

FARMER'S ADVOCATE

the PERSEVERE SUCCEED.

AND HOME MAGAZINE

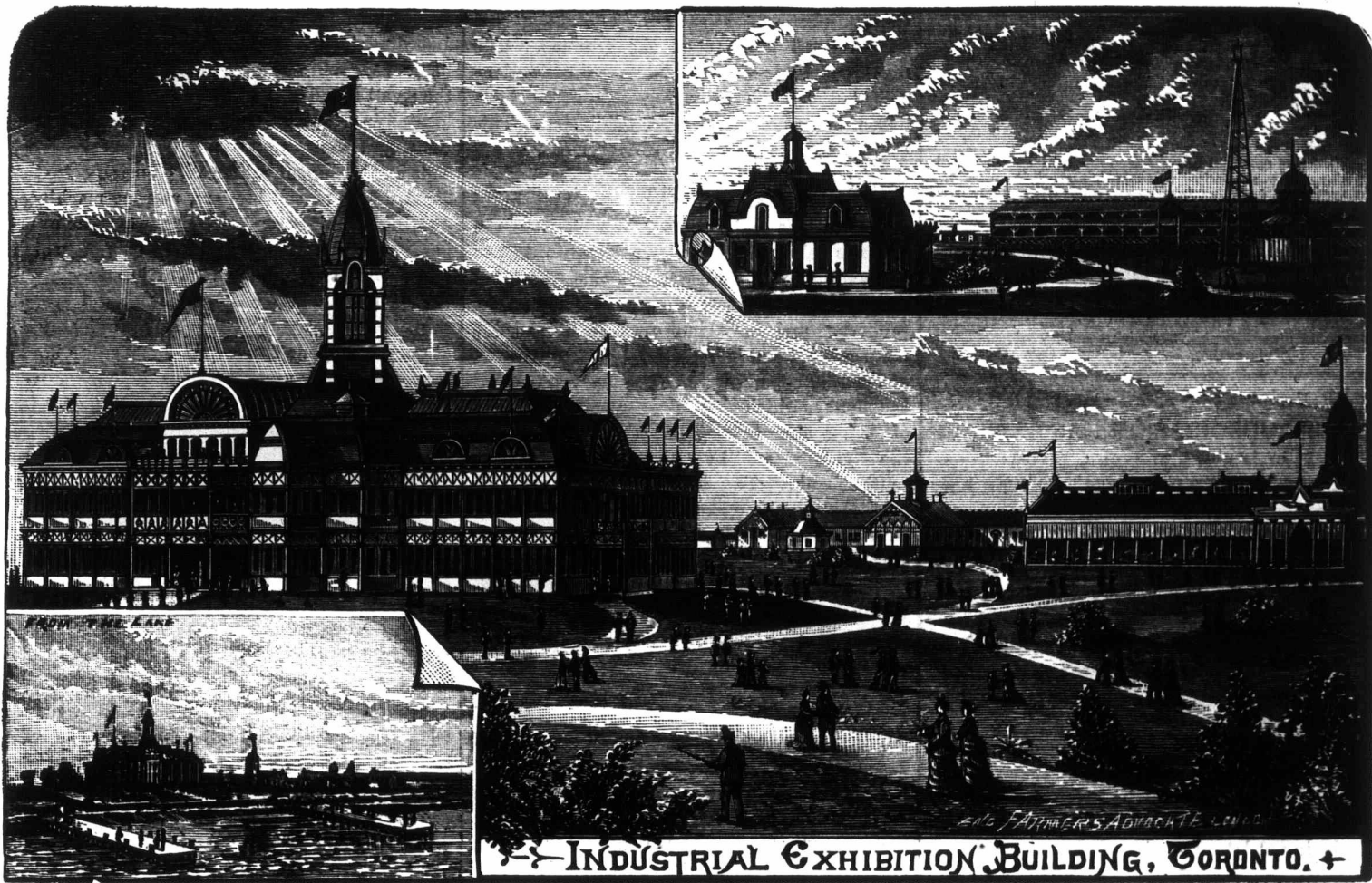
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(SEE "ON THE WING," NEXT PAGE.)

Immense sums of money have been expended by the U. S. Government in attempting to discover practicable methods for the manufacture of sorghum syrup into sugar. The great difficulty has been the separation of the sugar in the cane from the nitrates and other albuminous matter found in the juice. With the nice appliances in the chemical laboratory, the juice of the cane was shown to contain a very large percentage of pure cane sugar, but with the machinery used in the manufacture on a large scale, it was found that only a small percentage could be extracted. Based upon the analysis, the prospects of the cane sugar men ran high, the result being that gigantic companies were

formed in the sorghum belts of the States, expensive machinery employed, and reports of disaster are spread far and wide. If the Americans are still sanguine of success, their chemists must begin again, and their inventors and manufacturers of machinery must make a fresh start. A few years ago our enterprising neighbors took it into their heads that they could successfully compete with China in the production of tea, and the results of their investigations were equally disastrous, after the expenditure of large sums of public money. The time is yet far distant when our cousins will succeed in making themselves commercially independent of the rest of the world.

Conquer your weeds now if you don't want to be conquered by them.

By a new process, milk is simultaneously skimmed and churned by electricity. The electric current is transmitted through the milk, and the butter gathers in small particles on the surface.

THE FARMER'S ADVOCATE is doing more good to advance farming in all its branches, and teaching men to take a more independent view of things, than any other paper published. I have been taking it for a great number of years, and would not be without it.

R. T. RICHARDSON,
Craighurst Farm, Hazeldean, Ont.

THE FARMER'S ADVOCATE

—AND—

HOME MAGAZINE.

WILLIAM WELD, Editor and Proprietor.

The Leading Agricultural Journal Published in the Dominion.

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

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RENEW AT ONCE

Our Monthly Prize Essays.

Our prize of \$5.00 for the best original essay on *How Should the Farmer Proceed to Improve his Dairy Herd (1) for Butter; (2) for Cheese?* has been awarded to Mr. Stanley Mills, Hamilton, Ont. The essay appears in this issue.

A prize of \$5.00 will be given for the best original essay on *Small Fruit Culture as an Occupation for Women*. Essays to be in not later than 15th June.

A prize of \$5.00 will be given for the best original essay on *Women in the Dairy*. Essays to be in not later than 15th July.

An envelope containing money, mailed at St. John, N. B., April 30th, received at this office, no writing whatever enclosed or on the envelope. Three cent and registration stamp on the envelope. The P. M. cannot give name of sender, as it was dropped in letter basket. A similar thing occurred at Peterborough, on the 13th of April; see notice in last issue. Our subscribers should always be very careful in sending money. Do not leave it to others, but attend to it yourselves, and there will be no mistake. Remit per P. O. order or registered letter, otherwise we cannot become responsible for its safe arrival. Be particular and give the same name as that printed on your label, otherwise two papers might come to the same house.

Editorial.

On the Wing.

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On the 14th of last month we walked over the Toronto Exhibition ground to lay out the plans for the sketches on preceding page. These may be useful to those contemplating erecting buildings in other parts of the Dominion. We only give a few of the best buildings—those deserving of imitation. Many of the buildings on these grounds are unsurpassed for their several purposes by any we have seen, being neat, handsome and convenient. The grounds are nicely laid out and planted with trees, shrubs, and flowers, and in some places ornamented by rock work. The ground slopes towards the lake. At exhibition time it is a gay attraction and pleasing sight to see the thousands of visitors wending their way among the stock and implements, or seated about the grounds in groups, or gathered at the grand stand viewing all that is to be seen, or listening to what can be heard. The steamboats and railroad both touch the grounds. The numerous kinds of amusements and attractions collected by the managing committee have drawn large crowds to this exhibition. This committee are a really active, energetic working body, and spare neither time nor pains to adopt any new plans or suggestions that may be of value to the exhibition. We believe the grounds belong to the city of Toronto, not to the exhibition committee, but that the committee have had power to borrow money on the property, and have improved it in the fine manner we now see it without expending any of their own capital, but who have advanced the money, which they have every prospect of being able to repay without calling on the guarantees, by giving a guarantee to the banks. The directors have had faith that they could make it a success, and they have not been disappointed. They receive no Government money, and yet are enabled to give larger prizes than the Provincial Exhibition, or even the combined Dominion or Provincial Exhibitions. We believe they are making arrangements whereby any person in any part of this Dominion can visit this exhibition and return at a single fare. This should afford a grand opportunity for all desirous of procuring the best or seeing their friends.

On our way to these grounds we passed through the old Toronto Exhibition grounds, and here we met a sight which we think even more astonishing than anything we have yet seen at any of our exhibitions. We mean the MASSEY MANUFACTURING ESTABLISHMENT. We were struck with the appearance of a long four-storied building, having 236 windows on the street we passed on going to the exhibition grounds. On our return we entered the building, by a large spacious hall with offices in front and on either side, fitted up in style superior to many of our banking establishments. We enquired if Mr. Massey was in. He was pointed out to us driving a mowing machine cutting the lawn on the other front of the building facing on King street, with a one-horse mower. He is rather tall, nearly grey, about 63 years of age, but keen and sharp in business. He showed us the useful points of the mower, one which had just been con-

structed, the advantages of which were such that it was just about being shipped to a leading manufacturing company in the United States, to be reproduced there. He left the mower in charge of assistants, and entered the building with us. We were shown through the building from cellar to attic. The building is constructed in the form of a T, one portion being 492 feet long by 40 to 55 in width, the other portion being 258 by 50 to 56, having a floor space of about 4½ acres. All this space is fully occupied with the work shops and store-rooms, except the space over the offices. All is neat and well arranged to facilitate the work, which is performed to a very great extent by machinery, in fact it is machinery that constructs our harvesting machines; everything is made so exact that a misfit is almost an impossibility. The best of material is used, and, of course, only the best implements are made here, or so the managers believe, and wish you to believe. We are unable to say which of the manufacturers turn out the best. There are sixteen binder manufacturers in Canada, and all claim the best, but this immense establishment would not have gradually grown from the small foundry it was a few years ago, when located in Newcastle, up to its present proportions, had the products not been meritorious. This establishment confines its business to the construction of self-binders, reaping machines, mowing machines, and horse rakes. The number made this year will be 10,000, of which 2,000 will be self-binders. The immense number of implements neatly packed and stored away here is perfectly astounding; for instance, at one place alone there were 2,500 sulky horse rake wheels. It appeared to us, in looking over the tops of these, like a miniature ocean with its waves. When you visit Toronto, take a run through this establishment, and you will be, as we were, both pleased and astonished. Then contemplate the immense amount of labor that has been done here, and if you can put your education to work, send us an estimate of how many millions of hard days' work in the harvest and haying fields the work of this one factory must save, in comparison to the labor employed when we first saw harvesting done a half a century ago. The executive ability of Mr. Massey is not confined to the manual and mechanical department. Above his large, spacious and handsome offices, he has a reading room well supplied with books and papers for the men; a council room for their consultation; and in the upper story entertainments are held fortnightly, when the employees, their wives and families, can spend their evenings pleasantly and profitably in discussions, readings, lectures, or any other kind of proper amusements. These entertainments are enlivened by a brass band, composed from his employees. In addition to these, the employees publish a weekly or monthly journal touching on various topics of interest to them, termed the *Trip Hammer*. There may be as completely equipped and well arranged an agricultural implement manufactory as this in Europe. If there is, we have not seen it or heard of it. We may call this the old Toronto Exhibition renewed, as this is on the old grounds. Pay a visit to them both, when the exhibition time arrives, and you must look with wonder and surprise on the progress that Canada is making, and what this manufactory

is doing for agriculturists; in addition to all the new machinery used to save labor, they furnish employment for 450 hands in and out of the factory.

The Governor-General and our Agricultural Exhibitions.

The Marquis of Lansdowne, our Governor-General, is the Queen's representative in Canada. At the Provincial and Dominion Exhibition at Ottawa he expressed himself to the following effect: That he considered the name agricultural exhibitions was inappropriate; that he approved of the name of fairs; that fairs admitted amusements, and that he was in favor of giving the amusements. From his remarks it is plainly evident that he has been well posted in the opinions of the managers of our large exhibitions, and that he endorses the popular American plan which we are following.

Our readers are well aware that we have for years opposed the introduction of the race course or other extraneous attractions in connection with our agricultural interests at exhibitions. We cannot say that our opinions have changed or that our views have been adverse to the best interests of the farmer; but we must admit that our views do not accord with those that tend to dwarf the exertions of the plain farmer, or make him subservient to the more exciting attractions that can be introduced at agricultural exhibitions. Those that introduce the most amusements will most probably draw the largest concourse of people. The door is now apparently wide open for almost anything, and the people clamor for amusements. If there should be one or more receiving pay under the name of agricultural advancement who can devise any plan for the advancement of the agricultural interest in preference to amusements, or in what way they might be or should be separated, we should be pleased to afford a column to their views on the subject.

The Provincial Exhibition.

At a recent meeting of the Board of the Agricultural and Arts Association held in London, it was stated that the East Middlesex Agricultural Association had not been consulted in regard to the holding of the exhibition in London this year—that they did not want it here; but through the manipulation of citizens and some officials, the Exhibition is to be held here.

There is a growing feeling among the farmers that they have been ignored, and that this and some of the other large exhibitions are not being conducted mainly for the advancement of the agricultural interest, but are made subservient to other interests and other organizations, using the lever of agriculture only to further other objects. By this means it is considered that the honor of holding positions, and even the carrying off of prizes, is very materially reduced.

The City Council granted but very little pecuniary aid to the institution this year, as the old buildings are to be demolished and grounds disposed of after this Exhibition is over. It was suggested by one member of the Board of the Agricultural and Arts Association that no Exhibition be held this year. Another of the members moved and filed a

resolution to that effect. Despite these deplorable, and to some extent demoralizing effects, the location and prestige gained by the Western Fair association in former years should secure a large attendance; and no doubt it will be largely attended, as the Governor-General will visit it, and as he approves of making these exhibitions a time for all kinds of amusements, there may be some unusual attraction in the programme; probably greater exertions will be made to add to the interest of the race-course, or to get up military displays and other demonstrations, and a grand ball. There are times for all things, and perhaps some may consider that we have for years been laboring under a mistake in attempting to keep up the agricultural exhibitions solely for the advancement of farmers.

Cutting Timothy in the "Second Blossom."

Most farmers lay down the rule that timothy should be cut during the "second blossom." The assertion is about as correct as to say that the sun rises in the east; but as long as everybody knows that the sun does not rise at all, no charge of wilful falsehood can be laid against anybody. With regard to the "second blossom," however, most farmers regard it as a practical reality.

It will be observed that the yellow "blows" which are found on the heads of timothy are the stamens, and the powdery substance which fall off during bloom is the pollen. As the pollen ripens it falls out of the anthers, or small sacks, which contain it. When the anthers thus become empty, they turn purple, and remain attached to the head for some time after the pollen dust is discharged. New blossoms keep forming for about a week—longer when the weather is cool, and shorter when it is hot. Now, when the pollen falls out of a majority of the anthers, the blossoms then present a bluish appearance, and it is thought that this condition is a second blossoming. These facts prove that when it is said that hay should be cut in the "second blossom," the period is somewhat indefinite, and if cut at any time during this indefinite period, the cutting is too late.

Laborers vs. Machinery.

The enormous quantity of self-binders and hay tedders manufactured this season will tend to solve the expensive labor problem during haying and harvesting. The high wages of harvest hands have eaten up a large percentage of the profits of the crops. Farm laborers may regard this as detrimental to their interests, but it will be not really so in the end; for farmers will be in a position to engage hands by the year at more remunerative rates for the laborers, instead of spending most of their earnings in the harvest time. The farm work will be more evenly distributed throughout the year, and farmers will soon find it advantageous to spend more money on farm operations which have hitherto been too much neglected. If grain were the best paying crops raised on the farm there would be some sense in spending so much money in their preservation; but there are many other better paying operations which can be done in slack seasons,

Special Contributors.

A Chatty Letter from the States.

[FROM OUR CHICAGO CORRESPONDENT.]

The "early maturity" idea only developed into a craze about two years ago; but it is raging now with undiminished vigor. It is only about one year ago when Col. Gillett, the great Illinois Shorthorn breeder and feeder, announced his intention of raising no more beeves to the age of three years. The Colonel had not taken the lead in this movement, but when he put himself on record as an advocate of baby beef, an immense impetus was thus given to the whole movement. Since then, nearly all feeders have been making a great effort to excel one another in getting young cattle to market.

Some man with a "head for figures" recently calculated that the population of meat-eaters was increasing in greater ratio than was the supply of meat-producing animals. This might have been true five years ago, when it was the fashion to keep the best beeves until at least four years old. But now that feeders can and do turn over their cattle at two to three years of age, they can handle a great many more in a given length of time. They use more bulls, do more breeding, and consequently more corn and other feed is converted into beef, and more beef is crowded upon the market. What effect will this have upon the stock business of, say, half a decade hence? It will surely result in a very much larger *per capita* production of meat animals. In that case, what is gained in one way will probably be lost in another by the early maturity idea.

However, the country can be better served by having a large production and small or fair prices, than to have scant production and "war prices." This, at least, is looking at the interests of the largest number of people.

In Western America, the stockmen are having a terrible time over their quarantine laws. All sorts of complications have arisen, and the channels of trade are being very seriously interfered with. The States of Kansas and Colorado have quarantined against Texas cattle on account of the so-called Texas or Spanish fever. In former years, vast herds of young Texas cattle have been driven north, and grazed along on the road to the north-western grazing fields. Now, the laws say that this channel shall be entirely cut off during the spring, summer and fall, the only months when it could be used. The effect is that the Texas raisers are somewhat demoralized.

It is popularly supposed that it is the coast cattle, and not those of the northern part of the State of Texas, that communicate the insidious fever to other cattle not native of the State. This has led the stockmen in the northern part of the State to declare that those in the Gulf counties shall not be allowed to drive their cattle north. Here is a State seriously divided against itself, and there is a great deal of trouble brewing. The lands upon which the southern men wish to drive are public, belonging to the State, and so long as that is the case it seems that the Governor will support those who are being shut off.

There are about 7,000,000 cattle in the State of Texas. I do not know how large is the

proportion of female stock, but the natural increase is about 85 per cent. of females. Texas is a state of empyrean proportions, but without a very large outlet she will very soon completely overflow. Already cattle are being crowded far out upon the Staked Plains, and many have been moved into New Mexico and Arizona. It is generally estimated by the best authorities that, this year, it will be necessary for Texas to dispose of between 750,000 and 1,000,000 head of cattle. How can she do it? The trail is closed. Last year she sent 500,000 head north in that way. One advantage of that route is that the cattle are scattered over the west and are fattened before coming to market. But, as matters now stand, it will be necessary to crowd the whole number chiefly upon the big markets. One effect of this will undoubtedly be to reduce the prices. It is calculated that Chicago will receive some 500,000 cattle direct from Texas this summer, and the canners and dressed beef men are enjoying the prospect of a big harvest and low prices. At the same time, if prices are lowered too much, the big run will be checked, as it can in a large measure. For instance, there is one cattle company which would like to ship 4,000 head of beeves, but if the prices are too low, the company will only ship 2,500. This is the way with a great many others; though there are some who will have no choice but to ship, be the prices low or high. A cattle man just arrived from the south-west says money has been harder to command in that State the past nine months than was ever known before. This tightness of money matters was simply the result of large obligations which were assumed on false prospects. At the same time, it is true that the average Texas cow man is more frightened than hurt by the present serious aspect of affairs. There have been no business failures in the Texas trade; only the dealers and growers have been in very close quarters.

It is said that the northwestern men who took so much satisfaction in quarantining Texas cattle may have to pay dearly this fall for their pleasure. It is said the market will be heavily flooded with choice Texas beeves, about the time the Wyoming, Colorado and Montana crop will have to come.

The End of Live Stock Plagues.

BY MARSHFIELD.

I have scoured creation for literature on the contagious diseases of live stock for the purpose of being able to make a correct prognosis. It is one of those questions which can best be discussed by considering the effects of agencies when pushed to extremes. Shall we everlastingly continue to squander millions upon quarantines, nostrums and office holders, in futile attempts to eradicate these diseases? Shall we exterminate the affected races from the face of the earth? If so, can a substitute be found?

In this article I shall not have time or space to discuss my reasons for asserting that these diseases will be perpetuated unless some radical change of measures be adopted; meanwhile let it be understood that their ravages are being repeated on both sides of the Atlantic, that the conditions for their perpetuation still exist and will continue to exist so long as the ignorance and cupidity of politicians and speculators stifle

their moral perceptions. The progress of the diseases has called into being an inordinate multitude of "vets," who divide their time between office seeking and getting up contagious disease "scars." Amongst the influences which tend to counteract this state of affairs, I notice one in England and another in Germany.

A few years ago there was in our neighborhood a rage for cooking food for live stock, and when the question was discussed at one of our club meetings, I was asked whether boiling or steaming was the preferable mode, to which I answered: "Gentlemen, that question is unfit for discussion until it is first proved that cooked foods are preferable to raw." At present the meat business is exactly in the same plight. For ages we have been discussing the best methods of preparing meats for consumption, but to moderns belong the discovery that man is not a carnivorous animal. He has also been proved to be neither herbivorous nor omnivorous, but belongs to a distinct type which may be called the *cooked-food animal*. John Bull, that proverbial beef eater, actually takes the lead in waging war against flesh! I have been slow to accept the evidence of chemistry as conclusive in the philosophy of dieting, believing that the nutritive value of a food is also governed by physiological or magnetic laws. However, vegetarians are gathered from all schools, and if the evidence of their experience is true, if meat "must go," the world will continue to wag just as usual. The advantages of economy give great strength to the vegetarian school, and cause numerous converts to be added, but a large majority become disciples from principle. In London (Eng.) there are nine vegetarian restaurants where penny meals can be obtained, which contain about three times as much nutriment as the beef and potato dinners procurable in the American cities for fifteen cents.

In Germany the buffalo is being written up. I am greatly surprised that the Americans were not the first to discover that this animal contained the nucleus of a boom. No prejudice can arise against this animal, for it belongs to the same family of quadrupeds as the ox, although it possesses many distinct characteristics. Whether this boom has been created for the purpose of attempting to annihilate the ox tribe, or to cross with it, is not clear; but this is certain, that the introduction of the buffalo, either in whole or through the blood of the ox tribe, would tend to eliminate those contagious diseases which are playing havoc in our herds. The statements which I shall make concerning the buffalo are drawn from writers who have had practical experience in buffalo dairying, and the general management of buffaloes.

The buffalo is alike useful for its milk, flesh and work, the female being as useful under the yoke as the male. The price of the milk is one and a half times higher than that of the ordinary cow; it contains twice as much fat, although the average quantity is not so great. The buffalo will flourish on coarse hay and grasses, corn stalks, etc., on which the ox would almost starve, and it will convert finer foods into more profitable account than the latter. It will convert into milk many hard foods on which the cow would run to skin and bone. It will thrive better on bare pastures than the ox, and is very well adapted to stall feeding. It is

rather tenderer with respect to cold than some breeds of cattle, but it stands the cold climate of Germany very well under average shelter. The female will breed till twenty years old, and the flesh is then as good as that of old cattle. The flesh of the young buffalo is as juicy and tender as that of young steers, but for smoking and otherwise preserving it is much superior.

Let me take another leap into the future. Should the buffalo boom make headway, our breeders and speculators would soon convert the race into a mass of corruption, just as they have done with some of the breeds of cattle, and I can already imagine them scouring the earth for some neglected old scrub bull or cow for the purpose of rescuing the aristocracy of the buffalo race from perdition.

PRIZE ESSAY.

How Should the Farmer Proceed to Improve his Dairy Herd, (1) for Butter, (2) for Cheese.

BY STANLEY MILLS, HAMILTON, ONT.

Before proceeding with this subject let me call to mind a few well known facts. It is admitted by every farmer who gives the subject a thought, that Ontario can not in the near future hope to compete against the Canadian and American Northwest Territories in the grain markets of the world. What then shall we do with our grain? Let us look a little further. We find that Ontario holds her own, not only on the live stock, but also on the dairy produce markets. Here, then, is our opportunity. Let us take advantage of it; let us feed our grain, thus finding a home market for it, and at the same time producing something at a profit to ourselves. Let each farmer ask himself this question: Am I a dairy farmer, and if not, why not?

Dairy farms may be divided into three classes. First, those producing butter, which may be situated in any locality without regard to our local markets, as it will safely stand shipment. Second, those producing cheese, which must be in the immediate neighborhood of a cheese factory, an institution which all farmers are not blessed with. Third, those producing milk, which are only profitable in the vicinity of our larger towns and cities. It will be seen from this that although all farmers cannot profitably produce cheese or milk, by reason of outside requirements, yet all have the same chance on the butter market. Here, then, comes our subject: How should the farmer proceed to improve his dairy herd?

