "Scottish Lass 4th," yearling heifer "Louisa Languish," and five-year-old bull "3rd Earl of Darlington;" to Mr. Wm. Irwin, Westminster, yearling bull "Royal Duke;" to Messrs. J. & W. Watt, Salem, two-year-old heifer "Minnie 1st of Lynden," yearling heifer "Scottish Lass 5th," cow "Crimson Flower 2nd," two-year-old heifer "Miss Butterfly," two-year-old heifer "Bracelet 4th" and ten month-old bull calf "Breadalbane;" to Mr. Arthur Shore, Westminster, heifer calf "Carlotta 2nd," and cow "Scottish Lass 3rd." Eleven females sold at an average of $209.54; eleven males at an average of $135.33, and fourteen animals at an average of $193.64.

Commercial.

THE FARMER'S ADVOCATE OFFICE,
London, Ont., Mar. 1, 1882.

Since writing last month there has been but little change to note. The weather has continued much the same, only somewhat milder, and the country roads are rather bad. Business has been quiet, and country merchants complain of a small business compared with that of last year. The want of snow has been very much felt by country merchants and traders.

WHEAT

Has had a serious tumble in the west, and excitement among the "bulls" and "bears" has been most intense. The result has been some serious failures, but still the speculation is as rampant as ever. The quantity of wheat in passage to Great Britain and the continent is much larger than this time last year, yet the quantity shipped from the United States and Canada is a long way short of last season. Notwithstanding all this the English miller has plenty of wheat to grind and plenty on the way. The wheat trade of the world has changed very much the past ten years. Time was when England depended on Russia and America for her supply of bread; now she draws from all quarters of the world, and wherever the English dealer can buy the cheapest that is where he is going to buy, no matter what price the cliques and bulls of Chicago may try to obtain. Some idea of the vastness and importance of the food supply of Great Britain may be imagined when it is stated that she imported last year $830,000,000 worth of food. The growth of this vast import trade has been far in advance of that of the population. While the latter increased 16 per cent in the last 20 years, the former increased 160 per cent. This increase is due very largely to the improved circumstances of the English laboring and mercantile classes. From information from various somces, we learn that the winter wheat, where late and badly sown, and in wet land, is having rather a hard time of it. Clover is said to be badly heaved in some sections.

PEAS.

The demand for export is very quiet and confined to small shipments. There will be a large acreage sown this spring, and the demand for good seed peas in some sections is quite active.

CLOVER SEED

Has been quite active the past month, and the shipments to New York and Europe have been heavy. Canadian seed has been very much in request in London and other English markets. But it has to be bold, and a very deep purple, perfectly clean and uniform in sample. The farmers of Canada will do well to try if possible to cultivate this class of seed and make their seed as clean as possible. The foreign demand is now about over, and we may look for easier prices, as there is no doubt plenty for the home trade.

CHEESE

Keeps very quiet, and there seems to be very little life in the trade on the other side of the Atlantic. Late private cables quote the market very dull and two to three shillings lower in Liverpool. There are some lots still laying about the country, but chiefly in the hands of speculators. Late cables that we have seen from London, advise the sale of fine Canadian, September and October make at 66.

BUTTER

Is looking up somewhat, and fine qualities are readily picked up at good fair prices. There is plenty of inferior left, however, for which holders will have to take less than cost before it will move.

POTATOES

Rule very steady and will no doubt continue to do so. The mild winter has been very favorable to the movement which has been going on quietly in frost proof cans. We do not think there is much danger of a famine, however, for Scotland seems to have any quantity to spare.

FARMERS' MARKETS.

LONDON, ONT., 1st March, 1882.