First, for butter—We have given a farm with all the requisites for dairying, including good warm stables, having plenty of light and ventilation, and an abundance of good, fresh water close at hand. These are necessities for the purpose, and do not proceed with any hope of success unless you have them. There are in stable at the present time, say, from six to twelve average cows; some you know to be heavy milkers; some whose milk you have been told is rich in cheese producing qualities; and perhaps one or two that you think are good butter cows. Discard all these ideas, and put each cow on her individual merits by actual test. Weighing the milk night and morning, and churning separately once or twice, will be

sufficient. You now have the number of pounds of butter per week each cow in your herd produces, all receiving the same food and attention. You know how far each head is from calving—use your own judgment in the comparison; now offer for sale all cows which will not answer your purpose. Do not keep in your herd a cow which has a large flow of milk, but which does not produce a corresponding quantity of butter. A cow of this kind may not pay you; in fact, you may be under a daily loss; and remember that it takes one cow gaining twenty cents per day to balance a cow on which you lose twenty cents each day; or in other words, two cows kept for nothing.

Your next step is to procure the services of a competent bull. The first question in this direction is, of what breed shall he be? For he must be no scrub bull, such as, I am sorry to say, is being constantly used by a great many farmers. You can readily procure the service of a Durham, but that may be just what you have always been using. Can we not procure a breed more for our purpose, that of butter-making? Well, there are Shorthorns, Galloways, Ayrshires, Devons and Jerseys. Let us pause for one moment and carefully consider this vexed question of breed, always bearing in mind that it is butter you want, not beef, or milk, or cheese; nor yet do you want a combination of all of these. You have read of the famous butter records of the Jerseys. How the celebrated cow Mary Anne, of St. Lambert, has produced 36 lbs. 12½ ozs. of butter in seven days; but we are also told that she was purposely fed for this test for two whole months. Your present object demands cows that will be satisfied with a rational amount of food. In the April number of the FARMER'S ADVOCATE we noticed an account of a test of two Jerseys cows in Great Britain, which were found to produce one pound of butter for every twenty-four pounds of food consumed. We are constantly hearing of Jersey cows that make from twelve to twenty-two pounds of butter in seven days on grass alone. These, and many other facts of a similar nature, should lead you to the conviction that for our present purpose a Jersey bull would best fill the vacancy.

Now we proceed with the herd. Is there a Jersey bull within a reasonable distance? You find there is not, and in consequence, you will be under the necessity of purchasing. You consult the advertising columns of your agricultural paper and procure one, paying therefor from one hundred to four hundred dollars. You now have all that is actually necessary for the successful completion of our work. Time alone can do the rest. Your heifer calves should be carefully raised, and in time tested and weeded out, as in your original herd, until you are thoroughly satisfied that all the animals in the herd, without exception, are the best you can hope to procure.

You are told over and over again that the milk should be weighed daily, and from time to time apply the butter test to each individual cow, and a very careful and concise record of these figures be kept for reference; yet how few farmers have such a plan in practical operation. Right here, I might ask, is not this just where most of you are falling behind?

You know of such a thing or a plan as being good and highly recommended by those who

have tried it, yet how slow a great many are to follow suit, always doubting, accomplishing nothing of themselves, perhaps ridiculing the very men who are fast walking ahead. It will be this class of men who, on reading this article, will scornfully throw it to one side, contemptuously muttering something about "book-farming."

I have recently put into practical operation the foregoing plan of improving a dairy herd, having butter for the object, and so far with satisfactory results.

Second, for cheese.—Follow the same plan as laid down before, with the exception of procuring Jerseys. I should recommend the Ayrshire cattle for cheese-making, as I think they are usually considered to give general satisfaction for that purpose.

The Dairy.

Wife-Killing Arrangements.

BY PROF. L. B. ARNOLD.

In 1879, while giving instructions to cheese makers near Stratford, Ont., I was invited by the proprietor of the factory in which I was working, to look over his new house just completed and ready for occupying. Among its peculiarities I noticed the little cook-room, in which all the cooking was to be done, summer and winter, had its floor depressed one foot below the floor of the adjacent dining-room, in which all the meals were to be served the year round. As all the food and dishes for three meals a day, together with the weight of the cook, which was some 150 pounds, must be lifted up this rise over and over again daily, and the same weight, minus the food consumed, let down again, I objected to this depression of the cook-room floor as a wife-killing arrangement. "Oh no," said the husband, "although my wife will probably make the rise a hundred times a day, since it is divided into two equal steps of only six inches each, the ascent will be so easy I do not think she will mind it at all." "The ascent," I remarked, "will be easy in just the same sense that it may be easy for a man of limited means to pay a hundred dollars in two equal installments, when it might be hard for him to pay it in one. The fact of dividing the debt into two equal parts does not make it any less. In the end, the sum paid is the same, whether paid in one payment or two, and it is just so with this rise from one room to the other, whether made by one step or more. On the assumption that your wife will make this rise a hundred times a day, the task which she will have to perform above walking on a level floor will be just equal to compelling her every day of her life to climb a pair of stairs a hundred feet high, and let herself down again, her hands, in the meantime, being loaded with dishes full of food—all for what? To pay penance for your thoughtlessness. If such a useless task is not a wife-killing arrangement, it is not easy to conjecture what would constitute an arrangement of that sort."

This incident of thoughtless indifference on the part of this husband for the comfort and convenience of his better half, is quite illustrative of the needless tasks which farmers, and especially those having small butter dairies,

often impose upon the generally over-burdened female members of their families. From shiftlessness or a thoughtless indifference to the importance of having a dairy room, as well as a cook room, on a level with the living room, the farmer neglects to prepare a suitable place to set milk above ground, and the milk must go into the cellar all summer, and perhaps all winter, making extra work in carrying it down and bringing it up again, and in running up and down stairs to do the skimming and washing and other dairy work. In a short time the waste of labor in going to and from a room below ground would be sufficient to prepare a suitable place above ground, and thus save a multitude of fatiguing steps. But from want of appreciation, perhaps, the preparation is not made, and the dairy maid, who is generally the farmer's wife, must, like the wife of my cheese-maker friend, do a daily penance for that neglect, equal, probably, to a similar amount of climbing stairs.

Another large amount of needless work comes from setting milk in a multiplicity of small vessels, causing a waste of time and labor in filling, skimming, emptying, washing and handling so many dishes, three quarters of which might be avoided by setting cold in a few large vessels. But the farmer, failing perhaps to keep up with the advance of improvements from not reading up on what relates to his own business, fails to appreciate the labor-saving improvements in creaming milk, and hence fails to put up ice or otherwise provide means for refrigerating, and hence the modern labor-saving modes are not available on his farm. They are only availed of where the dairymen keep posted. For the farmer's failure to keep pace with the times his wife is again obliged to pay penance in hard work equal to climbing daily another flight of a hundred feet or so.

Another large item of work in small dairies is very commonly endured in the selection and operation of churns. The churning is the hardest part of the work in the dairy, and whenever it can be, this task ought to be shifted to some other power than the direct use of the human hand. Where the proprietors of small dairies do not feel able to provide any other than hand power, the easiest mode of doing this necessary work should, by all means, be selected. A certain amount of power must be employed to operate any churn, but there is a wide difference in the power required to operate different patterns which do their work equally well. Unfortunately the very hardest working one of all is more frequently found in small dairies than any other—the old dash churn. Partly from its simple structure and low cost, but chiefly from the force of custom, it continues in use, a terror to dairy maids and half-grown boys, and, very likely, will be handed down to future generations. But much as it is to be dreaded, this old relic of barbarism is as capable of making as good butter as any modern churn. To make good butter and to get out all the cream contains, the dasher must be large in comparison with the diameter of the churn. It should cover from two-thirds to three-fourths of the area of a horizontal section of the middle of the churn. But this makes hard work, for the larger the dasher the harder the churning, but the sooner and better the but-

ter comes. The smaller the dasher the easier it works, but the longer it takes to bring the butter, and the smaller the yield and poorer the quality. This ancient piece of dairy apparatus furnishes a dilemma with two horns. On one horn is killing work with quick and full returns of good butter; on the other hand, easier work with longer time, and scanty yield of greasy butter. Either is enough to condemn it, and along with it should go all crank churns having a central shaft to rotate paddles or floats of any form, for beating or stirring the cream; for by hitting and missing a part of the cream at each revolution they do their work unevenly, and produce the same results as the dash churn with a small dasher.

There are plenty of churns which, by operating on all their contents alike at each impulse, do their work evenly, quickly, perfectly and easily, and bring the butter in as good condition as it is possible for it to come. Among them is the barrel form, revolving endwise; the rectangular box, rotating on bearings at the centre of its ends or diagonal corners; hexagonal and octagonal boxes, rotating without interior shafts or floats; and also rectangular or cylindrical churns that oscillate or swing.

It is gratifying to know that these sources of needless hard work do not everywhere exist, but wherever they do exist, I insist that they are wife-killing arrangements, and that they are as unprofitable as they are wicked, and their existence or avoidance is sufficient to make all the difference between making the production of butter a pleasure and a dreaded burden, and all the difference between sound health and happiness and a steady waste of vital energy that carries in its train exhaustion, lingering illness, premature old age, and a gloomy existence that puts life itself at a discount.

It has been estimated that, through foreign and domestic markets, 50,000,000 pounds of butter annually change hands in the Dominion. There is probably as much more consumed by the producers that has no recognition in commercial transactions. This large yearly product is chiefly made on farms from the milk of small dairies, the work being mostly done by hand labor and by the women folks. Creameries, as far as they go, give them some relief, but they play an insignificant part in the production of butter in Canada. They make a smaller per cent. than is made by creameries in the United States, where, as the census of 1880 shows, they manufacture but one thirty-seventh of the whole make (29,421,784 lbs. in creameries to 806,672,071 lbs. total product.) It is no small chore for the farmers' households to make the butter for feeding the nation, and everything that can be done to alleviate the burden ought to be pushed for all it is worth.

Whey: Its Value and Uses.

Very few cheese-makers, and a still less percentage of farmers, use whey to anything like the best advantage. Most people regard it as an almost useless by-product; or, which amounts to nearly the same thing, only fit for hogs.

Last summer, while visiting the factory of one of our most prominent cheese-makers, we found that he used it as a fertilizer. He kept a few hogs to which he fed whey and middlings,

but the great bulk of the former was sprinkled on the crops and the summer fallow. Now any farmer or cheese-maker who puts his whey to such a use, evidently does not understand his business.

Whey, under the different processes of cheese-making, has not yet been analyzed with sufficient frequency to ascertain accurately the comparative values, but sufficient is known for most practical purposes. With regard to the sugar and albumen in the whey, there is no need for further analysis; it is the mineral matter, the most valuable portion of the fluid, in which the discrepancies exist, under the different modes of cheese-manufacture, and the minerals are the material which would produce a marked effect as fertilizers. The cheese-maker above referred to asserted that he obtained very satisfactory results from the use of whey on his growing crops and on his summer fallow. What does this prove? It is bad enough to give the very best of human food to hogs, much worse to go to the still more enormous expense of preparing it for the soil. If a large percentage of the mineral matter, that which is the most important agent in the building up of bone and muscular and nervous tissue, is contained in the whey, then the cheese must be of poor quality, and is in reality more of a refuse nature or by-product than the whey. But this is not half the loss. The chief food constituent of whey is sugar, and there is also some fat, both of which materials are utterly useless as a fertilizer. The albumen of the whey is an excellent flesh forming food, but has very little manurial value. It will now be seen that whey may be fed to stock and still retain most all its manurial value, and the manure is much more cheaply applied to the crops than the whey, it being much more concentrated in hauling, and can be hauled when the farmer or cheese-maker has the most leisure.

The chief cause of the popular prejudice against whey has arisen from the fact that many farmers have fed it with tolerable success to swine, and have expected the same results from feeding it to calves. If whey is condemned for being an ill-balanced food, the same condemnation can be urged against nine-tenths of all the products of the farm, and the cheese made from the same milk is assuredly out of balance. A food may be balanced for one species of domestic animals and not for another. This is well illustrated by whey. Hogs, with their large percentage of fat, and small percentage of bone, muscle, and nerve, may flourish on poor whey with the addition of a very little other food; but with calves the conditions are different. No objections can be urged against ill-balanced foods, provided the feeder knows what other foods are required to balance them. The balancers of whey are clover, peas, wheat-bran, and middlings, if fed in the proper proportions; the former is too watery and too deficient in flesh-forming substances, these defects being remedied by admixture of the latter mentioned foods.

What causes some breeds to be more popular than others?—Printers' ink.

Bad flavor in milk, caused by eating flavored foods, may be removed by adding boiling water in the proportion of one pint of water to every gallon of new milk.

The Farm.

In the Hay Field.

More snap is required in haying than in any other season, and yet there is nothing more undesirable than hurrying and racing. The work must be thoroughly done and planned with the greatest sagacity. The more hurrying the less speed, and the more planning the more speed. The practice of cutting whole fields at a time, before commencing to gather, is not to be commended, for nutriment is saved by proper curing as well as by early cutting. Much depends upon whether the crop is heavy or light, as well as upon the state of the weather. If the crop is light the cutting should be done after three or four o'clock in the afternoons, so that it can be gathered before the blazing heat of the sun wilts it too rapidly. This particularly applies to clover, for it is leafier than timothy, and the leaves are more apt to break off in tedding, raking, pitching, etc., resulting in a great loss of nutriment. In this respect late cutting is as productive of loss as bad curing, so that when timothy and clover are grown together, cut when the clover is ready, not waiting for the timothy. Weight for weight, the hay will then also contain much more nutritive value than when cut later, and will be better relished by the stock. Green clover contains much more water or moisture than timothy, and therefore takes longer to dry. From these observations it will be seen that hay of best condition cannot be obtained except by sowing the varieties separately, or sowing together such clovers and grasses as mature at the same time—say red clover and orchard grass. The later the hay is cut the less moisture it contains, and this is another argument against the sowing together of early and late varieties of clovers and grasses. Permanent pastures are, therefore, not adapted for hay, although they will do very well for soiling.

Hay curing cannot be properly understood without studying the nature and effects of moisture. If the weather is dry, without dew or rain, the fresh cut hay gradually gives off moisture, the amount of the water in the clover if cut in bloom being reduced from about 80 to 15 per cent., and that in timothy, from 70 to 15, the hay then being considered perfectly dry, as no more moisture can be given off under ordinary temperature. If the heat is not excessive, and applied equally to the whole mass, the hay will be cured in the best condition, as there will be little or no loss of nutriment, the color will be bright, and the loss through brittleness of the leaves and stems will be reduced to a minimum. Although these conditions should be aimed at, yet they can never be attained. The drier the hay is the more readily it will absorb moisture, and every precaution should therefore be taken against dry hay becoming moist. Even dew, if it falls upon thin swaths of dry hay, will become rapidly absorbed, injuring the color, flavor, and nutritive properties of the whole mass.

When a first-class quality of hay is desired, when the weather is not favorable, it is advisable to cock the hay before it is sufficiently dry, spreading the cocks again before they commence to heat. Very few farmers are aware of the loss sustained by excessive moisture upon drying

hay. It drives out the soluble and nutritious constituents, and if the hay remains long wet, fermentation, as well as washing, takes place, and the feeding value then becomes still further depreciated.

By cutting before bloom, the loss of the pollen (called "blows" by many farmers) is saved. This contains valuable feeding material. When fed to horses it produces a dustiness which is injurious to the respiratory organs of the consumers.

No implement can do greater service to the farmer than the tedder. By its use the hay can be kept constantly stirred in such a manner as to admit the air, as well as the light and heat, which has a tendency to dry the mass uniformly. Considering the extra quality of such hay, such an implement would pay its cost in one or two seasons.

Cements for Special Purposes.

The value of a cement, as the London Building News remarks, is, first, that it should become a strongly cohering medium between the substances joined; and, second, that it should withstand the action of heat, or any solvent action of water or acids. Cement often fails in regard to the last consideration. For water-proof uses, several mixtures are recommended, and the following may be mentioned: One is to mix white lead, red lead, and boiled oil, together with good size, to the consistency of putty. Another is, powdered resin, 1 ounce, dissolved in 10 ounces of strong ammonia; gelatine, 5 parts; solution of acid chromate of lime, 1 part. Exposing the article to sunlight is useful for some purposes. A waterproof paste cement is said to be made by adding to hot starch paste half its weight of turpentine and a small piece of alum. As a cement lining for cisterns, powdered brick 2, quicklime 2, wood ashes 2, made into a paste, with boiled oil, is recommended. The following are cements for steam and water joints: Ground litharge, 10 pounds; plaster of Paris, 4 pounds; yellow ochre, ½ pound; red lead, 2 pounds; hemp, cut into one-half inch lengths, ½ ounce, mixed with boiled linseed oil to the consistency of putty. White lead, 10 parts; black oxide of manganese, 3; litharge, 1. Mix with boiled linseed oil. A cement for joints to resist great heat is made thus: Asbestos powder, made into a thick paste with liquid silicate of soda. For coating acid troughs, a mixture of 1 part pitch, 1 part resin, and 1 part plaster of Paris, is melted and is said to be a good cement coating. Correspondents frequently ask for a good cement for fixing iron bars into stone in lieu of lead, and nothing better is known than a compound of equal parts of sulphur and pitch. A good cement for stoves and ranges is made of fire-clay with a solution of silicate of soda. A glue to resist damp can be prepared with boiled linseed oil and ordinary glue, or by melting 1 pound of

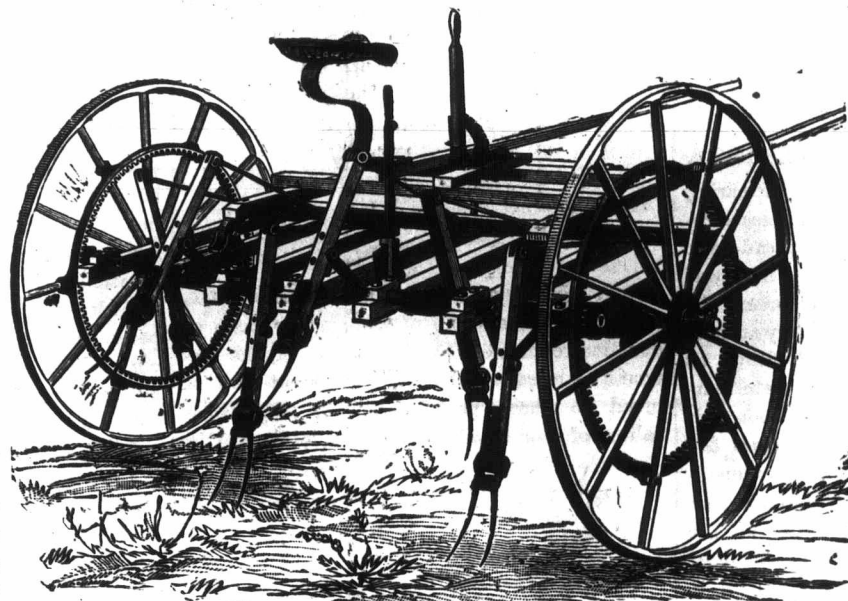
glue in 2 quarts of skimmed milk; shellac, 4 ounces; borax, 1 ounce; boiled in a little water, and concentrated by heat to a paste. A cement to resist white heat may be usefully mentioned here: Pulverized clay, 4 parts; plumbago, 2; iron filings, free from oxide, 2; peroxide of manganese, 1; borax, ½; sea salt, ½. Mix with water to thick paste, use immediately, and heat gradually to a nearly white heat. Many of the cements used which are exposed to great heat, fail from the expansion of one or more ingredients in them, and an unequal stress is produced, or the two substances united have unequal rates of expansibility or contractibility. The chemical or galvanic action is important. The whole subject of cements has not received the attention it deserves from practical men. Only Portland cement has received anything like scientific notice; and a few experiments upon waterproof, heat resisting, and other cements, would show which cements are the best to use under certain circumstances.

Weeds! Weeds!!

There is no royal road to weed destruction. Farmers may with propriety inquire, How is

thereof. It must, however, be remarked that this nutriment is restored either directly, if the weeds are killed on the field, or otherwise indirectly through the manure heap, if it is preserved from waste; but the farmer who works upon this method is always a year behind, just like the farmer who attempts to preserve his manure in the barnyard a whole year after it should be fit for application. The second debit is the labor required in their destruction. But there is an offset against this bill; the soil should be worked under any circumstance, weeds or no weeds, and is it not possible that this stirring would be entirely neglected by many farmers if the weeds were not there to urge them on? Here an important lesson can be learned from market gardeners; they find it absolutely necessary to keep the weeds out of sight, else their occupation would soon be gone. They find it saves manure and labor, and yet they spend more of these on a few acres than most farmers do on a whole farm. The nearer garden farming is approached, the greater will be the profits.

The lack of careful observation and reflection is the greatest obstacle against successful weed destruction. Many farmers think that there is a special rule for killing every variety of weeds. If such a rule exists, it can only be ascertained by special observation in each case; the times of sprouting and ripening; the feeding, rooting, and seeding habits, and the modes of propagation can best be studied by each farmer in his own fields without the aid of "book farming." When this is all done the principles can easily be applied. The most vulnerable point of every victim should first be ascertained. There are two periods in the growth of all plants when they are tenderest, and hence most easily destroyed. Then are the times



HAY TEDDER.

it that science has done so much for every other department of agriculture, and yet we have to plod amongst those weeds with still greater vigilance than in our backwood days? All sorts of weeds are sent to distinguished botanists for identification, and names are given to them about as long as the weeds themselves, and yet special remedies against their ravages seem as far off as ever. Science tells us that weeds rob the soil of the identical plant food which should have nourished the crops. Every farmer who neglects to hoe a hill of potatoes, soon finds this out for himself. Science is not required to teach farmers that weeds are robbers. Weeds and thistles are the biggest mortgages on Canadian farms to-day, and every weed added from year to year is so much more interest to be paid on those mortgages. Politicians are said to be easily bought, but the trouble is, they won't stay bought; so it is with weeds—they can be easily killed, but they won't stay killed, somehow.

In bringing weeds to account we should, first of all, debit them with the nutriment they take from the ground, thereby robbing the crop

to prepare for the attack. The first period is just after sprouting, when a mere stirring of the surface soil will destroy them. The second period is when the seeds begin to form. Then the energies of root and stem are being exhausted in the production of seed, so that by cutting them as closely as possible to the ground, or, still better, spudding them under the ground, especially if this can be done shortly before a shower of rain, the excessive moisture will enter the hollow stems, causing them to rot. But these operations will only destroy the weeds which grew from the seeds that lay on the surface of the soil. The deeper seeds may lie for years, until an opportunity of reaching the surface is presented. How these seeds got there will be explained by what takes place if the weed-seeds are allowed to ripen and fall upon the ground. Only a portion of the seeds fall upon the soil, the remainder being conveyed to the barn or stack with the crop. Those in the soil will keep cropping up for years, unless the surface soil is kept stirred, so as to induce their germination and consequent destruction. Those find-

ing their way into the manure heap find their way back to the field, and get mixed both with the surface and the subsoil, causing annoyance and loss for many years. Fermenting the manure heap will destroy all seeds, especially of those having considerable tenacity of life. However, if the heat of the manure heap is kept at a very high temperature for several days, most of the seeds will be destroyed, but unless the fermentation is cautiously managed, much manurial value will escape from the heap. Weed seeds are not destroyed by passing through the bowels of animals, except in a few instances when they are broken by mastication.

These modes of propagation can be prevented by every farmer, but the purchasing of unclean seed grain, as well as the dispersion of weeds by birds and sometimes by the winds, cannot be entirely avoided. The threshing machine is often a fruitful cause of weed propagation, and one neighbor with a dirty farm may be the means of spreading havoc amongst many more cautious and cleanly farmers. This can easily be avoided by clean farmers clubbing together and purchasing machines specially for their own use.

Some weeds, such as the Canada thistle, are propagated by their roots, as well as by their seeds, in which case the rooting habits should be carefully observed.

Look for Ergot in Your Grasses.

It will be remembered that early in the spring of 1884, an alarm of foot-and-mouth disease resounded in Kansas, which soon spread over Illinois and Missouri. The sensation was published far and wide through the press, the affection was investigated by veterinary authorities, and by the Bureau of Agriculture at Washington. At first many of the veterinarians pronounced it to be the true foot-and-mouth disease, as it appeared to possess the same symptoms; but after a few weeks suspicion arose on many points, which gave rise to a more searching inquiry. The virus of the European foot-and-mouth disease is the most active known, and spreads from one animal to another upon the least provocation; but it was shown that the affection reported in the Kansas, Illinois and Missouri herds could not be transmitted by inoculation. It was a matter of surprise that the virus could have been communicated to so many herds, situated at widely separated points, at the same time, even at points where there had been no ingress of cattle. When it is known that foot-and-mouth disease can have no spontaneous origin, many authorities considered that this fact alone was sufficient to prove that the affection was traceable to some other source. It was also found that in the existing disease the temperature of the body was but little higher than normal, that the loss of appetite and the difficulty in swallowing were usually not appreciable, while in the true foot-and-mouth disease the temperature rises to an abnormally high pitch, and there is difficult mastication, with a great loss of appetite. Over one hundred animals were reported to have been affected, and they presented more or less of the following symptoms: Vesicles and ulcers in the mouth, in the cleft of the hoof, and on the udder; suppuration and sloughing on the foot; ulcers in the rectum; diarrhoea; tem-

perature 101 degrees to 104.4 degrees; animals stood hump-backed, with drooping heads, jerking of hind feet, and tendency to lie down; interdigital spaces red, swollen and sensitive, with toes spread apart; swelling appeared at or around the coronet, discharging pus after a few days; mouth hot, with red vesicles on

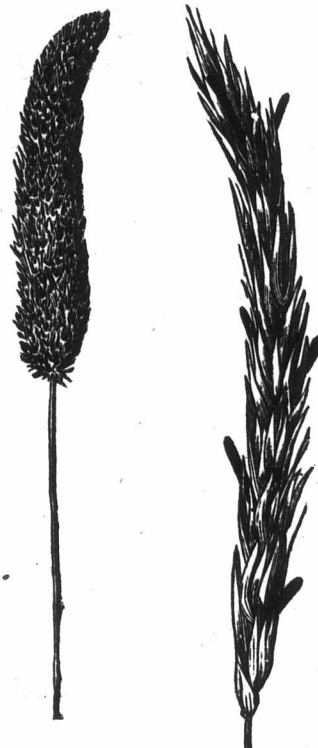


Fig. 2.

Fig. 1.

mouth and tongue; feet drop off in severe cases, and sometimes also tip of tail; many cases of abortion reported. This gangrene of the extremities is caused by an insufficient flow of blood to those parts, inducing diminished calibre of the blood-vessels, which is greatly



Fig. 3.

aided by cold, the drinking of cold water, or a scanty supply of same.

Upon closer investigation it was found that the hay which all the affected cattle had been eating was infested with ergot, which discovery led to an investigation of the life history of this fungus and its effects upon the system.

Its appearance on the grasses will be seen in the accompanying illustration. It is a poisonous plant belonging to the genus *Claviceps*. It has even been analyzed, as well as classified, and its physiological action is now well known. Its growth is commenced by minute spores which float in the air and eventually reach the flowers of the grasses. The spores grow with the grass seeds, on which they feed, and which they finally displace. The grasses which were found to contain the ergot were wild rye (fig. 1), timothy (fig. 2), red top (fig. 3), and blue grass. The existence and poisonous effects of the ergots have been known for several centuries; but animals of various kinds have perished by its influence without the cause having been known at the time, it having frequently been thought that the extremities were frozen. Cases of ergoted grasses were reported in Canada thirty years ago, and there is no doubt that it still exists in many localities, especially upon our native or blue grass.

Experiments have been conducted for many years with regard to the action of ergot on various animals, including birds, and it has been found that some animals are more susceptible of its effects than others, but it is always poisonous, acting paralytically on the nerve centres, and producing mortification of the extremities. It has been known to prove fatal to man. When given as a medicine, a safe dose does not exceed one ounce for adult bovines given for one or two consecutive days; but upon examining the grasses from the mangers of the herds affected in the States mentioned, it was calculated that many animals must have eaten as much as four ounces each per day for several days in succession. It was considered that even this quantity would not have produced fatal effects, had it not been for the cold weather, the exposed condition of the animals, and the inferior quality or scantiness of the water. The affection was confined to the animals that had been eating the ergoted hay exclusively; those having eaten other foods in addition to the hay did not suffer. It was observed that the ergoted grasses grew chiefly on the low lands.

We have described the symptoms of gangrenous ergotism somewhat minutely for the reason that we have received letters from several farmers inquiring what the matter was with their stock, some of the symptoms having been similar to those described. During the haying season we therefore strongly advise all our readers to examine their grasses, and if they find any signs of ergot, they should send us specimens for examination forthwith. In cutting the hay before maturity, no poisonous effects can be produced by feeding ergoted grasses, and no signs of the fungus can be seen; but in fence corners, and in pastures, where heads are frequently allowed to ripen, searches should be diligently made.

Mr. S. R. Hart, near Rochester, in Husbandman: "I have used, during two years past, water impregnated with gas tar for the purpose of destroying the Colorado beetle on my potato vines. It has proved more effective than Paris green, and has been used with equal effect on my currant bushes. Two quarts of gas tar to a pailful of water are the proportions used, and the vines or bushes are sprinkled by means of a watering pot."

When Should Hay be Cut?

Very few agricultural questions have led to greater controversy than this one. We once heard a farmer say that he could make no practical use of knowing when hay should be cut, for he was always forced to cut when he was ready, or when the season was favorable. We dare say that this view is taken by a large majority of farmers; but we think this is a very contracted view of the question. Even if this knowledge were of no practical use, so far as cutting is concerned, it still becomes important to know the comparative values of hay cut at different stages of ripening and cured under the varied conditions of the season; for in each case the hay will have a different feeding value, should therefore be devoted to specific purposes, and fed with different kinds of concentrated foods according to the amount of nutriment lost in late cutting or defective curing. By knowing these facts the farmer will be in a position to calculate the value of a little extra exertion or pains in the hay field, and will realize the importance of keeping the different qualities of hay separate for the various animals and the various feeding purposes.

Although the question has not yet been thoroughly investigated with reference to the comparative feeding values of hay cut in different stages of ripening, yet much valuable and reliable information has already been brought to light. In the early stages of the investigation, when analyses of early and late cut hay were made, it was ascertained that the loss of an enormous quantity of nutriment took place as the stage of ripening progressed, as will be seen by the following table, the analyses having been made in England at the Rothamstead Experiment Station:

COMPOSITION OF HAY HARVESTED AT DIFFERENT DATES.

Date of Cutting.	Albuminoids.	Fat.	Soluble Carbo-hydrates.	Fibre.	Ash.
May 14.....	17.65	3.19	40.86	22.97	16.83
June 9.....	11.16	2.74	43.27	34.88	7.95
June 26.....	8.46	2.71	43.34	38.15	7.34

It will seem from this table that the albuminoids or flesh-forming portion of the hay decreased with every date of cutting; so did the fat and also the ash or mineral portion, while the fibre and carbo-hydrates, or heat-producing portion of the hay, increased, the crude fibre and the carbo-hydrates being the least valuable of all the constituents mentioned in the table. In the last cutting the hay was over-ripe, the seeds having been formed.

But in the feeding value of all foods there are two important points to be considered: (1) The composition, and (2) the digestibility. A food may contain valuable constituents, but if a large percentage of them is indigestible, the value becomes lessened. The same hay was fed to sheep for the purpose of ascertaining its digestibility under the different dates of cutting, and the following table shows the results:

DIGESTION OF HAY BY SHEEP.

Proportion of each constituent digested for 100 supplied.

Date of Cutting.	Total Organic Matter.	Albuminoids.	Fat.	Soluble Carbo-hydrates.	Fibre.
May 14..	75.8	73.3	65.4	75.7	79.5
June 9..	64.3	72.1	51.6	61.9	65.7
June 26..	57.5	55.5	43.3	55.7	61.1

These tables prove that a great loss is sustained in the digestibility of late cut hay as well as in its composition. Before further in-

vestigation took place, many writers entertained the idea that the earlier the cut the better; but there are other considerations which modify the results as shown by analysis. It was next ascertained that 20 to 25 per cent. more hay could be obtained by late cutting. But if a second crop is taken, it is still questionable if there will be much difference in the totals of the two crops. These considerations, however, are governed by the seasons in each particular case. If the second crop is not taken, then the extra value of the aftermath may sometimes make up for the loss in weight sustained by the early cut hay. The true principle is to cut when the hay contains the most digestible nutriment, and this gradually diminishes after the seed begins to form, the strength of the stem and the soil being exhausted in the formation of the seed. The increased fibre then retards the digestibility of all the constituents of the hay, as well as being less digestible itself, and the flesh-forming constituents are converted into less valuable forms of nutriment.

The reason most farmers give for late cutting is that the hay "spends" better. Now this is a palpable absurdity, for by mixing the early cut hay with straw, it will spend still better, more nutritive value can be obtained, and this is the best means of using up straw which would otherwise go to waste. It is true that early cut hay wilts considerably in curing, but if well cured little or no substance is lost except the water, and the hay is then the nearest equivalent of grass, which is the natural food for domestic animals. Investigators are now at work endeavoring to ascertain when hay should be cut for the various purposes for which it is designed, such as growth, milk, butter, etc., but the experiments so far have been conflicting, and no reliance can yet be placed upon them. From what has been definitely ascertained the farmer will now see that during bloom is the preferable time for cutting; but this is rather indefinite, for this period sometimes lasts about two weeks, as some heads bloom before others. At any rate it is safer to cut too early than too late. If the hay is much and the hands few, commence cutting even before bloom, keeping the hay separate in the mow for favorite bites, for mixing with cut straw or other coarse food, or for feeding to stock which receives no grain or other concentrated foods, early cut hay being itself a food of considerable concentration. A knowledge of the science of hay making has led many farmers into the growing together of grasses or clovers which ripen about the same time, or the sowing of the different varieties separately, which tendency will eventually supersede the existing practice of growing timothy and red clover together.

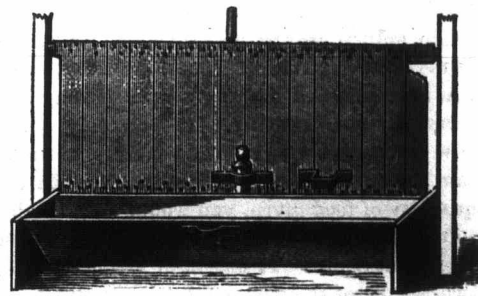
A Western dairyman says that he invests \$30 a year in newspapers and finds this the most profitable investment he has ever made. He calls it his "tobacco money," meaning that his neighbors who spend the same sum in this weed have no newspaper fund. He encourages his men to read the papers and keep posted in their several departments, by which means he gets more than ten times the value of the investment out of the men, besides pleasing them and making them more anxious to remain with him.

Stock.

A Convenient Hog-Trough Arrangement.

The great drawback in pig feeding is that the hogs won't let you give them what they so vigorously squeal after. You can never fatten a pig by pouring slops on his bristles. Any contrivance by which the feed can be safely and quietly landed in the trough, instead of being used as a bath for the frequenters of the pen, would certainly be a boon to the hog-raiser.

The accompanying cut shows how this object can be effectually accomplished. Let it be supposed that your swine house is divided into pens with a passage in the front. Instead of the partition between the passage and the pen being a fixture, as is almost invariably the case, let that portion of it which fronts each pen be attached to the posts in such a manner that it will swing, as is shown in the cut. By pulling or shoving the handle in the centre of the top cross-piece, the partition will swing in any desired direction. Instead of this handle a catch, which answers the same purpose, may be attached to the lower portion of the parti-



HOG-TROUGH CONTRIVANCE.

tion, as is also shown in the cut. The trough is placed under the partition in such a manner that when the partition is swung into the pen and latched behind the trough, which position is represented in the cut, the slops or feed can be poured into the trough from the passage without interruption by the hogs; and when the feed is spread evenly in the trough, the partition can be swung outwards and latched on the passage side of the trough, in which position the hogs have free access to their food.

This is also an excellent contrivance when it is desirable to clean out the trough, and besides it serves all the purposes of a door. It is a saving of lumber, and, all things considered, it is much cheaper than the ordinary fixed partition.

It has long been supposed that milk from different cows should not be mixed together for butter making, but no special experiments have been conducted until recently. The milk from a young and an old cow was mixed, and upon churning the cream it was found that the quantity of butter was proportionate to the cream of the old cow, but upon churning the buttermilk, a second batch of butter was obtained equal to the first. In connection with this experiment it must be remembered that old cows, or any cows that have not recently calved, even of the same breed, produce less cream, or cream that rises slowly and requires much churning.

Items in Stock Raising.

BY A STOCKMAN.

The length and severity of last winter should impress upon our minds more strongly than ever the importance of the haying season, as our success in the hay field will govern the number and condition of our stock next winter. The number of men employed and the quantity of snap they possess, the character of the implements used, the time and condition of cutting, etc., all govern our profits in beefing and dairying.

Last winter was just as trying on the stock as on the owners, and you should now consider how the repetition of such loss and inhumanity can be avoided in future. Many of you have the habit of writing to the agricultural papers giving your experience of your successes; now, be just and write up the losses you have sustained by your mismanagement. Cast away old methods and old ideas, and adopt systems which are in harmony with the times. Banish the practice of ruining your pastures and your stock by the ruthless system of banishing your cattle upon frozen grass, taking no more heed of them until the ground is hidden in the snows of autumn.

The animal heat must be sustained before you can receive any returns from your stock, and this is maintained first by proper feeding and second by good stabling. If you only knew how much food was required merely to maintain the animal, and then compare it with the quantity of food given, you would soon be able to calculate how many of your animals you are feeding at a loss. It has been estimated that two-thirds of the food given are required for maintenance, and one-third for profit, that is, when the animal is liberally fed, so that no profits can be obtained by feeding a two-thirds ration, and the whole food is consequently wasted, or more than wasted, for the animal is constantly depreciating in value. In the same manner your profits are lessened in winter by inefficient stabling, producing inefficient warmth, which is as deleterious to your profits as inefficiency of food.

It is notorious that too many of you enter the winter with too many animals on your hands; or rather you have more animal life than you have food to sustain, and then you boast to your neighbors that you have wintered so many scare-crows on such a small quantity of food; or, what is just as bad, you congratulate yourself that you have brought so much stock through the winter without buying a single dollar's worth of food! You imagine you have saved money by making your stock pick up and eat every straw on the dung hill, and possibly also a large quantity of the dung itself. The grass is to make amends for all this, but you find that just as the stock begins to get into condition, and the cows commence to yield a profitable flow of milk, then the pasture is bare, either by drought or over-stocking, and the loss then sustained not being made up by the autumn pastures, relief is sought in mortgaging the farm.

Let us suppose that your stock consists of dairy cows, the choice of which sold here (Grey

County) last spring at \$45 to \$60, this margin being due more to the condition of the cows than to the breed; then say 15 cows at an average of \$50 would bring \$750, while if you wintered 20 scare-crow cows on the same food, they would be dear at \$25 each, or \$500 in all, making a clear loss of \$250—all owing to miscalculation. This clearly proves that you would have saved \$250 by making a present of five cows to some poor immigrant neighbor in the month of October. So much for feeding twenty cows with the food that properly belongs to fifteen. But this is only the annual loss sustained by feeding cows; such farmers generally lose proportionately as much in most of the other branches of their business, and they have a sort of a remote idea that farming "doesn't pay." If such farming is able to sustain such losses for many years in succession, then there must be a bonanza in good farming. So there is.

Some farmers farm entirely for pleasure, and calculate to lose money on their operations; but the farmer I have just described has his mind bent entirely upon making money; he will cast a dollar into the fire, if by doing so he can save a penny. The shrewd farmer saves both the dollar and the penny, as well as the interest on both, and many other pickings besides; but the question may arise whether it is better to sell or give away the five cows or purchase food for them. This will depend upon circumstances in each particular case; such for example as the stabling accommodation and comforts, prices of food, convenience to markets, etc.; but in each case it must be remembered that if it will not pay to buy feed for stock, it will not pay to feed the food raised on the farm, making allowance, of course, for the expense of hauling from the market place. It is no disgrace for a farmer to run short of feed and be compelled to buy; it is usually better to do so than to have feed to sell in the spring. The true principle to follow is to feed correct rations all the year round, the matter of buying or selling being a secondary consideration.

I have recently heard of several instances in which farmers have lost quite a number of their stock from starvation; one is reported to have lost \$500 worth; another three cows and a horse; and several around here have lost one or more cows from weakness at calving time. The condition of the remaining stock can easily be imagined from these facts, and it is quite probable that quite an additional number will perish on the early grass. One man who owns 300 acres of land is purchasing hay for 300 head of stock. One would think that domestic animals were given us for abuse, not for use, and such owners certainly offend against the moral, if not the civil law. If "a merciful man is kind to his beasts," what must be said concerning the man I have described? It is my opinion that fully one-half of the farmers in this section would be liable to punishment under the act for the prevention of cruelty to animals.

I once read in an English paper an account of a farmer in Kent who attempted to winter his sheep, numbering about 300 head, on wheat straw as their only food. The shepherd complained to his master that the sheep were dying,

and could not possibly live on this diet, to which the latter replied that he could not help it, and that he was not able to purchase food for them. The farmer was ultimately brought before the magistrate under the act for the prevention of cruelty to animals and committed to jail for six months. The magistrate commented very severely on the case, remarking that the flockmaster must either provide proper food for his herd, or, if unable to do so, he must dispose of them in some humane manner. What sort of a figure would we cut in this country should such a law be enforced here? I fear all the jails in Ontario could not contain us all.

Another word with regard to temperature. One day in March, while thinking over the subject, I took a thermometer from the woodshed, the temperature standing exactly at zero, and placed it in a stable which contained five yearlings, and a cow in a loose box, fixing it behind the centre beast about five feet from the floor. It soon rose 12°, when I turned out one yearling (the one next the door), and in a few minutes the thermometer dropped two degrees. I then turned out another, and in a few minutes it fell two degrees lower. After a while I turned out all the others, and in an hour the thermometer stood at zero again. It therefore follows that animals should be packed as closely together as possible, providing the temperature is regulated by proper ventilation. The animals in winter should be provided with heat producing food; the water and stables should be properly tempered, say about 60°, and the temperature of the stable should never fall below 40°.

There is nothing like feeding for a definite purpose. Don't imagine that everything eaten is not wasted. The greatest possible waste can accrue by feeding improper rations, especially when the injury inflicted upon the animal is included in the calculation. Farmers are too undecided as to what purpose their young animals should be devoted. This decision should be made at the birth of the animal, and the feeding and management should be regulated accordingly. A knowledge of the ancestry will teach you whether the calf is adapted to milk, butter, cheese or beef. In any case the animal must be liberally fed, but the nature of the food will be different in each case. If you feed for early maturity, beefing animals will stand stimulating food which would injure young cattle intended for dairy purposes. The same principles and cautions will apply to the management of all our domestic animals. By following these rules you will always have valuable and saleable stock, which will add pleasure as well as profit to your business. Consider what your forte is, both with regard to the bent of your mind and the nature of your conditions, and make that line of business your specialty.

Now there are thousands of farmers who follow a different system to the one I have indicated. Why don't they come forward and defend themselves? Why don't the feeders of scare-crows give some reasons for the faith that is in them, if they have any faith in their system? The fact of the matter is that these items, or any others of the kind, will not reach

them; they know too much to take agricultural papers. They are men of *experience*, and so repudiate "book-farming," as a matter of course. They are so busy making money that they have no time for reading, even if books and papers were thrust into their hands gratuitously. They have so many chores to do in the evenings that they have no time to attend farmers' meetings; and they and the whole family must retire as soon as their day's work is done in order to be up fresh and early in the morning for the purpose of making more money. A profession is held in disrepute in proportion to the number of drones in it, who live from a quarter to half a century behind the times. How to eliminate our drone farmers is the answer to the question, How shall we elevate the standard of the farming profession?

Imported Stock.

The question of the superiority or inferiority of "imported" stock, compared with the home-raised article, has not received due attention. A great deal has been written on the kinds of plants and fruits which will flourish in our climate, the question as to what stock is best adapted to our conditions being almost entirely neglected. The subject requires special attention inasmuch as speculators have been as much interested in exaggerating the value of "imported stock" as in that of pedigree, records, color, and other crazes. So much has this been the case that many farmers will not accept the service of any sire which is not imported or is not the direct offspring of imported stock.

The so-called authorities present their fallacies from different standpoints; some attempt to prove that our conditions are inferior to those of the country from which the stock emanates, and therefore, they contend, importations should continue; others maintain that our conditions are superior, and therefore the more rapid the importations the more rapid our improvement. These authorities have fallen into the same error as those of "record" notoriety, the former basing their observations on a few years' experience, and the latter attempting to ascertain the value of a breed by the milking capacity of a few individual cows for one week. It seems to be forgotten that deterioration may operate as slowly as improvement. Under a moderate change of conditions some animals may seem to improve for a time before they commence to deteriorate, while others may deteriorate before they begin to improve. Indeed, most all domestic animals may grow and fatten under conditions wherein they could not be successfully bred for many generations. It is a physiological fact that a change to more favorable surroundings is the potent agent in the improvement of all animals, and the reverse holds true with regard to the deterioration of the race. The same truth applies alike to plants and animals, so that if the difference in conditions are investigated, there can be no room for experiment.

Breeds that have been built up in any country, especially where the highest arts of man have been employed in their improvement, may be regarded as living under the most favorable conditions, so that any change must be regarded as more or less detrimental, proportion-

ate to the constitution of the animals. Even in countries which are more favorable to disease than others, animals can, within certain limits, be raised with a constitution adapted to resist such predisposition. The Texan cattle bear witness to this fact.

The question hence resolves itself into two factors: (1) If the rage for imported stock is justifiable, then our conditions must be inferior, or (2) if our conditions are superior, then it is impossible for foreign thoroughbreds to compete with those reared within our own borders. The evidence, even the combined evidence, of our stockmen, based upon their observations and experience, is unsatisfactory proof; for all alike, no matter whether their asserted arguments are founded on true or false principles, arrive at the conclusion that the great end to be desired is the importation of more stock—because the handling of aristocratic breeds is a genteel way of making money, or spending it, as the case may be; and should losses accrue in the speculation, then what is lost in money is gained in sympathy and renown.

Let us take a glance at the evidence of the superiority or inferiority of our conditions, comparing ourselves with England, for example. There they have the combined experience of many generations, during which time the art of breeding has reached its height. Where are we? There we find the land of sweet and nutritious herbage—grasses adapted to all the special wants of every department of stock husbandry; the land of cake and meal, where the science and the art of stock feeding are added to the long generations of practical experience. Where are we? This would all have been quite laudable had it not been overdone—had not the mania speculation, induced chiefly by adventurers on this side of the ocean, seized the minds of their stockmen. They saw that our untutored minds were seized by a desire for gross monstrosity in preference to intrinsic worth; they bred and fed to gratify our abnormal and perverted tastes, and the results have been disease, degradation, and death. These ruinous and demoralizing achievements we are aping with fatal certainty.

We have shown that our ordinary conditions are at present adverse to our existing notions of improvement, and the question now to be decided is, whether we are to brighten our prospects by improving our conditions, or miserably attempt to do so by continued importations.

Scours in calves are becoming more prevalent every year. The cause is evident. Milk is becoming more and more in demand, and the calves are supposed to be able to thrive on whatever is put before them. If the diet is deficient in quality it is thought that quantity will make the matter all right. Any sudden changes of food, over-feeding, or feeding too rich or too poor rations, are almost invariably the causes of scouring. "Remove the cause" is the panacea for all ills; but in severe cases other duties are also required. Give feed in the form of gruel, first administering a mild purgative, and with careful nursing and comfortable quarters, the scouring will soon disappear.

Garden and Orchard.

Seasonable Hints on Small Fruits.

STRAWBERRIES.

If the plants have been set out this spring, your object should be to give them every opportunity to gain and concentrate strength. Young and tender plants should not be encouraged to bear fruit, as this will dwarf and weaken them for the remainder of their lives. Therefore the blossoms and runners should be nipped off. If the plants are in hills, no runners should be allowed to grow, but should all be cut off as soon as they begin to shoot out. However, if they are planted in rows, let the runners run when the plants have strength enough to send out several at once; and these can be used for increasing the size of your plantation, or for renewing the old one. If you want to renew your patch all at once, instead of losing a year's crop, as is done by the ordinary method of renewal, you may allow the runners to grow up between the rows, digging up the old plants after they have borne their last crop. This plan can be repeated every time you wish to renew, and a constant succession of crops is thus obtained on the same patch. However, it is often desirable to move the patch from one portion of the garden or field to another, especially when destructive insects become numerous.

RASPBERRIES.

The chief object of attention for this month is pinching off the tips of the new growth, small fruits requiring pruning as well as large fruits. Those planted this spring should have the tips pinched off when the new growths are 12 to 15 inches high. The objects gained by pinching back are: the plants grow thicker and stronger, the necessity for supporting them by stakes being thus avoided; they bear more and better fruit, and they stand the winter better.

You should treat the suckers like weeds, as the former enfeeble the plant as well as the latter. No more than four or five canes should be allowed to form each stool.

BLACKBERRIES.

These require about the same treatment as raspberries; but as they make a greater spread, they take up more space unless they are pruned more closely. They will be apt to grow into all sorts of hideous shapes unless properly trimmed. When the main shoots reach 2½ or 3 feet high, pinch off the ends with thumb and finger. This will cause a growth of laterals, which should be pinched off when they reach 12 to 18 inches long.

CURRENTS AND GOOSEBERRIES.

The currant being a sure bearer and hardy, is badly neglected by most farmers. The old plan of planting along the side of the fence without sufficient room for cultivation and allowing the grass to gain the mastery, should be abandoned, as the small amount of labor required for cultivation will be amply rewarded in the extra yield and quality of the fruit. The currant and the gooseberry yield their fruits on shoots two years old and over, and the young shoots should be maintained in a vigorous condition. In our hot climate it is better to let the stems begin to branch near the surface of the ground, instead of allowing them first to

grow a foot or so high before branching, as is sometimes recommended.