	Per 100 lbs			
Wheat, Deihl	$2 15 to $2 17	Lard, per lb	14 to	15
" Red	2 15 to 2 17	Flax Meal	3 50 to	3 75
" Spring	unchanged	Rye	none offering	
Treadwell	2 15 to 2 17	Barley	1 50 to	1 75
Clawson	2 15 to 2 17	Timothy seed	3 00 to	3 15
Oats	1 16 to 1 18	Butter, per lb	22 to	25
Peas	1 30 to 1 50	" tub	14 to	20
Corn	1 50 to 1 56	" crock	20 to	25
Hay, per ton	11 00 to 11 50	Eggs	13 to	15
Linseed Cake	2 0 to 2 25	Hops, 100 lbs.	21 00 to	30 00
Potatoes, bag	1 20 to 1 25	Wool	20 to	25
Honey, per lb.	20	Apples	40 to	50
Cheese	12 to 12½	Onions	75 to	1 00
Cordwood	4 00 to 5 00	Straw, per load.	2 00 to	3 00
Geese, each	40 to 60	Turkeys, "	50 to	1 50
Chickens, pair	35 to 40	Ducks, pair	30 to	40
Beef by ca's	5 00 to 6 00	Lamb lb	8 to	8
Hogs dressed, per 100 lbs	8 00 to 8 50	Mutton lb	7 to	8
Turnips	20 to 25	Veal	4 to	7
Tallow, ren'd	7 to 7	Carrots	15 to	25
" rough	4 to 5	Clover seed bu	4 25 to	4 40
		Beans white bu	1 00 to	1 00

TORONTO, ONT., 2nd Mar.

Wheat fall	$1 20 to $1 21	Potatoes, bag	1 10 to 1 20
" spring	1 25 to 1 26	Apples, brl	1 50 to 3 00
Oats	44 to 45	Butter, lb. rolls	23 to 25
Hogs, 100 lbs	8 00 to 8 55	" dairy	20 to 21
Beans	2 25 to 2 35	Eggs, fresh	16 to 17
Peas	78 to 82	Wool, per lb	23 to 24
Hay	7 00 to 12 00	Barley	75 to 82
Rye	83 to 84	Clover Seed bush	4 70 to 4 90

GRAIN AND PROVISIONS.

MONTREAL, P.Q., 1st Mar.

Wheat—		Cornmeal	$3 50 to $3 50
Can. spring	$1 39 to $1 41	Butter—	
Red winter	1 42 to 1 43	East'n Tp's	18 to 22
White winter	1 37 to 1 39	Brockville	17 to 20
Barley	60 to 70	Morrisburg	17 to 20
Oats	36 to 37	Western	15 to 18
Peas	75	Creamery	24 to 27
Flour	6 05 to 6 15	Eggs	20 to 22
Superior ex.	6 25 to 6 30	Lard	14 to 14½
Superfine	6 00 to 6 05	Hams	13 to 13½
Rye	88	Bacon	12 to 13
Oatmeal	5 00 to 5 10	Cheese	10½ to 13½

WHOLESALE PRODUCE MARKETS.

NEW YORK, 1st Mar.

Flour—		Rye	93 to 97
No. 2	$3 20 to $4 60	Eggs, State	24½ to 25
Good	5 00 to 5 80	Potatoes	2 50 to 2 75
West'n ex	7 25 to 8 25	Pork—	
Wheat—		New mess	17 75 to 18 00
No 2 red	1 32 to 1 35		
No 1 white	1 30 to 1 30		
Corn—No 2	68 to 69	Lard	10 75 to 10 75
" yellow	70	Butter	25 to 45
Oats—		Cheese	9 to 12½
Mix. white	49 to 52		

BOSTON, MASS., 28th Feb.