HOW TO SERVE THE WEEDS.

Weeds and suckers prey upon the vitality of small fruits. It will not pay to wait until the weeds come in sight in order to make sure that they are there. You must always take it for granted that they are there, whether you can see them or not, and nine-tenths of the labor is saved by destroying them before they see the light, besides increasing the vitality of the bushes.

Seasonable Hints for Orchardists.

BY L. WOOLVERTON.

PRUNING OF APPLE TREES.—Most farmers prune their trees in early spring, while waiting for their ground to dry for plowing. During that season it is quite a common thing to see orchards horrible mutilated. The treatment they receive is just what might be expected if the purpose were the gradual destruction of the trees; but if you ask the man with axe and saw his object, he scarcely knows except that he wants to make his trees bear better fruit. In pursuit of this he is about as sensible as the doctor who would chop off a man's fingers and toes, arms or ears, with the expectation of improving his health and vigor.

Every cut is a wound which requires an expenditure of vitality in healing; and very often, alas! is beyond Nature's healing power. Some of our old orchards, therefore, are a disgrace to the owners, and a blot upon the landscape, because disfigured with huge cuts and rotten stumps, where large branches have been removed from time to time, without any good reason, except the habit of doing it.

After considerable reading and experience, my conclusion is that the pruning of apple orchards is a necessary evil, and, like medicine, only to be employed with a definite purpose.

There are two objects in summer pruning, and the first is to induce the formation of fruit buds. These are formed during the growing season at the axil of the leaves, and by lessening the amount of wood growth which the tree has to support, there will be a tendency toward the formation of fruit buds, where otherwise only leaf buds would have been produced. Where trees are already inclined to overbear, it is evident that summer pruning, under this head, will be out of place. Winter is the time for pruning for wood growth.

The second object is to secure speedy healing of the cut surface. Not till the sap has been aerated in the leaves is it in proper chemical combination to effect new wood growth; but by the middle of June a sufficient store of nutriment is laid up in the cellular structures of the tree for this purpose, and wounds made at this season, that is from the middle of June until the middle of July, will readily heal.

But large cuts should always be avoided. In a neglected orchard this rule must be broken, and the cut waxed over; but with constant care year by year from its first planting, a young orchard may be trained into proper shape without butchery. When limbs have a tendency to cross, or the branches to grow too thick, there must, of course, be a thinning out, and in such cases it is best always to cut the smaller ones, other things being equal.

The natural shape of a tree should not be interfered with. To attempt to make a Northern Spy spread like a Greening will be a dead failure. "Cut out the leader to open the head and let in the sunshine," says one. That is bad advice, my friend, as you will find when you have a yearly crop of young sprouts to cut out from the centre of your tree. The natural form of each tree should be studied, and every cut should be a help to Dame Nature in perfecting the beautiful symmetry of that form.

THINNING OF FRUIT.—Fruit culture, as an art, is at a comparatively low state yet in Canada, because farmers as a rule do not possess capital proportionate to the number of acres in cultivation, and consequently cannot afford that amount of time and study necessary to the best results.

Old country gardeners have long practiced the thinning of fruits, and the secret of the enormous strawberries and gooseberries shown by them at exhibitions, to the astonishment of visitors, is largely due to the careful and judicial practice of this operation while the fruit is growing.

*The object of thinning is two-fold, viz:—*The improvement of the fruit, both in size and quality; and the accomplishment of either of these results would certainly reward the grower for a large amount of outlay. Fine fruit never glut the market; it is the immense quantity of trash that is yearly shipped to our cities that does the mischief, bringing the shippers a bad reputation, as well as small returns. Any fruit merchant will say he would pay as much for one basket of choice pears or peaches, as for two of an inferior class.

Some kinds of fruit need thinning more than others. For example, among the dwarf pears, the Duchesse d'Angouleme, the Louise bonue de Jersey, the Buffone, &c., and among the standards, the Bartlett and the Seckel are all liable to overbear. Just now the Bartlett pear trees are overloaded with fruit buds, and unless thinned out there will be more fruit than the trees can possibly mature, and a large proportion will be knotty and unsaleable.

Among the apples the Greening is almost sure to overbear each alternate year, and unless the soil is very rich, much of the fruit, if not thinned, will need to go as "second class," or as "small size."

Peaches particularly need careful thinning. In Canada, fortunately, this year two-thirds of the peach buds have been cut off by the severe winter, and the number left is probably just about as many as would properly mature. I say fortunately, for if Jack Frost had not done the work, probably not one peach grower would have the courage to remove so large a proportion of the young fruit.

The best time for thinning fruit is of course as early in the season as possible; but in Canada probably early in July is most opportune, because by that time the tree itself will have cast much that nature considers superfluous.

The task of thinning does not entail as much extra labor as would at first thought be supposed, for, sooner or later, the fruit must all be picked, and it is easier handled when small than large.

Some say that the bearing year of apple trees may be changed by persistent thinning of the apples. This result may be attainable in this

way, but it seems to lack the proof of experience. Trees are very loath to change their bearing year, as may be inferred from the fact that in 1882, which was the bearing year of most apple orchards, the bloom was in many places destroyed by the prevalent north east storms, but the apple crop of the following year was little, if any, increased thereby. If any reader has any experience in thus changing the bearing year of his orchard, it would be a matter of sufficient public interest to communicate through the pages of the FARMER'S ADVOCATE.

SPRAYING ORCHARDS WITH PARIS GREEN.—Four ounces of Paris green to forty gallons of water is a sufficient quantity of the poison; and if this mixture be made in a coal oil barrel and set in a lumber wagon, two men, one to drive and one to work the force pump, will go over a large orchard in a day. Of course, care needs to be taken to avoid pasturing animals, in an orchard so treated, for some time; yet it is a question whether the small amount of arsenical poison distributed in such infinitesimal particles would be a source of danger to animals.

BLACK KNOT EASILY REMEDIED.—We have had some experience with this disease for the past fifty years, and know of no fruit tree malady that is so easily managed. All that is necessary is to keep watch and cut it away on its first green appearance. Do not wait for it to become black, and especially do not follow the feeble directions which some have published to examine and cut away once a year; although if neglected a year it may not be too late to take it vigorously in hand. If on small shoots or branches, cut them wholly away, but on larger limbs carefully cut out and wash the wound with protroleum, kerosene and chloride of lime. Any tree may be thus cured, if not thoroughly infested with it. The cut branches are of course to be burned. By taking it promptly and in time the labor is almost nothing and the cure certain. It is only when trees are allowed to become covered with it that the only remedy is to grub them up.—[Purdy's Fruit Recorder.

PHYLLOXERA.—No very serious damage to the grape crop in this country has so far resulted from the presence of the grape-root louse, but it is on hand more or less in most every vineyard, and only waits upon some climatic or other injury, which would weaken the vitality of the plant, when the insect would speedily gain an ascendancy. This insect seems to baffle cultivators, for although the French government offer a prize of 300,000 francs for a means of destruction, no one has yet received the reward. The most practically-effective remedy that has yet been proposed appears to be the application of petroleum so that it will diffuse itself through the soil. Professor Thomas Taylor, of the United States Agricultural Department, showed several years ago that kerosene would destroy root lice on plants.—[National Tribune, D. C.

Ants are effectually destroyed by saturating a sponge with sweetened water, and when full of these insects, the sponge may be dipped into a vessel of boiling water.

Potato Scab.

Prof. Burrill, of the Illinois Industrial University, was recently called upon by the *Prairie Farmer* to explain the cause of "potato scab," and to show why some varieties are free from the disease, while other varieties, planted in the same field and rows, are entirely ruined by it. The Professor says in reply:

That the cause of the injury called "scab" upon the potato has not been well worked out, and it cannot be asserted as certainly known. Probably several diseases are included under this common name. But a negative point which may be considered thoroughly settled, is, that insects are not the authors of the mischief. There is, to be sure, an appearance of insect work, but nothing whatever has been observed to prove that they have anything to do with the malady, while many facts disprove it.

The disease has been attributed to earth-worms, but in this again we have only guess work, and the negative evidence is quite strong. One or more species of fungi have been accredited with the destructive work, yet little is really known about these as agents, rather than results. A fungus named *Rhizoctonia solani* is found on potatoes, leaving, either singly or in groups, little pustules in the skin, making a peculiar roughness, which is called scab by many. This, however, is certainly different from the corroded spots to which the name is more appropriately applied.

If any one will take the trouble to look at the year-old twigs of most trees and shrubs, he will readily find in the bark little light-colored, rough specks. These are known to botanists as lenticles, and consist of cork-like formations, the cells of which soon lose the power of absorbing water, and of course die. They are, however, normal growths, and cannot be classed as disease products. They likewise occur on the potato tuber, which, it is worth the while to remember, is a true branch of the stem, and in this respect is like ordinary aerial branches. But it is claimed that, under some circumstances, these lenticles are beginning points of rupture and decay in the skin, and that the final result of this is the scab, without the intervention of any living external agent. Too much water and too much nitrogenous manure are the principal causes given for the cork-like development. The disease is certainly worse on rich and wet land.

So far as known, the depressed, rough spots on potato tubers, usually called scab, are the result of normal growth carried to an excessive and destructive development through surroundings adverse to the potato, and there is nothing of a contagious character in the malady. The scab on the seed cannot, in this view, affect the next crop. The difference in the structure of the skin of the different varieties, is quite enough to account for the facts noted in the letter of enquiry.

Mr. W. J. Fowler, writing against late mowing and over-drying, both of which promote woody fibre and waste of leaves, the most nutritious part—favors storing hay and straw in alternate layers, a method especially applicable in the case of clover cut, as it should be, just as it comes into blossom and apparently only partly cured. He tells the American Cultivator that many farmers have found this practice "lessens labor while greatly improving the quality of the produce," and the straw so flavored is much relished by the stock, and usually eaten clean.

Prof. J. A. Lintner, N. Y. State entomologist, in a bulletin issued from the State Experimental Station at Geneva, recommends that experiments be made with London purple on the caterpillars that eat off the corn soon after it comes up, just at the surface of the ground. By dusting the plants over with London purple while wet with dew, if care is used in the application, so that the powder shall reach the stalks of the corn at the point where these are cut off, the small portion of the poison consumed in the cutting-off operation will, it is thought, be sufficient to kill the caterpillars. Prof. Lintner asks that the experiment be made with London purple, mixed with flour to a proper degree of dilution, which shall be found by first testing it upon a few hills—perhaps one part of the purple to twenty of the flour. He also suggests that the London purple be tried as a liquid application, mixed with water, and reports of the results sent to the station. A method mentioned in the bulletin as effectual is that of employing the cheap labor of boys to go over the fields four or five times, at proper intervals, and dig out and destroy the caterpillars from the hills showing the attack.

A test was recently made at the N. Y. Experiment Station with regard to the germinative vitality of corn kept at different temperatures. It was found that corn thoroughly dried at the temperature of 70° to 80° germinated quicker and better than that taken from the bin. Corn from the bin exposed for 42 hours to 206° of heat, all perished in the germinator, but the same seed first dried at a temperature of 90° to 120°, and then exposed to a heat of 206°, all germinated. Some varieties of corn germinate at a lower temperature than others, but as a rule 40° is the lowest, and then it sprouts slowly. Dr. Sturtevant, the experimenter, draws the conclusion that seedsmen should take measures to kiln dry their corn before offering it for sale.

An excellent whitewash for fences and buildings is made as follows: Slack half a bushel of fresh lime in a barrel with boiling water and cover it meanwhile to keep in the heat. Afterward strain through a fine sieve and add the following: Seven pounds of salt dissolved in hot water, three pounds of ground rice boiled to a thin paste, one-half pound of Spanish whiting, one pound of clean glue which has been dissolved in water and boiled; finally, five gallons of hot water, and stir well. Keep it covered for a few days. When used it should be made and kept hot. One pint covers a square yard. For a dark brown color add burned umber.

It is often asserted that the country is healthier than the city. This is true, providing that in all cases sanitary measures are adopted, but a city with good sanitary regulations may be healthier than the farm dwelling with filthy surroundings. The chief source of disease on the farm is the accumulation around the house and other buildings of slops and other kinds of filth. They breed disease germs, and in no season of the year should this sanitary condition be more regarded than now.

Market your crops on all fours.

Veterinary.**The Horse's Foot.**

This subject, which is very interesting to farmers who are dependent on their four-footed friends for so much hard labor, was treated by Mr. R. Stone, a practical New England blacksmith, at the winter meeting of the Connecticut State Board of Agriculture. Mr. Stone said we had given little thought to the foot of the horse, because the sensitive parts are not within view, as is a sore upon the shoulder and back. Judging by practice, many believe that every horse must be constantly shod, and the longer the shoes can be made to stay on the better.

Before taking charge of a horse one should ask, "what is a shoe for?" The first shoes made were broad enough to cover the entire bottom of the hoof, except a small spot in the centre. The hole in the shoe was gradually increased in size until only a narrow rim of iron is left, protecting the outer shell of the hoofs. If horses could be kept in a state of nature, they would require no shoes. Our macadamized roads and paved streets are not natural, and to work our heavy horses upon such artificial surfaces the shoe becomes necessary. But light horses doing light work on country roads may well go without shoes, or at least mere tips, to protect the excessive wear at the toes. The frog is a cushion to receive the lower bone of the hoof, and it should be kept soft by close contact with the earth, and not exposed to drying by raising the foot upon high calks. It is not necessary to shoe often in winter, because the hoof grows slowly in cold weather. For many bad feet the best treatment is to pull off the shoes and turn out to pasture. Idleness in winter spoils many good feet. Idle horses had better be unshod. The owner and not the blacksmith is responsible for most of the lame horses, yet too many suppose that anybody who can drive a nail is fit to shoe a horse. The horse has more friends now than ever before in the history of man. Water is one of the best medicines for bad feet. Wind flannels around the ankle, and keep them wet for hours together, to soften the hoof at top, where growth only takes place. It cools the foot, and often makes an animal almost a new one. Wrinkles in the hoof often pinch the tender parts and cause lameness. Use no grease on the hoof, but water instead. Shoe so that the foot will stand square and level.

All know that it is very injurious to their get when stallions are kept over fat, and also when they are not properly exercised, says the National Live Stock Journal (weekly edition). In cases of this kind, noted for some years past in England, of mares bred to stallions not in proper condition, 30 per cent. less of them became in foal, and the foals born of the remaining 70 per cent. were mostly inferior. In the case of Champion 440 and Champion 441, two full brothers, of the Cart-horse breed, the former was kept in high condition for exhibition for prizes at various shows, often winning them, owing to his great superiority over competitors. The latter, less perfect in form, etc., was kept away from exhibitions, and simply in good working condition during service time, with the result, it is claimed, that the progeny of Champion 441 prove altogether quite superior in form, power, action, and hardiness to that of Champion 440.

The Apiary.

Swarming.

BY G. B. JONES.

From the time our bees are built up they should be handled with a view to the amount of increase we wish from them. It must be remembered, however, that the greater the increase the less will be the amount of honey produced. If we wish a large yield of honey we must keep down the increase of stock. If we multiply the number of our colonies largely, we must not expect much honey. All things considered, the most profitable management consists in merely doubling the number of colonies, and keeping them all strong for surplus gathering. The swarms should be used for storing the harvest, while the parent colonies should be built up and used to reinforce any weak swarms. Such complete control of the bees, without opposing their natural instinct, can only be had by the use of the shallow frame and two-story hive. I shall give a few hints on the handling of such a hive. In the one-story hive, when crowded, the bees must be left pretty much to themselves to swarm when they are ready, unless the queen cells are torn down, which is both tedious to the operator and injurious to the colony; it tramples too directly upon the bees' natural instinct.

As our swarm is to gather the harvest, it must come at the height of harvest time. It must also be large, because some of the bees have to stay at home to do the house work, and we want a large band of foragers. To have it in the early part of the clover harvest is a mistake, because many of the bees will be dead before it is over, and so the swarm be weakened just when it should be strong. To have it late in clover flow is also a mistake, as the foragers will nearly all be alive during the slack time between clover and basswood, with nothing to do; and when the basswood does come they will be dying off largely, and there will be no young ones old enough to take their places. But if the swarm comes off in the height of the clover flow, they will gather the honey and die in the scarcity, and the young ones hatched during this time will be ready for the basswood flow; thus losing no time, and having few bees to support in a time of scarcity.

Until the clover harvest is fairly in, the super should not be put on, but the brood chamber should be kept free from much honey by means of the extractor. Before this, any colonies of extra strength may be used to build up weak ones, or may even be divided if bent on swarming; but the best plan is to remove one, or even two combs, from the brood nest, and spread the others; thus giving more room to cluster and more room in the upper part of the combs for honey. When the clover harvest is fully opened, put on one-half story of sections (even if you intend to run for extracted honey) first replacing any combs removed from the brood chamber. As soon as the bees are well at work in these sections, shove all the honey cells of the brood combs even with their frames and extract the honey; the queen will lay up to the top bar. By the time the sections are ready to seal the bees will likely have become crowded, and if not given room will swarm too early. Now, if you wish extract

honey, replace the half story by a full one of combs or foundation, and give this half one to some other colony to seal, or set it aside until wanted; but if you wish section honey, replace the half story by another, and set the filled one upon it. While the bees are filling the new one they will seal the other. When you want a swarm, crowd the bees by removing the upper half story, or by replacing the full story by a half one, and the swarm will be out in a few days. Leave the half story now on with the parent colony, and put two or a full one (with unfinished combs if you have such) upon the hive for the swarm.

HIVING THE SWARM.—Take a swarm catcher previously prepared as follows: A long pole with three feet of clothes line fast to one end; a peach basket fastened bottom up to the free end of rope, a few strips of comb fastened to inside bottom of basket (any circular half bushel basket will do). Hold it near the swarm, shake the swarm from the branch, and place the basket bottom up immediately below where the swarm was, and the bees will cluster in the basket. If the bees cannot be shaken from the limb, place the basket immediately above them and they will rise into it. A market basket or high felt hat on the end of a pitch fork will often answer the purpose. Having secured the swarm, carry it to the new hive and shake it down upon a sheet previously spread in front of the hive; watch till the queen goes in. If many of the bees re-cluster repeat the shaking till all, or nearly all, are in.

To prevent second swarming, give the bees plenty of room as they require it.

Poultry.

Various Notes.

BY L. G. JARVIS.

STICK TO THE STANDARD.—All the various thorough or pure breeds of cattle, sheep, swine, poultry, etc., have had their origin in, and have been maintained pure and uniform by, some standard or model, expressed in print or understood. In originating the various breeds of cattle, sheep and swine, the several breeders have had in mind a model excelling in all more useful as well as ornamental qualities; and in order to perpetuate these various breeds, and keep them up to or constantly tending toward the mark, it became necessary for the breeders to establish afterward a standard of excellence for each of the various breeds, embodying the original models toward which each breeder could aim, thus keeping uniform, and tending toward the same goal, every herd or flock of the same breed. Till of late years, the various standards or models were always understood. Now almost all of them are printed and thus definitely established. Formerly, judges were really the standards, and breeders had to be led about by the nose wherever the said judges willed, or else lose all hopes of winning prizes, and thereby gaining a reputation. All breeding to a standard that is construed each year as the judges think fit, and therefore changing nearly every year, is as hopeless a task as changing one's own shadow.

Poultry judges very often do not follow this standard "especially close," but prefer to be a

little wayward. Running from one extreme to the other, as in the case of leg feathering, tail, etc., in Dark and Light Brahmas, caused by the judges each year acting independent of the standard, and of the decisions of the previous year, has had the effect of rendering these often-changed points uncertain, and not always to be counted on in chickens from parents perfect in these respects; whereas, if the judges had confined themselves intelligently to the standard, the result would have been exactly opposite. These points, instead of being rendered uncertain and changeable, would have become thoroughly established, and any variation in them from the standard would have been the exception and not the rule. Let us hope that prizes will be awarded in future by the standard, intelligently construed by the judges. Then, and then only, will the judges be performing their true office—that of deciding the numerical value of every point, taking the standard as perfection in each case. If such a course was pursued in judging fowls for a number of years, the feathering and all fancy points would become so thoroughly established and fixed, that more attention could be paid to constitution in the selection of breeding stock, without losing any of the fancy points.

Most fancy points are perfected by choosing birds that approach nearest to perfection in the points sought after, without paying very great regard to constitution or to relationship either, as they are very often bred in-and-in, sometimes purposely, for several generations. After a breed of fowls has been brought to such a state of perfection in fancy points that these have become nearly universal and constant, then add constitution.

The standard adopted by the O. P. A. is the American Standard of Excellence, and I think it a good one, and should be in the hands of every breeder of thoroughbred poultry in Canada.

SOFT EGGS.—Eggs may be laid before the shell has had time to form, on account of over-feeding, the ovaries being stimulated beyond the proper degree. In this case the remedy is simply a restriction of diet. If egg-shells are not formed on account of a deficiency of lime, this must be supplied by using any of the materials commonly used which contain it—pounded shells, bones, old mortar, lime water, etc.

PROVINCIAL EXHIBITION.—We understand that the committee appointed by the L. P. S. A. to confer with the Executive of the Provincial Exhibition, have succeeded in increasing the prize list in the poultry department; several breeds have been added to the list, and we look for a very large show in that department at the coming exhibition.

Reports of auction sales of thoroughbred cattle of all breeds in the U. S., show that the average price in 1884 was \$100 less per head than in 1883.

A new process of preserving milk has been invented. The new milk is bottled and heated under atmospheric pressure, and upon cooling it is ready for use. Milk being a natural and cheap food, and containing all the elements of nutrition, it is superior to any other dairy product, and the new process is likely to revolutionize the dairy business.

Entomology.

Destructive Insects.

The losses that will be incurred during this and the succeeding month through destructive insects will be incalculable. Weeds and insects are plagues which rage perpetually. Stringent laws have been passed commanding their destruction, but with very feeble effect. Good farmers require no laws to compel them to protect their own interests; but bad farmers will not do so even if they are offered a premium. If the loss sustained by each farmer's negligence fell upon himself alone, he would soon be driven into other spheres of operation; but one negligent farmer may blight the prospects of many of his neighbors. He neither reads nor observes, and therefore cannot foresee a calamity until it has proved almost fatal to his business. Laws having proved ineffectual, and we know of no effectual remedy against insects except by union of the good and faithful farmers for the purpose of exterminating or elevating their drone brethren.

Measures against insects are either preventative or remedial. Anything that will increase the vigor of the plant, shrub or tree will be the best prevention. This includes, first of all, the destruction of weeds; rotation, mode of cultivation, manuring, vitality of the seeds sown, time of sowing, the discontinuance of an infested crop for a few years are also important considerations in the increase of plant vigor. It is the feeble plants which are most subjected to the ravages of insects, so that every operation of good farming tends to their destruction. The remedial measures are countless. Every remedy must possess certain characteristics: It should destroy the insect, not merely repel it, for in the latter case it will be sure to perpetuate its kind, causing increased vigilance in each succeeding season; it must not be harmful to the plants; it should be applied with the greatest possible facility, and its cost should not be exorbitant,—all of which are important considerations in the selection of remedies.

Insects, as a rule, do most harm in their larval stage; then they are commonly called slugs, or caterpillars. At this period of their life they are most voracious, and will not hesitate to devour the plants after being sprinkled or dusted with poisonous insecticides. In observing the habits of an insect, the first thing to be noted is whether it feeds upon the leaves or buds, or penetrates into the substance, sucking the juices. In the former case poisonous applications are used, such as Paris green, London purple, and hellebore; while in the latter case other modes of destruction must be employed. Poisonous applications may be used dry or mixed with water. When used dry they are mixed with some sort of powder or flour and dusted over the affected plants in the dewy morning or in damp weather; but in dry weather the spraying method is employed. If the poison is too strong it will injure the plant, and the insect will not be so apt to devour it. In order to prevent repetition, we give below the methods of preparing the principal kinds of insecticides, which have been adopted by the U. S. Bureau of Entomology.

THE CODLING MOTH.—This is a very troublesome insect in the apple orchard, and few or

none of the many remedies employed have proved entirely effectual. The moth deposits its eggs in the blossom end of the fruit early in the stage of growth, and the young larva soon eats its way into the core, feeding upon the juices. In three or four weeks the apple falls, and the worm soon leaves it to spin its cocoon in the ground. The remedy of turning the hogs, sheep or poultry into the orchards for the purpose of eating up the fruit as soon as it falls is still adhered to by farmers who regard it as a matter of economy to convert the insects into meat. The practice of putting hay or paper bands around the trees for the purpose of preventing their climbing the trees, is still occasionally adhered to in small orchards, but as these bands should be examined every week, considerable labor is entailed. The most popular method is the spraying of the trees with Paris green. This work should commence when the fruit is about the size of marbles, and repeated after every shower of rain for two or three weeks. This remedy will also destroy the canker worm. Hanging a vessel of sweetened water on a limb of the tree has been known to trap many of the moths.

PLUM WEEVIL.—This beetle belongs to a large family of curculios. It is a small insect with a dark brown body. It attacks the plum and the cherry. When the fruit is about the size of a pea it begins its work of destruction, making a crescent-shaped incision, and the fruit falls prematurely to the ground. This insect flies great distances during the heat of the day. The practice of pasturing animals, including poultry, amongst the trees, has been employed with greater or less success. The jarring of the trees has been employed as a remedy. When a shaking with the hand is not sufficiently effective a limb may be cut from the tree, and the extremity of the cut branch sharply tapped with a mallet. This work is most successfully done early in the morning. This tapping will cause many to fall to the ground, upon which a sheet should first be spread. The fruit must be immediately picked and fed or destroyed; otherwise the larvæ will escape. The difficulty of destroying the curculio has created a lull in plum growing; but the Paris green remedy has of late been employed with considerable success, which has given a fresh impetus to the business.

THE CANKER WORM.—Also called Geometers, meaning earth-measurers, from their peculiar way of walking. This worm is best recognized by its peculiar method of hanging down by threads, upon the tree being jarred, spider fashion. It attacks the leaves of the elm and the basswood, as well as those of the apple; and it sometimes becomes so numerous that it strips whole apple orchards of foliage. The eggs are hatched in May, with the unfolding of the leaves, and late in June the larvæ descend to spin their cocoons two or three inches below the surface of the soil. This insect is commonly destroyed by surrounding the tree near the base with a coarse paper bandage smeared with tar, printers' ink, or molasses, in which the wingless female is caught fast in her attempt to climb the tree for the purpose of laying her eggs. The latest and most economical and effective method is the spraying of the trees with Paris green.

THE BORER.—This insect attacks several trees and shrubs, but is most destructive on the apple tree. It is a white striped beetle about three-fourths of an inch long, which flies at night. It cuts into the solid wood near the surface of the ground. The tarred paper remedy, as in the case of the canker worm, may be employed; but in the early stages it may be cut out with a knife. Washing the trunks and large limbs of the fruit and ornamental trees with soft soap or lye will prevent the depositing of the eggs. It may be applied with an old broom, commencing in the first week of this month, and after every shower during the month.

CURRENT WORM.—Destroys currants and gooseberry bushes, devouring the leaves. Hellebore, in liquid or powdered state, is used for its destruction. Pyrethrum, however, is more highly recommended.

RASPBERRY SAW FLY.—This insect is not easily seen on account of its color. The larvæ are destroyed by syringing the bushes with hellebore.

STRIPED CUCUMBER BEETLE.—Place small bottomless boxes covered with glass or fine netting over the young cucumber or squash vines.

GENERAL REMARKS.—For those insects which suck the juices of plants, kerosene (coal) oil is best amongst the long list of remedies, if applied in moderation. Oils and water will not mix, so that the coal oil is first churned with soap or milk, hot water being then added. This is the best remedy for all scale insects, plant lice, etc. Rags moistened with kerosene and placed near the hills of cucumbers and squashes will drive off their enemies. Whale oil soap is an excellent remedy for a number of pests, especially those attacking house plants, especially the red spider, and the aphid or green fly. It is almost equal to Pyrethrum as a remedy for the cabbage worm, and has been successfully used for spraying orchards against the attacks of the codling moth and the curculio. Fresh gas lime thinly coated over the ground amongst currant and gooseberry bushes and under the trees in the orchard will repel many insects, and will act to some extent as a fertilizer. Most all strong smelling substances or bitter infusions will produce the same effect. Soot, ashes, lime, fine dust, etc., will protect plants from egg deposits.

There is a great deal of meaning in the word picking. If you cannot do the picking yourself, poultry, hogs, sheep, and insectivorous birds can do it very cheaply for you. Some authorities recommend the picking of potato bugs in preference to any other remedy. The rose bug can be advantageously picked from the bushes early in the morning. Pick up and destroy all fruits as soon as they have fallen, if they are known to contain codling moths or curculio, and if you have no domestic animals to do this sort of picking for you.

PREPARING INSECTICIDES.

LONDON PURPLE.—To 20 lbs. flour from $\frac{1}{4}$ to $\frac{1}{2}$ lb. is added and well mixed. This is applied by a sifter or blower. With 40 gals. water $\frac{1}{4}$ to $\frac{1}{2}$ lb. is mixed for spraying.

PARIS GREEN.—With 20 lbs. flour from $\frac{1}{4}$ to 1 lb. is mixed and applied by sifting or by a blower. The same amount of the insecticide to 40 gals. water is used as a spray.

BISULPHIDE OF CARBON.—For use in the ground, a quantity is poured or injected among roots that are being injured. Against insects damaging stored grain or museum material a small quantity is used in an air-tight vessel.

CARBOLIC ACID.—A solution of one part to 100 of water it used against parasites on domestic animals and in their barns and sheds; also on surfaces of plants and among roots in the ground.

HELLEBORE.—The powder is sifted on alone or mixed 1 part to 20 of flour. With 1 gal. water $\frac{1}{2}$ lb. is mixed for spraying.

KEROSENE.—*Milk Emulsion*: To 1 part milk add 2 parts kerosene and churn by force pump or other agitator. The butter-like emulsion is diluted *ad libitum* with water. *Soap Emulsion*: In 1 gal. hot water $\frac{1}{2}$ lb. whale oil soap is dissolved. This instead of milk is mixed to an emulsion with kerosene in the same manner and proportions as above.

PYRETHRUM (PERSIAN INSECT POWDER).—Is blown or sifted on dry; also applied in water, 1 gal. to a tablespoonful of the powder, well stirred and then sprayed.

TOBACCO DECOCTION.—This is made as strong as possible as a wash or spray to kill insect pests on animals and plants.

Correspondence.

NOTICE TO CORRESPONDENTS.—1. Please write on one side of the paper only. 2. Give full name, Post-Office and Province, not necessarily for publication, but as guarantee of good faith and to enable us to answer by mail when, for any reason, that course seems desirable. If an answer is specially requested by mail, a stamp must be enclosed. Unless of general interest, no questions will be answered through the *ADVOCATE*, as our space is very limited. 3. Do not expect anonymous communications to be noticed. 4. Matter for publication should be marked "Printers' MS." on the cover, the ends being open, in which case the postage will only be 1c. per 4 ounces. 5. Non-subscribers should not expect their communications to be noticed. 6. No questions will be answered except those pertaining purely to agriculture or agricultural matters.

Voluntary correspondence containing useful and seasonable information solicited, and if suitable, will be liberally paid for. No notice taken of anonymous correspondence. We do not return rejected communications.

Correspondents wanting reliable information relating to diseases of stock must not only give the symptoms as fully as possible, but also how the animal has been fed and otherwise treated or managed. In case of suspicion of hereditary diseases, it is necessary also to state whether or not the ancestors of the affected animal have had the disease or any predisposition to it.

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

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

SIR,—Please tell me through your next *ADVOCATE* there is any danger in letting a calf suck a cow until within two months of calving time; some of my neighbors tell me that there is danger of the cow losing her calf before calving time, on account of the calf bunting her. Also, if as good and healthy calves can be raised in the stable as those that are allowed to stay out doors on pasture.
K. C. T.
BROWNSVILLE.

[There is no danger in a cow aborting by letting the calf suck, even up to the time of calving. Big, fat calves can be raised in the stable, but not strong, healthy ones. All domestic animals should have abundance of exercise and fresh air.]

SIR,—After your answer I got a veterinary to doctor my cow, but he did no good. He said she had chronic indigestion; I opened her and found the mannyplies full of hay, oats and corn, and most as dry as if in the barn. I fed mostly hay, oats and corn in winter, and she

pastured mostly on low land in summer. Could you tell me what the disease was, and what caused it, and a cure in your *ADVOCATE*?
J. L.
CORNBELL, Ont.

[The complaint appears to have been chronic indigestion. We have found the following remedy to be the most effectual: First give a purgative, say 1 lb. opium salts and a tablespoonful of ginger dissolved in hot water. Follow this by a tonic, say gentian, 2 drachms; ginger, 2 drachms, in a pint of beer or ale. Give the dose three times a day until relief is found. This treatment will not be permanent unless followed by judicious feeding. Feed soft, easily digested food, such as roots and bran mashes chiefly, with a plentiful supply of good water.]

SIR,—Can you, through the *ADVOCATE*, tell me what is the matter with my hens? They appear dull and moribund for a day or two, then they act as though there was something in their wind-pipe, gasping for breath, which lasts for a day, and in one case for two days, and then appear a little better, and die. Their combs and gills turn a dark red, almost black, the first day, and stay so till they die. On opening them I could find nothing wrong with the windpipe nor with anything except the liver, which was very much enlarged and rotten looking, and some growth on it which I can hardly describe, except that it was about the size and shape of a pigeon's egg, one half of it looking like the liver, and the other like the yolk of a hard boiled egg, only lighter in the color, about the color of yellow ochre. I might add that they are white Leghorns.
P. K.
TREHUNE, Man.

[Your chickens have the symptoms of the gapes, for the treatment of which see our April issue, page 111. The parasites which cause the gapes cannot be detected by dissection. We do not know what caused the affection of the liver, if it has not been induced by over-feeding. This affection would require special professional investigation.]

SIR,—In your April issue a correspondent from Strathern, Man., E. H. M., wishes for information concerning an ox that is strained. I think the ailment is peculiar to working oxen in the Northwest, caused by wading through the cold water in the marshes when warm from hard work in the harness. The half breeds seem to know more about it than we do. They call the ailment *Defencie* in French, and say there is no permanent cure. Feeding a small slice of fat pork two or three times a day when bad, will afford temporary relief; but if your correspondent can afford to turn the ox out on grass for a while and afterwards never to work him too long without feeding well he may render him good service still. Also, a constant reader of Grenfell, N. W. T., complains of his pigs having sore legs. My experience proves that it is too close confinement in a small pen. That is the whole cause of it, and as soon as he notices the ailment he ought to let them have plenty of exercise, as it seems to me to be the sinews in the legs that are affected and not the joints. I would also be obliged to have some information on the following subject: There is sometimes a disease on cattle here the natives call *Charbon*; it is a virulent swelling liable to any part of the body, and very hard to control, causing death in 24 or 36 hours. 1st, is the disease contagious? 2nd, are cattle that are too much exposed to the cold in winter more liable to it than those that are well housed? 3rd, can you prescribe a remedy available to farmers, as medical advice is of no effect except at an early stage?
J. K.
ST. NORBERT, Man.

[Pigs that are not closely confined are sometimes troubled with the same complaint, if not rationally fed. With regard to the disease which the natives call *Charbon*, the symptoms you give do not correspond with any known complaint. However, it is not likely to be contagious. Read our article on ergot on the grasses, and then send us a more minute description of the symptoms, including how the affected animals were managed, and if they were young or old.]

SIR,—I have thirty acres of low river bottom land here, clay loam and very rich, covered with scrub. Have tried gardening on five acres for two years, but on account of summer frosts can not raise anything but coarse vegetables, which do not pay here, as the demand is light and farmers compete. I am under the impression that I could make more out of it by growing cranberries and horse-radish, and by manufacturing and bottling the latter for sale, but am ignorant of the best way either to grow or manufacture, or what would be the probable cost and profit of same. Could you, or some of your numerous readers, give me the desired information: If cranberries will grow well, without being flooded, on low, wet land, and the best way to raise them quick for profit; also the best way to grow and prepare horse radish for sale? If you could suggest any other production that you think might be tried on such land in this climate I should be thankful to you. I cannot raise either corn, tomatoes, beans or squash on account of cold nights and frost on my land.
E. H.
BRANDON, Man.

[Seedmen in this Province inform us that all sorts of garden vegetables flourish in Manitoba as well as here. They receive orders from Brandon and other parts of your Province every year for all kinds of vegetables, and accounts concerning their growth are very flattering. We have described cranberry culture several times in our

columns. In order to be assured of success in your Province you should first try the cranberry yourself on a small scale. The best soils are peat and muck bottom lands coated with pure sand procured from adjacent banks. The land should be in such a position that it can easily be flooded with clear water at pleasure during the winter months, and during the other seasons thorough drainage is necessary. In laying out your plantation, all rubbish must first be cleared off and then remove the turf. The main water course should be cleaned out, and side ditches run into it at regular distances of about two rods. At this stage the sand may be applied four to six inches deep. The plants are set in rows about two feet apart, or further if horse cultivation is employed, and ten or twelve inches apart in the row. Immense profits have been made out of cranberry culture. The price varies from \$3 to \$6 a bushel. By writing to nurserymen who advertise in the *ADVOCATE*, you will learn where to get the best plants. The mode of cultivation is described in all first-class works on fruit culture. Radishes will flourish on any good, light, sandy soil, and can be raised like other roots, the distances apart being dependent upon the variety. Summer radishes are sown in May or June, and the winter sorts, from July to September. If you want to prepare them for bottling, write to or visit some manufacturer, or employ some man acquainted with the process. Geo. Slingerland, Stoney Creek, Ont., is engaged in the business. Possibly you could successfully raise Juneberries, the native variety in your province being the Saskatoon.]

SIR,—Will you kindly inform me if the hauling of lobster bodies 20 miles to my farm will pay me. I can get the lobsters for nothing. I calculate three trips can be made weekly, and a pair of horses and a man can bring 20 bbls. at a load. Should I mix the bodies with earth; if so, in what proportion, and would I gain anything by using acids in the mixture? I know of beneficial results from the use of lobster bodies in the raw state, or rather not mixed with anything. Farming here has only got fairly under way, nothing being above ground yet that has been sown.
F. W.
BAY DU VIN, N. B.

[The lobsters will pay you excellently well, especially if your soil is considerably exhausted. Lobsters, and all other animals, contain all the elements of fertility, and can therefore be beneficially used on any soil. If you can plow them under and then not disturb them until their flesh is decomposed, you can use them fresh; otherwise you may compost them with lime, ashes or vegetable matter, or a mixture of all, according to the requirements of your soil. We don't think it would pay to use acids.]

SIR,—Being an old subscriber and constant reader of the *ADVOCATE*, I notice in last issue an advertisement of the *Acme Penetratrix*, a composition for burning stumps. Now, as I am always suspicious regarding these American advertisements, and not without cause, I would like your opinion on this one, as you are the most authenticated person I know of.
J. B.
PARIS STATION.

[We have not tried the *Penetratrix* nor have we received any report from any of our subscribers who have used it. The vendor has approving testimonials from the Americans.]

SIR,—1. Desiring some information, and believing your journal the most reliable source from which to obtain it I will ask for a remedy to stop a horse from rubbing his mane and tail. He is five years old, color dark bay; condition, strong and very hardy. I treated him for worms, giving him first worm powders night and morning for a week, then a worm drench, and got one worm about 10 inches long. He had a cough before the treatment, but does not cough since. When I use him and turn him loose in the stall, he will always lie down and roll several times as if he itched. He has been highly fed and well groomed. This horse is worth \$1,000, and I would be pleased to get him with full mane and tail. 2. Also please give treatment for horse that runs a watery fluid at the nose when used, and breathes a little hard from having distemper. 3. Remedy for warts on cow's teats.
W. T. H.
BELMONT, Ky.

[Worms will not cause the symptoms you mention. The affection is eczema, or some other disease of the skin, which is frequently caused by high feeding. First give a purgative ball, followed by a powder composed of nitrate of potash, 1 drachm; sulphur, 1 drachm, given in feed night and morning. Rub the itchy part with carbolic acid, the strength being one part of the acid to 20 parts water. 2.—There is probably a thickening left in the throat as the result of the distemper. Apply a stimulating liniment twice a day till you find relief. 3.—If the wart projects much, clip it off with a pair of scissors then apply a caustic, say nitrate of silver. If the wart is broad at the base, and does not project much, dress with Fowler's solution twice a day till it disappears.]

Winnie May's Department.

MY DEAR NIECES.—No doubt many of you have a taste for decorating your homes, so I am going to tell you about a most useful and inexpensive article for brightening up old or discolored chandeliers, lamps, etc., rendering them as good as new, and quite fashionable. It is Diamond Dye bronze and gold paints or powder, which comes put up in small packages, price only 10 cents, sold at the druggists. I have lately used it and know its value; for chandeliers, lamps and metallic or plaster ornaments, the bronze looks the best, but for renovating old gilt frames or even gilding common wooden frames, the bronze and gold mixed produce the best color. Wooden brackets are also very pretty done in the same way.

Directions for using the paint are given with each package, which are simply to add a teaspoonful of varnish to an ounce of spirits of turpentine; then when you are ready to do the work, put a little of the powder into a saucer and add as much of the liquid as will make it a little thicker than common paint. Apply with a camel-hair or other soft brush.

There is also silver paint, but never having used, nor seen it used, I cannot say anything definite about it.

If you have any small tables that are old, or a shabby mantel-piece, ebonize them with Diamond Artist's Black, which comes in tubes like oil paints, and is the same price as the bronze. The process of using is equally as simple as bronzing. The "black" is only to be mixed with a little turpentine and applied with a soft brush, and when dry may be polished with chamolis or varnished. A pretty effect is given by painting some lines on the front of the latter, with the gold paint, and two or three rings of the same at the top and bottom of the table legs.

This ebonizing is very pretty for picture frames, easels, palettes and any kind of cabinet work, etc.

The competition in original stories of Rural Life has been very well responded to; some among them evidence thought and originality, while others again seem but the distorted ideas of minor writers. But we are exceedingly glad to find that so many of our nieces have at least shown the spirit to try, even though they do not reach the standard, for each trial strengthens toward future success, and there is nothing like making a beginning at using your own brains, no matter how young, and I hope that the young friends will not stop with the present effort. The prize of a handsome leather writing case has been awarded to Miss Emily McKeen, Tatamagouche, Colchester Co., N. S.

MINNIE MAY.

Answers to Inquirers.

FLOSSIE.—We have received the address and will send the music very soon.

J. E. W.—1. Certainly, a child should always be taught to speak respectfully and say "Yes, sir," or "No, sir," etc., or else mention the name of the person they are addressing; but simply yes or no sounds very abrupt. 2.—*Treble stitch* is made by placing the thread over the hook before passing it through the hole, and then taking two stitches off the hook

at a time. *Slip stitch* means single stitch, or putting the hook through the hole without placing the thread over. 3.—*Purl stitch* is the same as seaming in the back of a stocking-leg, when taking the stitch put the needle underneath instead of over. We thank you for sending information concerning "If Papa were only ready," for Ida.

K.—Many thanks for the words of "I'm glad my heart's my ain yet," for E. P.

NELLIE.—1. A soft sponge and tepid water are the best for removing the dust from the leaves of house plants, washing them inside as well as outside, and soft tissue paper will polish the ivy and palm leaves beautifully. 2.—Cochineal is produced from insects about the size of a small pea, which are found in Mexico. The matter of procuring these little creatures is very difficult; persons employed are sometimes obliged to sit for hours beside a single plant, as the insects adhere in great numbers to the leaves of a prickly pear.

HARRY.—1. Yes, it is quite right and customary to ask the lady her choice of an engagement ring. 2.—Marriages of that kind sometimes result in happiness, but it is generally best that the contracting parties should at least agree upon religious matters.

PUSSY.—1. A lady should never make the advances; it is the gentleman's place to ask the privilege of corresponding if he should wish to do so. 2.—It is more preferable for a girl to take a situation as servant maid, than to work in a factory; her life is more retired and protected, and many a good girl has won both the esteem and friendship of her employers.

E. P.—The following are the words of the song you asked for, "I'm glad my heart's my ain yet":

1.—It's no very long ago
Since I had a lad of my ain,
But he's off with anither lassie,
And he's left me all alone.

CHORUS.

But I'm glad my heart's my ain yet,
And I'll keep it aye all my life,
Till some bonnie laddie comes by
That has wits for to wile a guid wife.

2.—It's no that I say it mysel',
But all the neighbors can tell,
That I hae no a gown nor a hame,
But I shape it and shoe it mysel'.

3.—I'm no so very braw,
But I think I'm just as bonnie
As Jennie wi' a' her siller,
That's ta'en my lad awa'.

4.—But now they are buckled together,
Oh may they be happy for life;
But a man that will marry for siller
Will never be guid to his wife.

LENA HILL.—1. Your question will be answered in our next issue. 2.—Pin the insects on a board on their backs and pour chloroform or alcohol over them; the former is better because stronger. Spread the wings of butterflies, etc., and either pin down or put weights on them and leave in this way three or four days.

Frank Beard, the artist, while at dinner recently, was told of a man in Nassau street with three hands. "How is that?" asked Beard. "He's got a little behindhand," was the reply. "You are a more extraordinary man," was the reply, "for you have two heads; you have a head of your own, and you've got a head of me."

Recipes.

SPINACH.—After carefully picking over to remove any wilted leaves, boil in slightly salted water until tender; then drain and press carefully in a colander until all the water is out. After this it is chopped fine and returned to the kettle or placed in a spider, and, while heating on the fire, a seasoning of butter, pepper and salt is well stirred in. When served in a dish, two or three hard-boiled eggs, cut in thin slices, are used as a garnish on the top, giving it a pretty look.

At this season of the year eggs are so plentiful in the country that they can be used in a variety of ways for the table, some of which we give:—

EGG TOAST.—Beat 4 eggs, yolks and whites, together thoroughly; put two tablespoonfuls of butter into a saucepan and melt slowly; then pour in the eggs and heat without boiling over a slow fire, stirring constantly; add a little salt, and when hot spread on slices of nicely-browned toast and serve at once.

BAKED OMELET.—Beat the yolks of six eggs and add the whites of three beaten very light salt and pepper to taste; a tablespoonful of flour mixed in a cup of milk; pour into a well-buttered pan and put into a hot oven; when thick pour over it the whites of three eggs beaten light, and brown. Serve immediately.

POACHED EGGS.—Have a frying-pan a little over half full of water at nearly the boiling point, to which enough salt has been added to make it quite salty. Break each egg into a dish separately, then drop into the hot water carefully, that the yolk may not be broken, and do not put too many in the pan at once. With a large spoon dip the water over the egg until it is covered with a white film, not letting the water quite boil at any time, or their good looks will be spoiled. Lay each egg on a small slice of buttered toast, and place on a shallow dish, and put a small piece of butter and a little pepper on each egg.

SPONGE CAKE (EASY).—Two cups fine, white sugar, 2 cups flour, 2 teaspoonfuls of baking powder, 7 eggs and 1 lemon. Put the sugar, flour, baking powder and grated rind of lemon together. After stirring, break in the eggs, beat thoroughly for a minute or two, then stir in the lemon juice and bake forty minutes in a quick oven.

CHOCOLATE CUSTARD FOR CAKE.—Grate $\frac{1}{2}$ cake chocolate, $\frac{1}{2}$ cup sweet milk, yolk of one egg, 1 teaspoonful of vanilla; sweeten to taste. Cook until it is of the consistency of soft custard, and place between the layers.

CUSTARD JELLY.—Make a boiled custard of 1 qt. of sweet milk, 3 eggs, 1 teacup sugar, 2 teaspoons of vanilla; dissolve $\frac{1}{2}$ box of gelatine in as little water as will cover it, and when well dissolved add the juice of 3 lemons, or 1 lemon and 2 glasses of sherry; stir the custard well while pouring in the mixture; strain through a sieve into a mould. Serve with whipped cream flavored with vanilla, or with rich cream.

Simple Remedies.

I will try and add my mite to your ever welcome paper. I will tell first how

TO CURE A WART.

I had a seed wart and cut it off several times and applied different kinds of salve, but it grew larger every time. A lady told me to take a bean and split it, prick the wart a little to make it bleed, then rub it on. I did so, and it soon disappeared. For the small kind rub on bean leaves.

REMEDY FOR A BURN.

The best thing I ever tried for a burn was to do it up in wheat flour; let it remain over night if convenient. It will soon heal.

TO STOP VOMITING.

Drink of saffron tea. Don't pass this by unnoticed, for it may save your life, as it did mine. I know of four other cases as critical as mine where it was effectual.

A Bangle Board.

Procure a thin board ten inches long and five or six inches wide, with beveled edges, cover it with plush, velvet or satin, decorated with embroidery or painting; provide it with small nickle-plated hooks, upon which bangles or rings may be hung; suspend it by ribbons from the wall, and it will prove a useful adjunct to a toilet table. MRS. C. W. SCOTT.

The Pansy.

The pansy is popular, as it continues to bloom until after the hard frost comes in the fall. It will endure our severe winters and come forth early in spring with a rich profusion of bright and pretty blossoms. It is said to flower better in the middle of summer, if planted where it is somewhat shaded from the hot sun, but in almost any situation will give fine flowers in the spring and autumn.

If plants come into bloom in the heat of summer, the flower will be small at first; but as the weather becomes cooler, they will increase in size and beauty. To give good flowers the plant must be vigorous and make rapid growth. No flower is more easily ruined by ill treatment. The fancy varieties are of fine habit, great beauty, and are well adapted to our climate.

Politeness and its Place.