Flour—		Butter—	
Choice winter	$7 50 to $8 00	Creamery	$ 38 to $ 42
Choice spring	7 50 to 8 75	Dairy	30 to 35
Corn meal bbl	3 10 to 3 20	Common	14 to 24
Oatmeal, bbl	6 50 to 7 50	Cheese—	
Oats	54½ to 56½	Best factory	13 to 13½
Wool—		Farm dairy	12 to 13
Western fine	41½ to 43	Beans, pr bu.—	
Pulled extra	43 to 50	Hand picked	3 75 to 3 80
Canada pulled	35 to 37	Mediums	3 60 to 3 75
Combing	44 to 46	Common	3 00 to 3 10
Hay—		Potatoes, per bus.	85 to 1 15
Coarse, ton	19 00 to 21 00	Onions, per bb	2 00 to 2 25
Fine	15 00 to 17 00	Hops	10 to 20
Oat straw	10 00 to 11 00		

LIVERPOOL, ENG., 1 Mar.

	s d	s d		s d
Flour, per c	10 00	to 12 06	Barley, per c	5 02 to
Spring wheat	9 06	to 10 04	Peas, per c	6 11 to
Red Winter	9 10	to 10 09	Pork	77 06 to
White	9 09	to 10 01	Lard	54 06 to
Club	10 01	to 10 04	Bacon	46 06 to 47 00
Corn	5 11 to		Beef, new	98 06 to
Oats, per c	5 02 to		Tallow	44 06 to

CHEESE MARKETS.

Liverpool, Eng., Mar. 1, 5 p.m.

Per cable, 63s.

LITTLE FALLS CHEESE MARKET.

27th February.

There were 500 boxes of factory cheese sold here to day at 12½ to 12¾c.; 25 boxes of farm dairy brought 11 to 11½c.

General Items.

It is said that a vessel was recently loaded at Chicago with 75,000 bushels of grain in eighty-eight minutes.

Abram Fultz says he discovered the wheat bearing his name in 1870—three heads standing alone, tall and upright, among the lodged grain in a low place. He saved and planted it the next season, and the third year had some for sale.

The Forest Union Agricultural Society intend holding their annual fall show in Forest, on Tuesday, the third day of October next.

A Gloucestershire nobleman, owning vast estates, is making a novel experiment to render land more remunerative. He has planted 13 acres with gooseberry and currant trees, 11 with strawberry plants, and 35 acres with plum trees, while a large portion of park and wood, of 200 acres, has been converted into rabbit warrens and surrounded with iron fencing. The erection of a jam factory is contemplated.

Of the 72,276,312 bushels of grain exported last year to Europe, not one bushel is said to have been shipped in an American vessel But this can hardly be true.

The Delaware Beet-sugar Company, extensively engaged in making sugar from beets as an experiment, near this city, has abandoned the project, finding it impossible to profitably grow the beet in this climate.

One effect of improvement of the longhorned Texan cattle by crossing with the better breeds, is not only finer beef but thinner hides, and tanners are said to complain of a consequent shortage of material for the thick grades of leather.

A correspondent of the Rural New-Yorker notes the rapidly advancing prices of polled cattle in Scotland, and that they now "bring more money than Shorthorns."

Connecticut established the first agricultural experiment station in America.

Dr. Loring, the American Commissioner of Agriculture, wants Congress to increase from $10,000 to $100,000 per annum the sum now spent in procuring crops reports. This should be done if the collection of the reports is persevered in. At present the American reports are issued so long after the date they refer to that they are practically useless. The result of the late census shows, too, that the estimates of the crops for 1880 were astray to the extent of many millions of bushels.

The general food of the Norwegians is rye-bread, milk and cheese. As a particular luxury peasants eat "sharke," which are thin slices of salt hung meat, dried in the wind, but this indulgence in animal food is very rare indeed. A common treat on high days and holy days consists of a thick hastypudding or porridge of oatmeal or rye meal, seasoned by two or three pickled herrings or salted mackerel.

One pound of common salt dissolved in eight gallons of water will make a brine that will kill currant caterpillars It should be sprinkled on the shrubs with an orchard syringe in the form of spray. A watering pot with small holes in the nozzle of the spout will answer a pretty good purpose. Care should be taken not to dissolve a greater portion of salt than that named, lest the brine injures the leaves, fruit or other vegetation.

Cork trees are being successfully raised in Georgia. The cork on some specimens planted there is already thick enough for use. It is supposed these trees can be successfully raised in most of the Southern States.

The carcass of a whale washed ashore in England was used as fertilizer for an adjoining field.