Sir Arthur Helps had the happy faculty of putting expressions of wisdom into a few words. It was he who said "Familiarity should not swallow up courtesy." Probably one-half of the rudeness of youths of this day, that later in life will develop into brutality, is due to the failure of parents to enforce in the family circle the rules of courtesy. The son or daughter who is discourteous to members of the family because of familiarity with them, is very likely to prove rude and overbearing to others, and very certain to be a tyrant in the household over which he or she may be called on to pre-

side. There is at this day undeniably among the rising generation a lack of courteous demeanor in the family. Of all places in the world let the boy understand home is the place where he should speak the gentlest and be the most kindly, and there is the place of all where courteous demeanor should prevail. The lad who is rude to his sister, impertinent to his mother and vulgar in the house, will prove a sad husband for a suffering wife and a cruel father to unfortunate children.

Work Basket.

FIG. 1.—Shows a very pretty sofa pillow, made as follows:—Cut nine pieces of navy blue velvet seven inches square, and nine of old gold satin. Halve four of the satin pieces and quarter one; look at the design, making sure



FIG. 1.

to fold them the right way before cutting. Chain-stitch the centre designs on the velvet with old gold colored floss, and on the satin with navy blue floss. Turn in the edges of the pieces and oversew together on the wrong side; then cat-stitch or herring-bone with light blue or garnet floss. Finish the edge with a heavy cord and ball tassels for ornament. Any other combination of colors may be used for the pillow, and the centres of each square can be embroidered or painted according to the taste and ability of the worker. Curled hair is best for keeping a pillow in shape.

FIGS. 2 AND 3.—Kate Greenaway figures, to be worked in outline stitch, of which we have already given directions. In working these figures it is well to use two or three shades of one color, as two or more colors are seldom employed; for instance, the main outline being dark red or blue, the folds of the dresses in a lighter tint, and the face lines in the lightest shade of the color used.

Cross-stitch is much used upon huckaback, crash, linen and satin sheeting for bedroom

decoration. The entire outfit of a chamber may be done with red and blue ingrain knitting cottons upon any one of the materials named. It is generally carried out in borders worked over canvas, the threads afterwards withdrawn. Bed curtains, valance, dressing-table cover, and window curtains, are worked upon coarse linen stuff after this fashion.

A very pretty rack for a whisk-brush is made by using a ten inch square of paste board for a foundation; cover one side with olive satin, bend two opposite corners so they will lap at the centres to form a receptacle small enough to prevent the brush from slipping entirely through; cover these corners with deep garnet plush, then lap and fasten them firmly, and place over the laps a full bow of olive satin ribbon. The case should then be lined on the back with selisia the color of the plush. The brush handle, if a plain one, should be covered with olive plush, extending it down to where the whisks are tied together. Embroider a little sprig of flowers on the brush-cover and on the space at the top of the rack above the lapped corners. Sew firmly a little brass ring at the top of the case by which to suspend it.

A pretty penwiper is made by cutting little strips of cloth and fastening them together with tiny leather straps to resemble a bundle of shawls.

Infant's Bib, in rib crochet.—Make a chain of 38 stitches. 1st row.—Work entire row in single-crochet stitch, widening one stitch in the nineteenth stitch. 2nd row.—Single-crochet, taking up the back part of the stitch and widening in the centre. Continue this back and forth until you can count fifteen ribs; fasten and break off the cotton. Then make a new chain of 55 stitches and fasten it with the hook to the upper corner of the piece already crocheted, opposite the corner where you broke off the thread. To make the rib come right, crochet down the side of the bib, widening at the corner, then across the bottom, widening at the centre and at the other corner. Then crochet up the other side and make a chain of 55 stitches without breaking off the thread. Turn work back around the bib and out to the end of the chain on the other side, always widening at the corners and in the middle, and always taking the back part of the loop. Continue this until you can count eight ribs on the side, then finish with a shell edge.

Old Omens.

Even now there exists people who believe in omens. To enumerate the number in which our forefathers believed would be impossible; but we give a few which may be amusing to the young people. Stumbling in going downstairs or going out in the morning is very unlucky. It is a sign of ill luck to lay one's knife and fork crosswise; for sweethearts to interchange knives, as it will cut away their love;

to present anybody with a knife, scissors, razor, or any sharp instrument. To avoid ill consequence, a pin, a farthing, or some trifling recompense must be given in return. To find a knife or razor is unlucky. That it is ill-luck to find money, and worse to keep it, may seem paradoxical to many. It is lucky to find four-leaved clover, a piece of iron, an old horse shoe

Moles are indicative of good or bad fortune, according to their position on the body. A mole against the heart denotes wickedness; on the knee, a wealthy wife; on the throat, riches; on the lower jaw of a woman, sorrow and pain; in the middle of the forehead, a discourteous and cruel mind; on the right side of the forehead, command, esteem, and honour; on the left, near hair, misery; on the left, near middle of forehead, persecutions from superiors; on the lip, a great eater; on the chin, riches; on the ear, riches and respect; on the right breast, poverty; near the bottom of nostrils, good luck; on left foot, rashness; right foot, wisdom; on the wrist or hand, an ingenious mind; near side of chin, an amiable disposition; many moles between wrist and elbow, many crosses will end in prosperity.

Two Ways of Doing a Thing.

An express train filled with listless, sleepy-looking passengers, stood in the Pennsylvania Railroad station at New York, the other day, on the moment of departure for Philadelphia. The locomotive had backed up to the cars and poured a volume of thick smoke into the hot, stifling atmosphere of the station. The travellers lolled in their seats looking as though they dreaded the discomforts of the long, dusty ride, but yet were impatient to be whirling along through the open country, away from the smoke, the smell, and the noise. A slow-moving, surly-looking boy of 14 or thereabouts, passed through the train, calling out:

"Fa-a-ns, 5 cents."

He spoke in a dreary, disconsolate tone, which made the people feel more tired and languid than ever. He went from the smoking car to the rear of the train and sold just two fans.

A colored boy, about the same age, followed immediately after him, with a big armful of new bombo fans. The difference in the two lads was striking. The darkey had a cheery, business-like way with him which appealed directly to the comfort and to the pockets of the perspiring passengers. In a peculiar, boyish voice, as mellow as a flute, he called out:

"Keep yo'selves c-o-o-o-l, now, ladies an' gemmen! C-o-ney Island breezes! A big fan only 5 cents! Zephyrs from de billows! Buy 'em while you can!"

The effect was like a draught of cool air. Everybody at once wanted a fan. The darkey was as much in demand as the newsboy on an early train from the suburbs. People left their seats to avoid getting left. In two cars the boy sold 67 fans. He could have sold as

many more, if he had had them. He jumped off the platform as the train moved from the station with his pocket full of change and his heart full of joy. "Golly!" he shouted, "dat was quick business." The other boy stared in stupid astonishment and wondered how it was done.

CHANGING THE SUBJECT.—A lad who had borrowed a dictionary to read, returned it



FIG. 2.



FIG. 3.

after he had got through, with the remark: "It was werry nice reading, but it somehow changed the subject werry often." It was his sister who thought the first ice cream she tasted was "a little touched with the frost."

Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES.—June, the most pleasant of all the summer months, has now arrived. No doubt you have all had many enjoyable rambles in the woods, gathering the wild flowers with which nature has once more adorned the fields, hedges and forests. The home gardens, too, are now fragrant with the perfume of roses, violets, tulips, lilies of the valley, &c. Now, boys and girls, make the most of your time, and of this lovely weather, before the hard work and hot summer sets in. Work in earnest, and then play in earnest; that is the secret of a useful and a happy day. Make up your minds to accomplish whatever you undertake; decide upon some particular employment, and persevere in it. Remember that all difficulties are overcome by diligence and assiduity. Just a few words on politeness before I close. Children cannot learn too early to welcome the chance guest, and do what they can for his or her comfort, even at the cost of self-denial. I know little girls that can wait on a visitor in their mother's absence with as much propriety as young ladies; can answer questions put to them clearly and directly, and always politely, and it is a pleasure to be a guest where children thus behave. I hope my dear nephews and nieces will bear in mind that every lovely, kindly grace is worth cultivating, and will add much to your happiness and usefulness when you are older. For unless these habits are formed early in life they are seldom formed at all.

Your sincere friend and well-wisher,
UNCLE TOM.

Puzzles.

1—DOUBLE DIAMOND.

A consonant, a mineral, a kind of grain, a battle, a man's name, a player, colorless, frozen water, a consonant.

A consonant, a hole in the ground, strong drink, leather seats, a general, opposite, a drink, one's fate in the future, a consonant.

[THOS. J. LINDSAY.]

2—CHANGED HEADINGS.

An ointment = Part of the hand.
To speak = A fur-bearing quadruped.
To chew = A cluster.
Froth = To wander.
Suitable = New.
Part of the hand = A spice.

ANNIE. M. SCOTT.

3—ANAGRAM.

Giltenicene nda yetsoour otn ysawia ear dinbecmo.
Foent ni a newodo useoh, a negodl ormo ew nifd.

JANE S. MARTIN.

4—HIDDEN BIRDS.

This wall owes its strength to the bricklayers.

He holds his dish awkwardly.

The sight of the stag roused their spirits.

Laura ventured up to the door.

He had in his grasp arrows and a bow.

WILL THIRLWALL.

5—SQUARE WORD.

A noted person in the Northwest trouble; within; a mountain in Europe; a burden.

WM. A. LAIDMAN.

6—A LIBRARY.

1. A color.
2. Tuft of hair, a stag.
3. A boy's name, a male descendant.
4. A precious metal, one who works with metals.
5. To quake, a pointed weapon.
6. Extended, a companion.
7. A machine for grinding, a weight.
8. An animal, to murmur.
9. Blossom, enclosed land.
10. Species of cake, a preposition.

ALICE HUME.

7—DOUBLE ACROSTIC (Words of five letters).

(1) Slow. (2) To worship. (3) Prices.
Initials, a sailor; finals, affirmative; centrals, to putrefy. Second line down, a girl's name; fourth line down, an abbreviation.

HENRY REEVE.

8—CROSS PUZZLE.

Form of Cross:

```

0 * 0
0 * 0
0 * 0
0 0 0 * 0 0 0 0
* * * * *
0 0 0 * 0 0 0 0
0 * 0
0 * 0
0 * 0

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A pronoun; thoughts spoken quickly; a number; flags; a country in Asia; an interpreter; past tense of eat; seated; every.

THOS. J. LINDSAY.

9—ILLUSTRATED REBUS.



10—SYNCOPEATION.

- Kingly—true.
 - Pure—a tribe.
 - A giver—an opening.
 - A weapon—to fight.
 - A disorderly feast—to wind.
 - A step—to rouse.
- Syncopeated letters will name a lake in Switzerland.

R. J. RISK.

11—NUMERICAL WORD PUZZLE.

- I.
A hundred, five, one, nought and an E,
You often may hear, but never can see.
- II.
One thousand, two fives joined, nought and A N
Is the choicest of blessings given 'mongst men.
- III.
Two hundreds, a fifty, a nought and a K
Is seen by most people at least once a day.

Answers to May Puzzles.

- 1—He who by the plow would thrive
Himself must either hold or drive.
- 2—Sever, seer; dream, dram; range, rage;
pains, pans; lucre, lure; fiend, find = Venice.
- 3—Hearth, earth; heart, ear.
- 4—Labor with what zeal we will
Something still remains undone,
Something uncompleted still
Waits the rising of the sun.
- 5—Uncle Tom.
- 6—Lettuce.
- 7—An act is better than a word.
- 8.—The dust on a wise man's skirt is better
than the gold in a fool's girdle.
- 9—Queen's, Own.

10—Sweet sleep descend, mine eyes to close,
And now while all the world is still
I give my body to repose,
My spirit to my Father's will.

Names of Those Who have Sent Correct Answers to May Puzzles.

Henry Willson, Jas. W. Danbrook, Belle O'Phee, W. J. Robson, Martha E. Jackson, Minnie Stafford, E. W. Hutcheson, Emma Dennee, Minnie Stevens, Belle Richardson, Alice Mackie, Annie M. Scott, Robert Wilson, Tillie Hodgins, Joseph Allen, Frank L. Milner, Ada Armand, W. Webster, Georgia Smith, Becca Lowry, R. J. Risk, Lottie A. Boss, Sarah E. Fuller, Robert Kerr, Sophia H. Fox, J. Elmer. Stinson, Mary Morrison, Chas. H. Foster, Henry Reeve, Minnie A. Colpitts, Alice Hume, Wm. A. Laidman, Clara McLean, Will. Thirwall, Mills Warren, Edna F. Bensen, Willie B. Bell, Edmund Pipper, Jane L. Martin, Thos. J. Lindsay, Ellen D. Tupper, I. J. Steele.

The Little Ones' Column.

Little Brown Eyes.

Many years ago there lived in a tiny cottage, a widow and her two children, Frank and Edith. The cottage stood by the road side not far from a village, and was almost hidden from view by the pretty roses and vines that clung to its sides.

One warm summer afternoon, when Frank was away to the village with his donkey and cart, and the widow was busy sewing in the back part of the cottage, little Edith, who had been weaving a wreath of flowers, lay fast asleep on the front porch, shaded from the rays of the sun by the arbor that covered the door. She lay there with her long golden hair partly hiding her pretty face, with the unfinished wreath still held in her hands, and her little straw hat filled with buds and sprays, upset at her side.

Now, the road that passed the cottage was much used by travellers, as it led in both directions to large cities; but on this particular afternoon not a human being, nor an animal, nor a vehicle of any sort could be seen on its white, gleaming surface; and save the drone of a passing bee, or an occasional chirp from a cricket under the porch, not a sound broke the deep stillness. Even the birds seemed to be dozing, so nap-inspiring was that sultry summer afternoon.

An hour later and Edith was still sleeping, when the distant rumble of wheels could be heard. They were yet a long way down the road, although from their peculiar rattle it was evident they belonged to a light wagon—perhaps some farmer returning from market. Presently a cloud of white dust rose above the trees and indicated the point reached by the wagon, but the latter could not yet be seen from the cottage on account of the intervening foliage that skirted the roadside. A few moments later an odd-looking, top-heavy vehicle, drawn by two lank horses, emerged into view. Behind the wagon, mounted on a mule, rode a dark-visaged man.

When the wagon arrived in front of the house it stopped, and the man on the mule advanced to the garden fence, dismounted, and threw his reins over the gate post. He then opened the gate, and was about to pass to the rear of the cottage when he spied little Edith. The slanting sunbeams had crept so close to her face that it was only a question of a few

moments when the bright glare would end her sleep.

The man paused and glanced cautiously about him; then, taking another look at Edith, he stealthily moved on until he reached the back part of the house. The widow sat in a large arm chair near the kitchen door, which was open. In her lap lay an old garment that she had been mending; the cool breeze that came through the door from the front of the house blew the pendant honey-suckle against her cheek, but she heeded it not, for she, too, like little Edith, had succumbed to the influence of the sleepy afternoon.

The dark-visaged man no sooner took in the situation than he quickly, but quietly, returned to the wagon and said some strange words to a big, stupid-looking fellow, who was perched on the front seat of the odd-shaped vehicle, and from whose hands dangled the lines of the lank horses. The fellow stood up, and shading his eyes with his huge, brawny hand, peered toward the house; then fastening his lines to a hook in the wagon bow, he jumped lightly to the ground and followed his companion to where little Edith lay sleeping.

In the back portion of the wagon sat two persons; one was an old woman with a swarthy, wrinkled face, and the other was a beautiful little girl about ten years of age. Her hair was not black as was that of the old woman, it was of a rich chestnut hue, and her complexion, although darkened by the sun, was extremely fair; but her eyes! oh, they were the rarest of brown eyes! and as she turned them inquiringly towards the old crone, they seemed like pansies wet with dew; so velvety, so liquid. Without saying a word, she let her long silken lashes drop until her lovely eyes were fixed upon the blankets that lay at her feet. The old woman was restless and looked through the curtain windows towards the cottage.

Meanwhile the men had reached the porch. Their movements were noiseless and cat-like. The dark-visaged man drew a handkerchief from his breast pocket, and the stupid-looking fellow held a stout cord in his right hand. In an instant they gagged and bound little Edith and rapidly bore her to the rear of the wagon, when, opening the leather door, they handed her struggling form to the old crone, who stood ready to receive her. Quickly shutting the wagon door, the stupid-looking fellow mounted his seat, the dark-visaged man leaped upon the back of his mule, and in a twinkling the gypsies had disappeared behind a bend in the road.

As soon as the little girl with brown eyes saw the men bring Edith to the wagon she trembled and began to weep. The old crone shook her finger at her and bade her have a care what she did. Then turning to Edith she said, "I will remove the gag from your mouth if you promise not to make any noise." Edith, who was almost frightened to death, nodded her head, whereupon the old crone untied the handkerchief, not from kindness, but fear that the child would suffocate. Poor Edith sobbed as though her heart would break, and more than once looked appealingly at the brown-eyed girl. The latter, whenever the crone turned her head, glanced at Edith and tried in every possible way to mutely assure her of her sympathy and friendship.

The gypsies drove very fast for several miles, when they suddenly left the main road and turned into a narrow lane that led through a dense forest. The horses were then allowed to slacken their speed. After an hour's drive the party came upon a gypsy encampment in an open space. The forest trees formed a semi-circle about the sides and rear of the camp, while the front was somewhat protected from view by the wagons, which were ranged on a line with the lane.

The lank horses neighed as they entered the clearing, and in a moment the wagon was surrounded by a swarm of tawny-skinned people, men, women and children. Without speaking a word to any one, save the crone, the dark-visaged man led Edith and the brown-eyed little girl to a tent which they entered. "Now," said he, for the first time speaking to Edith, "if you are a good girl you will be treated well, but if you are cross and troublesome, look out! And you, Little Brown Eyes," he continued, "see that your mate eats her supper when it comes. That's all." He then left them.

Edith advanced to the little girl and was about to speak, when the latter raised her finger, shook her head, and pointed to the door. Edith looked in the direction indicated, and saw the old crone seated without, just in the act of lighting her pipe. "You can talk, but speak low; old Myra will try to hear what we say," and the little brown-eyed girl kissed Edith on the forehead.

"Oh, I am so dreadfully frightened," whispered Edith, "will they never take me home again?" "I cannot tell," replied the child. "I, too, was taken from my home, a long, long time ago; but Myra and Ike—that was Ike who came with us to the tent—say they will take me home some day. My name is Mary, yet they call me Little Brown Eyes; maybe they'll call you Little Blue Eyes."

This conversation was cut short by the entrance of a gypsy boy, who brought two tin plates of chicken stew, some bread and a big bowl of milk. He said nothing, merely placing their supper on the ground, when he walked out again without so much as looking at them. Little Brown Eyes sat on one end of an empty sack, and motioned Edith to sit on the other end, which she did.

The little girls, in spite of their low spirits, could not resist the savory smell of the stew, for they were very hungry, and in a short time nothing remained of what the gypsy boy brought them except the empty bowls and the two tin plates. All at once there was a great noise in the camp. The tramping of horses' feet could be heard, and the voices of men shouting; what could it mean? The little girls looked at one another in utter wonderment. "Let us peep out," said Little Brown Eyes, and raising one corner of the canvas they looked out. Everything was in confusion. A body of horsemen were pulling down the tents, some of the gypsies were fleeing to the woods, while others were opposing the horsemen with all their might. Just then the dark-visaged man and Myra entered the tent. "Come quick," yelled the man, "this way," and taking hold of each little girl, he pulled them to the door. Edith uttered a scream. Immediately the horsemen galloped toward them. "My papa! my papa!" cried Little Brown Eyes. A fine looking

gentleman leaped from his horse, and in a moment his daughter was clasped in his arms. "Take these people prisoners," said he, "they shall pay dearly for kidnapping my daughter. Who is this?" he continued, looking at Edith. "This, papa, is a little girl I stole to-day, as she lay asleep on her front porch." "Poor child, we must return her to her parents," spoke Little Brown Eyes' papa; "come, we will go away from here at once." So the little girls were led away to the lane where stood waiting a splendid carriage. "Oh, see! there comes brother Frank in his donkey-cart," and clapping her hands with joy, Edith pointed down the lane, where, sure enough, her brother came jogging along as complacently as if nothing had happened.

The rest of the horsemen rode up to the carriage, and were about to start, when one of their number said, "Look! we have fixed the gypsies." All looked towards the camp. It was in a blaze; both tents and wagons were being devoured by the red-tongued flames. "Why, Edith," shouted Frank, who had just reached the carriage, "what on earth are you doing here?" The heat from the burning camp became so intense that Edith's face was almost scorched. "Edith," shouted Frank, louder than before. Edith looked at her brother, rubbed her eyes, and then looked again. "Where are the gypsies?" she asked—"Ha! ha! ha!" laughed Frank, "you have been dreaming; you are almost baked by the sun."

—GEO. M. VICKERS.

Family Circle.

PRIZE STORY.

WON BY MISS EMILY M'KERN, TATAMAGOUCHE, COLCHESTER CO., N. S.

RUTH.

CHAPTER I.

Perhaps, in all the surrounding country, there was not a more beautiful, or a better cultivated farm, than that of the Rutherfords. The broad fields sloped gradually down to the willow bordered river, which flowed past more than one hundred yards from the picturesque farmhouse. Away toward the east, a low range of mountains formed a semicircle, as though intent upon preventing the busy world which lay beyond from encroaching further upon the quietude and beauty of the country scene.

The Rutherford family consists of father, son and daughter. David Rutherford is bending beneath the weight of his threescore years and ten; but the cares and responsibilities which are becoming too great for him will be ably borne by John, his tall, broad-shouldered son. Jessie is a slight, pale girl, two years her brother's junior. Since the death of her mother, which had occurred five years before, when Jessie was seventeen, she has ruled the household as mistress. Looking at her, one wonders how the management of a busy farmhouse can be borne by anybody so frail; but did you question her, she would tell of the virtues of one, Anne Thompson, who has served the Rutherfords for many years.

It is a cool, pleasant July evening, and according to custom the family have gathered in the portico, which overlooks the river. Mr. Rutherford is intently perusing the daily paper. John, seated on the step at his sister's feet, is engaged with a book in which they are mutually interested. Occasionally he reads a passage aloud, which they discuss in tones too low to reach the dull ears of their father.

Presently the sound of wheels is heard, and looking up they catch sight of their neighbor, Mr. Fielding, driving home from the village with Ruth, his orphan niece. The latter turns, knowing she will see her friends in their accustomed place, and waves her hand. John stops reading, watches the carriage out of sight, and then falls into a reverie; for he is known, John loves this same Ruth with all his big honest heart. Ruth Fielding is a bright, fresh girl of eighteen, who, upon the whole, enjoys life very heartily. Sometimes she looks at the hills rather wistfully, and longs for a taste of the life that lies beyond; but her household work is well and cheerfully done, and Mrs. Fielding knows nothing of the vague longings.

The Fielding farm adjoins that of the Rutherfords. The only member of the family whom we have not mentioned is Tom, a lad of fourteen. Poor Tom! His nose turns up, and the freckles which adorn his good-natured face are many and close together. He told his mother "he didn't mind the freckles so much, but a fellow would like to have a straight nose on his face."

The village to which we have referred lay about two miles from the Rutherford farm. Ruth and her uncle had driven over during the afternoon, and while the

latter was transacting his business, she remained at the house of his brother-in-law, Dr. Hill. She had met the doctor in the hall as she went in, and he directed her to the sitting room, where she would find her aunt. She was welcomed warmly by the latter, who had not seen her for several weeks. After some conversation, Ruth learned that the Hills had staying with them a young man from the city, Harry Hill, a nephew of the doctor's. "He has been ill," her aunt said, "and has come to see what country air can do for him."

Ruth wished his health had remained unimpaired, as she was shy of strangers, particularly city folk.

Just then the front door banged, and a little later Charlie Hill, a young man of twenty-four, entered the room accompanied by a dark, handsome gentleman. Charlie greeted Ruth heartily, and then presented his cousin. Ruth made a stiff little bow, and sat down, feeling very shy and awkward; but as Charlie at once began a lively conversation, she soon became her natural self again.

Mrs. Hill left the room to superintend preparations for tea, while Harry leaned back in his easy chair and quietly surveyed our friend Ruth, who to him was a revelation. The idea he had formed of a country maiden was something very different from what he now saw before him. He arrived at the conclusion that she was "an uncommonly pretty girl, though somewhat deficient in style."

"It was a pity," he said to himself, "that she should be buried alive in this out of the way place, and he wondered if she ever longed for 'something better than she had known.'"

It is possible that Harry Hill's idea of something better for Ruth, might only prove something different.

Presently Dr. Hill and Mr. Fielding came in together, and a little later tea was announced.

Harry took the seat beside Ruth at the table, and succeeded in making himself so agreeable that she quite forgot her shyness, and talked to him as freely as she did to Charlie.

During the drive home with her uncle she was very silent. The advent of Harry Hill seemed to bring the outside world a little nearer, and her head was full of new thoughts.

"Charlie and his cousin are coming over to-morrow afternoon," she said to Jessie the following day, having run over for a few moment's chat with her friend. "You and John must come in the evening," she added, "and we will have some music."

Among Ruth's most valued possessions was that of a piano which had belonged to her mother. She sang very prettily, and played her accompaniments with a skill which did credit to the small amount of instruction she had received. Jessie had a sweet alto voice, and John gloried in the possession of a strong deep bass. The three had spent many pleasant hours gathered about the old piano in Mrs. Fielding's parlor.

According to agreement, the cousins drove over on the following afternoon. It was haying time, and soon after arriving the two set off to the fields where the men were at work.

How fair everything looked on this bright July day!

To Harry Hill's beauty-loving eyes the scene seemed one of the most exquisite he had ever beheld.

Charlie soon espied his friend, John Rutherford, in an adjoining field, and proposed that they should cross over to where he was.

John surveyed the city stranger with some suspicion, and wondered what Ruth thought of him. But he shook hands warmly with the young man, and expressed a hope that he would soon feel benefited by the country air. After the two had left him, John said to himself that "Mr. Hill had a very agreeable manner and very white hands." He did not envy Harry the possession of these good things, but he feared their effect upon Ruth. Looking down at his own large sun-browned hands, he smiled grimly as he thought that it would take a long course of idleness and kid gloves to bring them to a state of whiteness.

The evening spent with the Fieldings proved a very pleasant one. Harry Hill well understood the art of making himself agreeable; and even John, who was a little inclined to regard him as an interloper, could not but think him pleasant and entertaining.

John did not show to a disadvantage when brought in contact with Harry Hill. He was too unconscious of self to be awkward, and Jessie, comparing the men, thought John's face the more manly and intelligent of the two.

This visit was but a fore-runner of many more made by Harry Hill to the Fieldings. As he grew stronger, he declared that the walk of two miles was a pleasant and beneficial exercise.

"I guess," Tom remarked to John Rutherford, "if our Ruth wasn't at the end of the two miles he wouldn't think it was such a nice walk."

Tom did not admire Mr. Hill. The latter seemed to be scarcely aware of the boy's existence, and this indifference was naturally resented.

Had Harry Hill met Ruth among the women with whom he was accustomed to associate, he would not probably have given her a thought. But meeting her here, on her own ground, in the sweet, pure country, where she seemed in such perfect accordance with her surroundings, he thought her a pleasant and interesting study.

At first, he did not think of making love to her, but afterward the temptation to do so became irresistible. He was idle, and wanted some amusement, and then "she was such an uncommonly pretty girl."

His visits became more and more frequent. After a time, reading the girl's sweet face like an opened page, he knew that her heart was all his own.

That Ruth would learn to care for him he had considered very probable; but the thought had given him little or no concern. Her society afforded him pleasure for the time being, and he was not given to looking beyond the present.

John Rutherford saw that a change had come over Ruth and was not slow in attributing it to the right cause. These weeks so full of happiness for her, were to him the most miserable of his life. He had loved her

from the time Mr. Fielding had brought the little orphan home, then a blue-eyed, sunny-haired girl of six. Feeling her to be inseparably connected with all that concerned him, the thought of anyone coming to deprive him of her had never crossed his mind before. But now this dread catastrophe seems very near, and John looks out over the broad fields which will one day be his own, and feels that for him the gladness has gone from everything. "Why can't the fellow go home," he said to Jessie, somewhat savagely, about six weeks after Harry had come among them; "I'm sure his health is as good as it ever was." Harry had arrived at the same conclusion himself, and announced his intention of returning to the city on the following week. When he said "good-bye" to Ruth, he saw a look on her white face which made him feel that his summer's amusement had been too dearly bought. After returning to the city, however, and becoming absorbed in his business and pleasures, Ruth soon claimed a very small share of his thoughts. But she was not altogether forgotten. The purity and sweetness of her character had impressed him too deeply for that; and besides this, he could not rid himself of the uncomfortable conviction that he had wronged her.

Not even to Jessie Rutherford did Ruth speak of those weeks, which had made such a change in her life. The fact of having given her love unasked, if not unsought, made the sensitive girl shrink from confiding in anyone. There was a strong feeling of bitterness in her heart against the man whose looks and words had implied so much and meant so little. It had all been nothing to him, she thought, while it was everything to her. About this time Mr. Fielding received a letter from a widowed sister, Mrs. Wilson—who lived in a town one hundred miles distant. This sister had lately lost a daughter about Ruth's age. She now earnestly requested that her niece might be allowed to come and pay her a long visit. To this Mrs. Fielding readily assented. She was worried by Ruth's changed looks, and thought that the visit might do her good.

A few weeks earlier how the girl's heart would have bounded at the prospect of this change! But now she went about her preparations weary and listless, feeling that all places were much the same to her. When John looked in her saddened face, he knew that the girl Ruth would never come again. And so she bade her friends "good-bye," and went to find what life was like beyond the hills.

CHAPTER II.

Two years have passed since Ruth went away. Her visit has indeed been a long one. She had often spoken of returning home, but Mrs. Wilson always pleaded for a few months more, and so she had stayed on.

During these years there have been changes at the Rutherford farm. Old Mr. Rutherford has passed away, and John is now slowly awakening to the fact that Jessie's hold upon life is daily becoming more feeble. This truth has been apparent to the watchful eyes of Anne Thompson for some time past, but she has hitherto failed to impress her young master with the truth of her fears. But now he can no longer shut his eyes to the truth, and his heart is filled with bitterness. Why should all that made life dear be taken from him, he wonders; but when he says something of this to Jessie, she gently reproves him.

"Remember, John," she said, "all one's life is music if one touches the notes rightly, and in time, and you must not make discords now by being rebellious."

And so John bowed to the inevitable, and set himself to do all that lay within his power to make his sister's last days peaceful and happy.

It was now the middle of June, and Ruth was not expected home until August. John, fearing that Jessie's longing to see her friend might not be gratified, urged Mrs. Fielding to write, and ask her to return immediately, if possible.

Mrs. Wilson, though very unwilling to part with her sooner than she had intended, raised no objection, and soon Ruth was back among her old friends again.

"You are changed, Ruth," John said the first time he saw her.

And she was changed. "Girlhood's sunny days are over," and now "woman's earnest path before her lieth straight."

She has lost much of her old vivacity, but has gained in gentleness and dignity. Her face is paler and thinner, and her expression more earnest and womanly. But her sunny hair is as bright as ever, her eyes as blue, and her smile, though less frequent, is sweeter than before.

She is with Jessie almost constantly. Brought in daily contact with John and witnessing his untiring devotion to his sister, she learns to appreciate him as she has never done before.

Jessie lingers on for a few weeks after Ruth's return, and then the end comes, and John Rutherford is left alone.

A month has passed since Jessie's death. It is a glorious August afternoon, and Ruth is walking slowly about the pretty, fragrant garden, gathering some of the sweet, old-fashioned flowers. Presently she hears some one at the garden gate, and turning, sees that Harry Hill is walking quickly towards her. She is not surprised—for she has heard of his arrival in the village—but the sight of him brings a rush of memories, painful and otherwise, and her hands tremble so she can scarcely hold her flowers. But she greets him quietly, and in a few moments has quite regained her composure.

We must now go back a little in order to understand the why and wherefore of this visit.

During the years which have passed since we last saw him, Harry Hill has succeeded to his father's business, and is bidding fair to become a wealthy man. About a year after his visit to Dr. Hill's, he became engaged to a fashionable young lady of his acquaintance—Miss Edith Fairbanks. She was the only daughter of a wealthy merchant, and Harry felt that in marrying her he would be taking a very judicious step. Her father, accustomed to yield to her wishes in everything, raised no objection to the match, though he had entertained more ambitious

views for his daughter's future. For some months all went well; when lo! there appears another suitor more desirable than Harry, in the eyes of both father and daughter. The fair Edith, who never saw any sufficient reason for not doing precisely as she wished, gave Harry his *conge*, and soon after her engagement with Mr. Mansfield—the successful rival—was announced.

Harry had not loved the girl, but believed her to be sincerely attached to himself; hence the blow to his vanity was very great.

Involuntarily his thoughts went back to Ruth, and he was soothed by the remembrance that she at least had really cared for him. He began to imagine her seated at the head of his table and moving about the pretty rooms. She was quick and bright, he thought, and would soon learn the ways of society.

After all, he concluded Ruth was the only girl for whom he had ever cared particularly. She was still unmarried, he knew, for he had kept up a desultory correspondence with Charlie Hill. He wanted a holiday. Why not ask the Hills to take him in for a few weeks? This he accordingly did. And so we find him in the garden with Ruth, on this bright August afternoon.

He, too, sees the change in her, and thinks her vastly improved. This tall, fair-haired woman will be quite able, he considers, to hold her own among his city friends.

After this first visit he returns again and again. He had not thought to be so long about his wooing, but Ruth's quiet manner baffles him. That she will yield eventually, he does not doubt; but supposes she is taking this way of punishing him for his former treatment of her.

Almost a fortnight passes ere he asks for that which he might have had two years before. But—

"He who will not when he may,"

When he will, shall have it may."

And the "may" in this case was a very decided one.

"But you cared for me once, Ruth," he pleaded, after all persuasions had failed.

This was an unfortunate allusion, and Ruth's eyes kindled.

"Yes," she said, "I cared for you once, but I soon realized that you had taught me to do so merely for your own amusement. No doubt the knowledge that you had succeeded gave you immense satisfaction, but I think you can scarcely consider your achievement a noble one. And now you have come back, expecting to find all unchanged. Did you think," she added, "that I should learn nothing in two years?"

He certainly had not expected to find her in such an advanced state of enlightenment. But there was now nothing more to be said. He felt he could not attempt any vindication of his past conduct, with Ruth's clear honest eyes fixed upon him.

Shortly after he took his departure, feeling when he left that sweet womanly presence as if the very gates of paradise had been shut in his face.

Ruth watched him as he rode away, and knew he would never return. A feeling of sadness came over her. She does not regret what she has done, but, as he had said, she had cared for him once, and she feels that she can never quite forget him.

"That Hill chap won't be back here again, will he, Ruth?" Tom said to her that evening.

"No, Tom," she answered, "but what makes you suppose he will not?"

"O, nothing particular, only I thought when I met him riding away this afternoon that he looked as if the country air didn't agree with him."

Tom has been watching the proceedings of the past fortnight with anxious eyes. But now, feeling assured of the enemy's defeat, he rejoices greatly thereat.

The next day he informs John Rutherford of what has taken place. The latter makes no comment, but Tom observes that he looks immensely relieved. A few evenings after this, Ruth, wishing to be alone, wanders off to the old bridge, which spanned the river at a narrow part not far from the house. She and Jessie had often gone there together, and both had thought it the fairest spot in all the world. She is thinking of Jessie now, as she stands looking down into the water beneath. Her wish for solitude, however, is not to be gratified.

John Rutherford has something very particular to say to Ruth this evening, and has come in search of her.

We do not know just what he said, or how he said it, but judging from Ruth's face as the two walk slowly home together in the twilight, we may conclude that she has quite approved of the matter and manner thereof.

The omnibus was the other day quite full of undergraduates returning to their respective colleges. The day was cold, wet and miserable.

"Have you room for one inside to Oxford?"

asked as pretty a girl as one would wish to see on a summer day. "Lots of room," cried the insides. "We are not very large; we can manage to take one more." The fare was paid by the young lady cautiously to bind the contract.

"All right," responded the conductor. "Come along, grandfather!" cried the damsel, addressing a most respectable-looking, portly, elderly gentleman; "the money is paid; get in, and be sure you thank the gentlemen;" at the same time suiting the action to the word, and with a wicked smile, assisting her respected grandfather into the omnibus. "Here's some mistake! you'll squeeze us to death!" cried the astonished undergraduates. But at that moment off went the omnibus, and he, instead of she, settled down ponderously between two of them.

Commercial.

THE FARMER'S ADVOCATE OFFICE,
London, Ont., June 1, 1885.

Since the 12th of May the weather has been all that could well be desired, and vegetation is not so far behind last year after all. Farmers are still busy seeding and planting.

WHEAT.

The tone of the market has been very tame, and prices have a downward tendency, since the war cloud has been lifted. But how far this will effect the decline remains to be seen. Wheat in Ontario is, on the whole, reported as looking well. The following is from the report of the Bureau of Industries for May:

"Fortunately the rainfall during the winter was very slight, so that the snow did not pack on the ground as it often does, and, excepting in hollows and under heavy banks alongside the fences, no smothering effects were to be seen. But on the knolls and high ridges the snow was swept off, and in such situations the wheat was either killed outright or very seriously injured. The greatest apparent damage, however, has been caused by the hard frosts and northwest winds of April, and the low temperature of the first ten days of May; but the plants remain firmly rooted in all soils, and the opinion is generally expressed that with favorable growing weather a speedy recovery will be made. Excepting in some localities of Waterloo county, where the wheat was killed by winter exposure, and of Durham and Northumberland, where it was drowned out by April floods, no wheat land has been ploughed up, nor is any likely to be. The only insect pests of the wheat that are even mentioned by correspondents are the Hessian fly and the wire worm, and these have done very little harm."

Deliveries have been light, notwithstanding the advance in price, many holding off with the idea that wheat would go up beyond the dollar.

The wheat crop in the States is, in some sections, injured a good deal. A leading writer says:

"It is apparent that the proportion of the winter wheat which has been really good is doing well, and maintains its promise, but that the larger breadth, which has been more or less injured, indicating a marked shortage in the crop, has not gained in the general outlook, and if any essential change has occurred in this respect it has been in the direction of less favorable outcome than has been anticipated.

"With an advance of 20 cents a bushel in the recent past; with English markets over supplied with offerings of wheat incident to the greatly enlarged movement from Russian-ports in anticipation of war complications; with a visible supply in this country unusually large at this period in the year; with the new crop, however reduced it may be in volume, soon to be available—why should any further advance at this juncture be in order, and why not something of a turn in the other course?"

"But no important decline can be consistent, in view of the inevitable shortage in the incoming crop, the greatly reduced stocks abroad, and the actually low prices now prevailing for wheat, however large may now appear to be the surplus to go over into the new crop."

(Continued on page 184.)

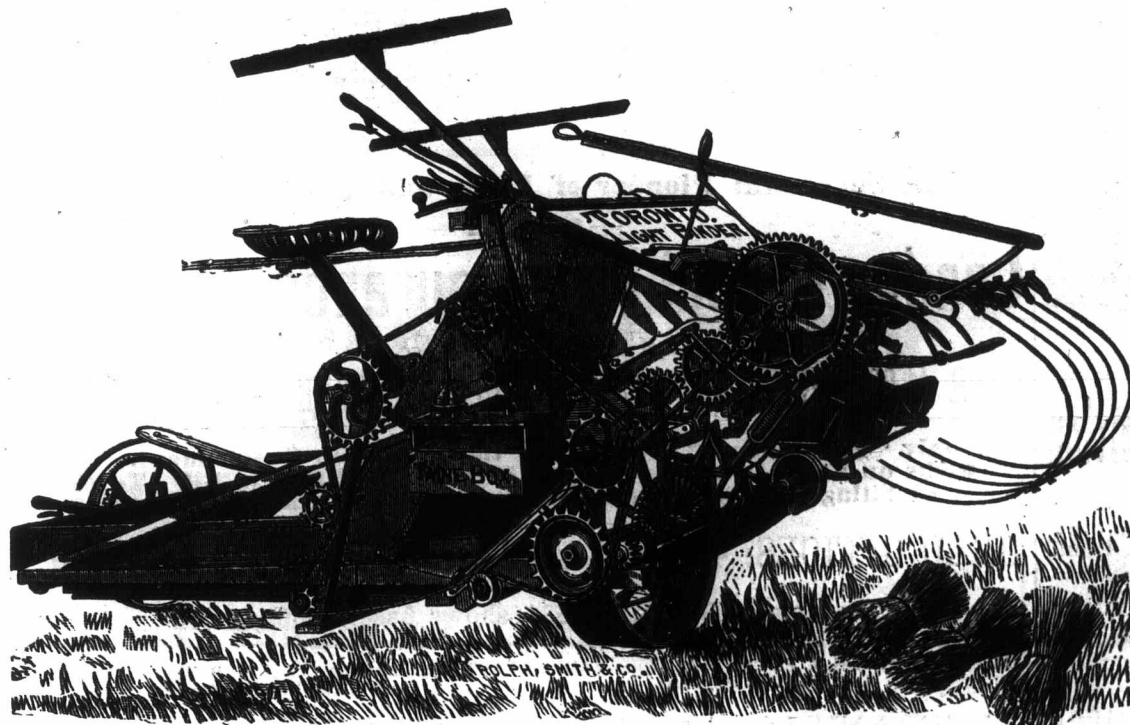
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- It is the only Binder having Spiral Springs in the Canvas Belt Guides to receive the strain and tighten the Belts in wet and dry weather.
- It has made a Record that has not been equalled.
- It is the only Binder fitted with an Angular Steel Cutter Bar.
- It is the best made Binder in the market.
- It is the only Binder running the Conveyor within half-an-inch of the Cutters.
- It is the most durable Binder made.
- It is the only Binder having a Clover Seed Attachment.
- It is the most easily operated Binder in Canada.
- It is the only Binder having interchangeable Bush Bearings.



THE TORONTO MOWER.

WOOL.

This article will be of interest to the farmer for the next few weeks. How prices will range it is hard to say. But one thing is certain, we cannot see any lower prices than ruled last year.

THE WORLD'S WOOL CLIP.

The following table shows the wool clip of the world, in million pounds:

	1860.	1870.	1880.
Europe.....	715	807	665
United States.....	112	154	210
Australia.....	70	197	390
River Plate.....	56	167	260
Cape of Good Hope....	28	46	52
Total.....	981	1,371	1,577

From the above we see the tremendous increase in the wool clip of Australia and the River Plate, also the United States. The increase has been 60 per cent. in 20 years, or four times faster than population, and yet prices have only declined 22 per cent.

CHEESE.

This article is in a very unsettled state, and what the end will be is difficult to determine. It is pretty well admitted by all that we are destined to see pretty low prices the coming summer. Many say we shall have a repetition

(Continued on page 186.)

40th Provincial Exhibition

OF THE

AGRICULTURE & ARTS ASSOCIATION OF ONTARIO

TO BE HELD AT

LONDON

FROM

7th to the 12th September, 1885

Entries must be made with the Secretary at Toronto, on or before the undermentioned dates, viz.:
Horses, Cattle, Sheep, Swine, Poultry, Agricultural Implements, on or before Saturday, August 17th.
Grain, Field Roots, and other Farm Products, Machinery and Manufactures generally, on or before Saturday, August 17th.

Horticultural Products, Ladies' Work, Fine Arts, etc., on or before Saturday, August 24th.
Prize Lists and Blank Forms for making the entries upon can be obtained from the Secretaries of all Agricultural and Horticultural Societies and Mechanics' Institutes throughout the Province.

From GEO. McBROOM, of the Western Fair, London.
And from HENRY WADE, Secretary, Toronto.
234-b GEORGE MOORE, President, Waterloo.

CANADA'S GREAT
Industrial Fair and Agricultural Exposition, 1885

will be held at the City of

TORONTO from Sept. 7th to 19th.

\$25,000 IN PRIZES

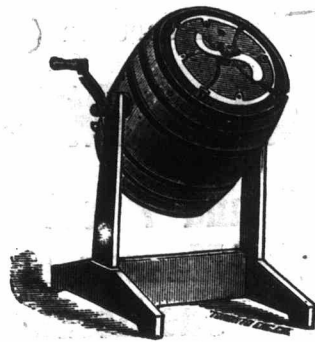
are offered for Horses, Cattle, Sheep, Pigs, Poultry, Dairy, and Agricultural Products, Manufactures and Ladies' Work, &c., &c.

Live Stock and Agricultural Products are only required to be on exhibition from the 14th to 19th September.

An immense programme of **Special Attractions** is being prepared for this Exhibition. Cheap fares and excursions on all railways. Entries close Saturday, Aug. 22nd. Prize Lists and forms of entry sent to any one on application by post card or otherwise to the Secretary at Toronto.

H. J. HILL, Manager and Secretary, Toronto.
J. WITTHROW, President. 234-c

The REVOLVING BARREL CHURN



This is the most popular Churn manufactured in the United States, and is fast growing in favor in Canada.

Be sure and try one before purchasing elsewhere.

MANUFACTURED BY

WORTMAN & WARD

LONDON, - ONTARIO,

234-a

Cor. York and William Streets.

WEBSTER.

In Sheep, Russia and Turkey Bindings.



Get the Standard.

GET Webster—it has 118,000 Words, 3000 Engravings, and a New Biographical Dictionary.

Standard in Gov't Printing Office. 32,000 copies in Public Schools.

Sale 50 to 1 of any other series. Aid to make a Family Intelligent.

BEST Best help for SCHOLARS, TEACHERS and SCHOOLS.

The vocabulary contains 3000 more words than are found in any other American Dictionary.

The Unabridged is now supplied, at a small additional cost, with DENISON'S

PATENT REFERENCE INDEX.

"The greatest improvement in book-making that has been made in a hundred years."

G. & C. MERRIAM & CO., Pub'rs, Springfield, Mass.

234-a

The Successful Pioneer of Farm and Residence Insurance.

— THE —

London Mutual Fire Insurance Company

OF CANADA.

OVER 41,000 MEMBERS. NEARLY 15,000 POLICIES ISSUED IN 1884.

The only "Fire Mutual" Licensed by the Dominion Government. Takes Risks on Farm Property and on Private Dwellings in City, Town or Village on more favorable terms than any other Company.

HEAD OFFICES: 438 Richmond Street, LONDON, ONTARIO.

Statement, Dec. 31st, 1884, shows Assets \$365,541.32.

JAMES ARMSTRONG, M. P., President.
C. G. CODY, Fire Inspector.

JAMES GRANT, Vice-President.
D. C. MACDONALD, Manager.

W. R. VINING, Treasurer.
D. C. MACDONALD, Manager.

The LONDON MUTUAL does a larger business in the insurance of Farm Property and Private Residences than any other Company in the Dominion, and has done the same for now over a quarter of a century. Parties intending to insure should give this "old and tried" Company the preference, for until it was established the stock companies, having all their own way, charged the owners of farm property and private residences high rates to make up for their losses on more dangerous classes of property; this is changed now, through the efforts and working of the successful LONDON MUTUAL. The Company is purely mutual, inasmuch as all the profits are applied in equalizing and keeping down the cost of insurance, and forming a surplus for the security of its members; while the profits of stock companies go to swell the pockets of the shareholders, and for the greater part go out of the Dominion.

One Million Two Hundred and Sixteen Thousand Nine Hundred and Eighty-four Dollars have been distributed in the payment of losses, and in no case has an honest loss been refused.

Prompt settlement of its losses. Rates as low as is compatible with security. Liberal and just conditions of insurance policies covering accidents to live stock from lightning in the fields, and permitting the use of licensed steam threshers. Undoubted security and financial strength. The above are amongst the leading features that command and gain for the "London Mutual" the confidence and patronage of the insuring public.

For insurance, apply to the Head Office or to any of our Agents.

234

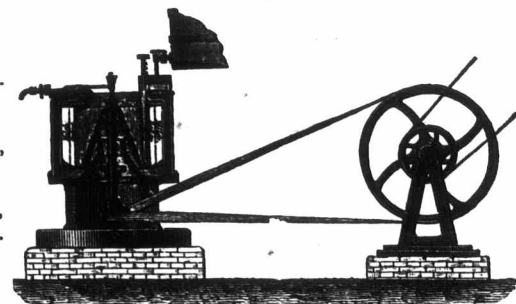
The Burmeister & Wain Milk Separator

Has carried the following First Prizes and Gold Medals:

Gold Medal, Blackburn, England, 1881.

Gold Medal and First Prize, Aalborg, Denmark, 1882.

Gold Medal and First Prize, Vestering, Denmark, 1883.



Gold Medal and First Prize, Amsterdam, Holland, 1884.

Gold Medal and First Prize, Paris, France, Feb., 1885.

And many other Gold Medals and First Prizes.

At the four last named Exhibitions it had to compete with the DeLaval Separator. It is the only full, complete Separator adapted to dairy and creamery use. Three sizes are now made:

No. 1—For large creameries. Will do the work of two DeLavals.

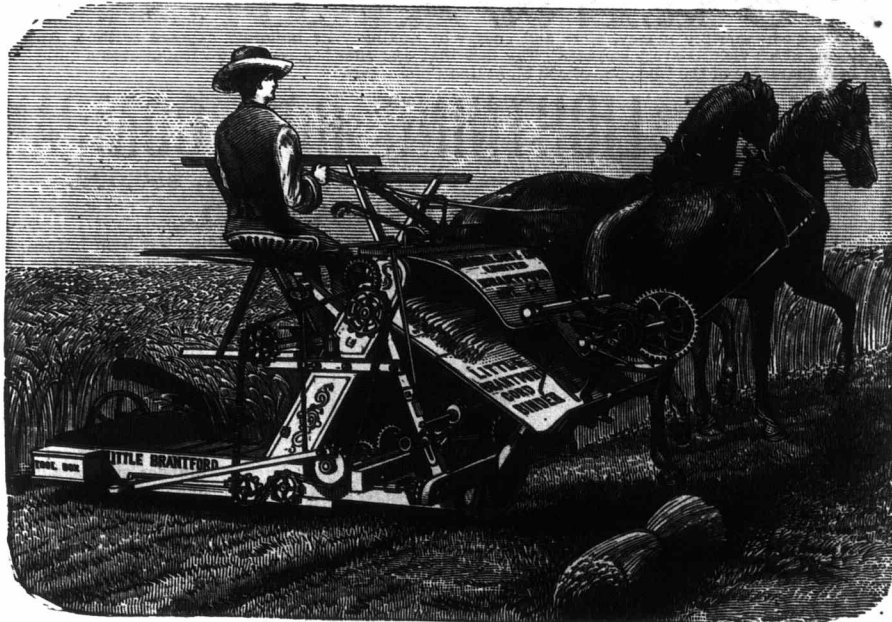
No. 2—For smaller creameries and large private dairies. This size can easily be run with a one-horse gear.

No. 3—For small dairies of from 10 to 40 cows.

As the drum of the small size Separator contains 5 lbs. of milk only, it is well adapted for testing the butter yield of milk cows.

234-a

H. C. PETERSEN & CO.,
Box 1379, MONTREAL



— THE —

LITTLE BRANTFORD BINDER

Farmers of Canada,

This is the Binder you want.

Why?

Because there is not another to equal it.

If you want the Best Binder in the Market order a "LITTLE BRANTFORD," and do so at once, as over 1,000 are already sold, and unless you order without delay you may be too late, and be obliged to buy an inferior machine when you might just as well have had the best.

Big Shipment of Brantford Binders for South America:

A BIG ORDER.—Messrs. A. Harris, Son & Co. (Limited), yesterday received by cable an order for fifty of their celebrated Brantford Binders for shipment to South America. This shipment will comprise four car loads, and is the largest order ever placed at one time with any Canadian firm. A pleasing feature of the order, and one that reflects great credit on this enterprising firm, is that the order was placed with them in competition against one of the largest and most eminent manufacturing firms in the United States. Sample Binders, both of Canadian and American make, were forwarded to South America for inspection, and the preference given to the Canadian machine at the same price.—*Brantford Expositor.*

The Brantford Binder has long stood at the top of the list among Canadian machines, being used by all the largest farmers in the Dominion in preference to all others, and the above shows that it equals, if it does not excel, its rivals in the United States.

MANUFACTURED ONLY BY

A. HARRIS, SON & CO., Limited,
BRANTFORD, CAN.

ARMSTRONG'S Patent Tempered Steel

BUGGY AND CARRIAGE GEARS

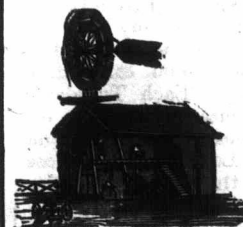
Suitable for all vehicles, from the Light Road Wagon to the Democrat Carriage. Light, easy-riding, durable. Ask your carriage-maker for buggies built with these Gears. Catalogue and full information promptly given on application to the

J. B. ARMSTRONG Mfg. Co.
232-1 GUELPH, CANADA.

ONTARIO PUMP CO.

(Limited.)

TORONTO, ONT.



Seventeen Sizes
GEARED WINDMILLS
from 1 to 40 h. p., for Pumping Water, running Grain Crushers, Straw Cutters, Root Pulpers, or any other machinery up to a 40 h. p. grist mill.



I X L FEED MILL
guaranteed to grind from 10 to 25 bushels per hour according to size. These Mills are the most durable, perfect and cheapest Iron Feed Mill yet invented.



TANKS
from the smallest up to 2,865 bbls.



PUMPING WINDMILLS
from 8 to 30 feet diameter.



PUMPS.
Iron and Wood, Force or Lift. Deep Well Pumps a Specialty.



HAYING TOOLS.
A full line of the Best

PIPE & PIPE FITTINGS
In fact a full line of Water Supply Material.

Send us your address on a post card and we will send you 104 page illustrated catalogue free. 231-y

The Cheapest and Best Fruit Evaporator in the World.

THE HOME FRUIT DRYER COMPANY, Limited

of Ontario, manufacture the above Dryer. Samples of Fruit dried. Testimonials with prices of various sizes can be obtained by addressing T. MARTINDALE, York. N. B.—Sample Dryers price \$8 at Cayuga. 233-e

of 1879. Should this actually be the case, we can see no cause for serious alarm nor grounds for complaining on the part of the factorymen and patrons. Prices have been all that could be reasonably asked for the past five years. The writer has been a close observer of cheese and butter markets for the past 17 years, and in all that time we have only had three seasons of extremely low figures. The following will give our readers some idea of the state of the market:

"The value of cheese has continued to recede, with the market in a phenomenally dull and uninteresting condition. For the present there does not seem to be much prospect of any demand, yet we fancy that there has been more effort to do business. Sales were made to-day for shipment at 7½c. but the quality of the goods was not considered fully satisfactory. The tenor of advices from the other side indicates that no cheese is wanted, but it is safe to predict that grass cheese will meet with more attention. It is extremely difficult to quote values at present, but there are few buyers who would exceed 7½c. @ 7½c. We quote nominally 7½c. @ 8c. for fine to finest—the latter figure being an extreme. A private letter from Liverpool, dated May 14, says: Since my last, the cheese trade has gone from bad to worse, if it is at all possible to do so. You can't give cheese, under finest, away. Each Tuesday's auction sale sees some thousands of boxes offered, and I believe that next Tuesday well on to 7,000 will be put up. Last Tuesday prices varied from 1s. 6d. @ 36s., the bulk of the sales being under 7s. 6d. We are looking for extremely low prices this coming season. Last year new cheese were quoted from New York on April 30, at 64s. 6d. This morning gives us the first quotation of this season, namely, 48s. 6d. A private cable quotes 46s. 6d. The stock of fine cheese here is not large, still lower prices have to be taken to sell, and for fine to low grades buyers can have them on their own terms."—[Montreal Gazette.

BUTTER

Is even worse than cheese. The wind up of the old butter has been something most disastrous to all holders of butter. Before the new make can be shipped it is stated by shippers that prices will have to go lower still. Old butter has no fixed value, for whenever a buyer turns up holders manage to keep him in tow until they give him all he wants at some price. It is wondered what Quebec buyers are going to do with rolls which they took off this market at 4c. to 4½c. @ lb. It is stated that a dispute arose over the sale of a small lot of old rolls wrapped in paper at 4c., the buyer persisting that he bought the box at 4c. per roll (not by the pound) and as the rolls weighed from 1½ to 2½ pounds each, the bargain was declared off by the seller. The buyer, however, swears "he'll fix him in court," as he "has a witness." A round lot of solid boring, but off flavored Perth and Peterboro butter was offered to Lower Port buyers at 9c., a few days ago, but the buyer shook his head and ejaculated: "Not if I know it." The ridiculously low figures which have to be accepted for old goods is really grievous in the extreme. In some instances it is claimed that not more than half the amount advanced on shipments has been realized. If the wind-up of the season of 1884 and '85 does not cure producers and dealers of the bad practice of holding butter, then the sooner they go into some more profitable avocation the better for the trade generally.

PRICES AT FARMERS' WAGONS, TORONTO.

	May 30th, 1885.	
Wheat, fall, per bushel.....	\$0 90	0 91
Wheat, spring, do.....	0 90	0 91
Wheat, goose, do.....	0 79	0 81
Barley, do.....	0 55	0 65
Oats, do.....	0 42	0 42
Peas, do.....	0 67	0 68
Rye, do.....	0 70	0 00
Beans, do.....	1 00	1 25
Dressed hogs, per 100 lbs.....	6 00	7 00
Beef, forequarters.....	4 50	5 50
Beef, hindquarters.....	6 00	8 50
Mutton, carcass.....	7 00	8 50
Clover.....	12 00	15 00
Timothy.....	17 00	20 00
Straw, do.....	11 00	12 00

Continued on Page 188.

\$500 REWARD! Having several times made this offer, we again repeat it, and in doing so ask why sacrifice money, time and energy by leaving your buildings exposed to those fearful and destructive storms which visit us every summer. The fact that our offer has remained without even a quibble being raised is the best guarantee of the efficiency of our Lightning Conductors.

THE GLOBE LIGHTNING ROD COMPANY
INCORPORATED 1878. CAPITAL STOCK, \$50,000.
LONDON, ONTARIO.

We will give the above reward to the first person who will prove that a single building has been burned in the Dominion of Canada upon which rods manufactured by our Company have been placed according to our rules for the protection of buildings against fire by lightning with the Company's Guarantee.

REMARKABLE FACT!

This Company have erected millions and millions of feet of rod in the last seven years (since incorporation, June, 1878) in the Dominion of Canada, and considering the great number of violent thunder storms, and the almost daily occurrence of buildings struck and burned by lightning, this is a wonderful showing.

Manufacturers of all kinds of Copper Cable Lightning Conductors, Fixtures, Ornaments, Weather Vanes and Electrical Apparatus.

Sole proprietor of the non-Conducting Glass Ball. Special attention given to the erection of Conductors on Churches, School Houses, and other Public Buildings. A good responsible party wanted in every city, county and township throughout the Dominion (none others need apply) to handle our goods.



Write for terms and further information. Office and Works 494 King Street, London, Ontario.

234-b **T. C. HEWITT, President and Manager.**

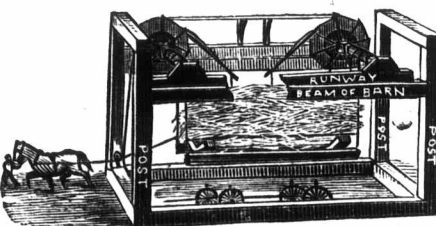


Country Storekeepers and others engaged in handling and packing butter will find it an advantage to use

The WALKER BUTTER WORKER

Saves Time, Labor and Money.

Special sizes for Farmers' use. Price List and Circular sent on application. **JAS. PARK & SON,** 233-c St. Lawrence Market, TORONTO.



This labor-saving machine has proved a success for the past three years. The load with the rack can be elevated to any height required. Thousands are in use in various places. This machine has been awarded all first prizes and diplomas. Beware of infringement. The rack can be raised by a man as well as by horse-power. Any party wishing a load-lifter from different parts, who do not know the agent for that district, or any person wishing to buy a "right," will apply to the patentee,

234-b **WM. SARGENT,** Berkeley P. O., Ont.



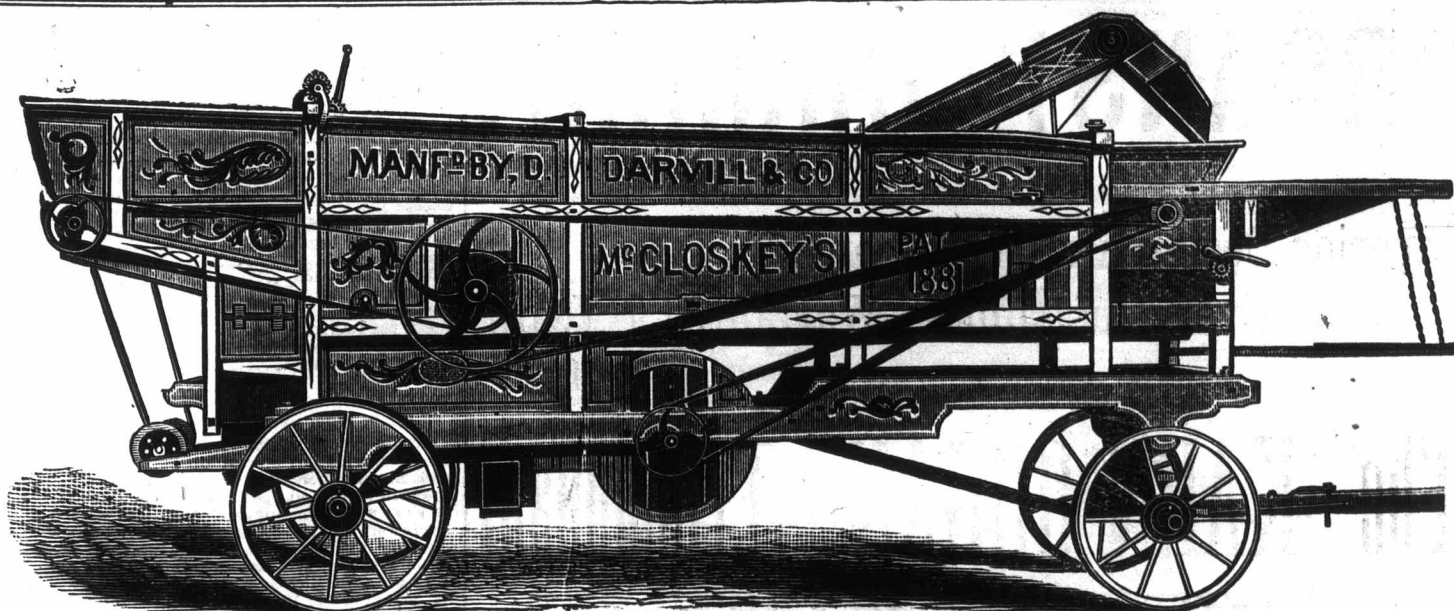
The best Hay Carrier in use. Sent to responsible farmers in Canada on trial at about cost price. For circulars, address **W. I. SCOTT,** BRIDGEWATER, Oneida Co., New York.

A MILLION A MONTH

THE DIAMOND DYES, have become so popular that a million packages a month are being used to re-color dingy or faded DRESSES, SCARFS, HOODS, STOCKINGS, RIBBONS, &c. Warranted fast and durable. Also used for making inks, staining wood, coloring Photo's, Flowers, Grasses, &c. Send stamp for 25 colored samples, and book of directions. **WELLS, RICHARDSON & CO.,** Burlington, Vt.

WELLS, RICHARDSON & CO'S
IMPROVED BUTTER COLOR USED BY THOUSANDS of the finest Creameries and Dairies BECAUSE it is the Strongest, the Purest, the Brightest and the Best.
IT WILL NOT
Color the Buttermilk or Turn Rancid.
It contains no Acid or Alkali.
It is not our old Color, but a new one so prepared in refined oil, that it cannot change.
BEWARE of imitations, and of all other oil colors, for they get rancid and spoil the butter.
Sold by Druggists and Country Stores, 25c., 50c. and \$1.00.
To know where and how to get it, write **WELLS, RICHARDSON & CO.,** Burlington Vermont, or Montreal, P. Q. Dairymans Guide sent free.
MAKES GILT-EDGED BUTTER

CIDER MACHINERY Send for our New 1885 CATALOGUE mailed FREE by **Wells & Becher Press Co., Syracuse, N.Y.**



D. DARVILL & CO., LONDON, ONT.,

MANUFACTURERS OF THE

Celebrated McCloskey Threshing Machine

Acknowledged to be the simplest, easiest running, and best machine now in use. Mr. John McCloskey, the patentee, superintending personally the building of all machines. Purchasers can depend on getting a first-class machine with all improvements for 1885. We would caution parties who wish to get a genuine machine of being deceived by agents of other firms. All machines warranted. Reference can be given from all parties who have purchased the McCloskey Machine made in London. Write us for circulars and testimonials. 233-a.

CREAM BY MACHINERY.

DeLaval's Cream Separator

3,000 IN USE IN EUROPE AND AMERICA.

Frank Wilson, Esq.
Dear Sir,—I having bought and used the first Centrifugal Cream Separator in Ontario, take much pleasure in giving you the following facts.

I first bought a Burmeister & Wain Machine, which is the same as the Danish Weston. It did good work for a time, but before the end of the first year it had cost me over (\$200.00) two hundred dollars for repairs and would not work satisfactorily, so I put in a DeLaval and have given it a thorough trial, and find it does its work to perfection. I will recommend it to all, as any boy or girl can run it, and I must state that nothing short of a first-class machinist can manage the Burmeister & Wain.

I have seen the DeLaval running now the second year, and it has not cost (\$2.00) two dollars for repairs the whole time, and is doing as perfect work as ever.

I also find that the DeLaval will work at its best by setting it level on any ordinary floor, and the Burmeister & Wain requires a solid stone foundation. The foundation for my Burmeister & Wain cost me over (\$50.00) fifty dollars.

I do the largest cream trade in Canada as well as manufacture butter and cheese, and I can, with the DeLaval Separator, make a better sample of cream for a city trade than can possibly be done with the Burmeister & Wain, and equally good for butter.

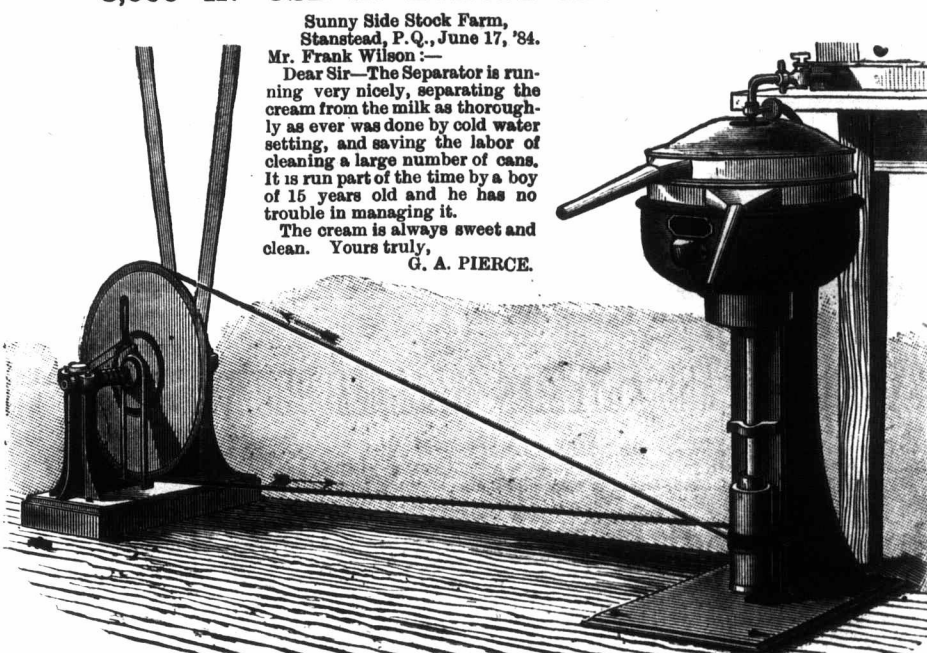
All parties wishing to buy Separators are invited to come to my place in the centre of the City of Hamilton, and see the Burmeister & Wain and the DeLaval working side by side, and draw their own conclusions.

NOTE.—It is a well known fact that, as an engineer and machinist, Mr. W. G. Walton stands second to none. He is also manager of the Farmers' Dairy Company of Hamilton, and his opinion is well worth the careful consideration of all intending purchasers of Cream Separators.

The Judges of the great English Dairy Fair, just held in London, have made a report of an exhaustive comparative test between the DE LAVAL and DANISH machines resulting in favor of the DE LAVAL on every point covered by a Cream Separator. They give it the highest recommendation for superiority in construction, operation and results that any implement has ever received, and their endorsement clinches the evidence of the great merits and advantages of this most useful of all dairy appliances.

They state that no butter-maker can afford to be without one. They say, also:

"In regard to the essential points of construction, separation, temperature and quality of cream, and analysis of cream, the De Laval was far ahead of its opponents, and quite deserved the GOLD MEDAL given by the Council. The power of raising the skim milk after separation to a lighter level seemed to entitle the large A Danish to a second prize, but the failure to separate the milk satisfactorily debarred the other Danish machine from any further recognition."



Sunny Side Stock Farm,
Stanstead, P. Q., June 17, '84.

Mr. Frank Wilson—

Dear Sir—The Separator is running very nicely, separating the cream from the milk as thoroughly as ever was done by cold water setting, and saving the labor of cleaning a large number of cans. It is run part of the time by a boy of 15 years old and he has no trouble in managing it. The cream is always sweet and clean. Yours truly,
G. A. PIERCE.

Bloomfield, Ont.,
Sept. 3rd, 1884.

Mr. Frank Wilson:—

Dear Sir,—I am running the two DeLaval Cream Separators purchased from you with perfect satisfaction, one has been in operation fifty and the other thirty days. The Separators set as close together as the bottoms will let them and one driving belt runs both machines. One hand can attend them both and the engine easily. I would not attempt to make butter without them. The quality is pronounced by all to be the best butter they ever used. Yours truly,
L. V. BOWERMAN.

Stookwell, Canada,
October 14th, 1884.

Frank Wilson, Gen. Man.:

Dear Sir—After a thorough test of the De Laval Cream Separator, I have no hesitation in saying it will do all you claim for it, and have much pleasure in recommending it to the dairymen of Canada. Yours very truly,
WM. SAUNDERS

Yours truly,
W. G. WALTON.

He is also manager of the Farmers' Dairy Company of Hamilton,
FRANK WILSON.

DE LAVAL CREAM SEPARATOR CO.

FRANK WILSON,

General Manager for Canada,

19 St. Peter Street, MONTREAL, Quebec.

JOS. H. REALL, President,

32 Park Row.

NEW YORK.

232-a

ORGANS! ORGANS!

Superior Design and Workmanship.
Every Instrument Warranted 7 Years.

The "KARN ORGAN" Triumphant

COMPETITION OPEN TO THE WORLD!

NEW FACTORIES COMPLETED. CAPACITY 500 ORGANS PER MONTH.

Awarded Silver Medal and First Prize Over all Competitors at the Dominion Exhibition, Held at St. John, N. B., 1883.

Received the Only Medal Awarded Cabinet Organs, Toronto Industrial Exhibition, 1882.

Awarded Silver Medal, Toronto Industrial Exhibition, 1881.

Awarded Three Diplomas and Two First Prizes, Dominion Exhibition, Montreal, 1882.

These, with many other Medals, Diplomas, Prizes, &c. place the "KARN ORGAN" ahead of all others. We call the attention of the public to the facts above. We manufacture Organs suitable in style for Churches, Parlors, Schools, Lodges, &c. Send for Circulars and Prices to

D. W. KARN & Co., WOODSTOCK, ONT.

\$25 to \$50 PER DAY!

Can easily be made using the OLD RELIABLE

VICTOR

WELL BORING, ROCK DRILLING AND ARTESIAN WELL MACHINERY

We mean it and are prepared to demonstrate the fact. The WELL-MERITED SUCCESS which has crowned our efforts during the past fifteen years, and with EXCELSIOR for our MOTTO, we are MONARCH OF ALL in every country in the world. Our Machinery is operated by either Man, Horse or Steam and works very rapidly. They range in sizes from

3 inch to 4 1/2 Feet in Diameter

and will bore and drill to ANY REQUIRED DEPTH. They will bore successfully and satisfactorily in all kinds of Earth, Soft Sand and Limestone, Bituminous Stone Coal, Slate, Hard Pan Gravel, Lava, Boulders, Serpentine and Conglomerate Rock, and guaranteed to make the very best of Wells in Quick Sand. They are light running, simple in construction, easily operated, durable and acknowledged as the best and most practical Machine extant. They are endorsed by some of the highest State Officials. They are also used extensively in

Prospecting for Coal, Gold, Silver, Coal Oil and all kinds of Minerals.

And for sinking Artesian Wells and Coal Shafts, &c. they are unexcelled. We also furnish Engines, Boilers, Wind Mills, Hydraulic Rams, Horse Powers, Brick Machines, Mining Tools, Portable Forges, Rock Drills and Machinery of all kinds.

Good Active Agents wanted in every Country in the World.

Send for Illustrated Catalogue and Price List. ADDRESS,

VICTOR WELL AUGER AND MACHINE CO.,

904 Olive Street,

ST. LOUIS, Missouri, U. S. A.

State in what paper you saw this.

PRICES AT ST. LAWRENCE MARKET, TORONTO.

	May 30th,	1885.
Chickens, per pair	\$0 70	0 80
Ducks, do.	0 70	1 00
Butter, pound rolls	0 17	0 18
Butter, large rolls	0 13	0 15
Butter, Inferior	9	12
Lard	11	12
Turkeys	1 00	2 00
Geese	0 85	1 00
Cheese	0 12	0 14
Eggs, fresh, per dozen	0 13	0 14
Potatoes, per bag	0 40	0 45
Apples, per bbl.	1 50	2 50
Cabbage, per dozen	0 40	0 50
Turnips, per bag	0 35	0 40
Carrots, per bag	0 30	0 35
Beets, per bag	0 70	0 75
Parsnips, per peck	0 15	0 20
Onions, per bushel	1 25	1 50

STOCK MARKETS.

Buffalo, May 26.

CATTLE—Receipts, 10,231, against 4,488 the previous week. The market opened up on Monday with 65 car loads on sale. There was a good demand for all kinds of fat butchers' cattle and light steers at about the rates of the previous week, but shippers' cattle of 1,250 lbs. and upwards were dull and lower. There were but few transactions on Tuesday, and the market ruled steady. On Wednesday only six loads were offered and only a part were sold. Of Michigan cattle, 20 steers average 1,166 lbs. sold at \$5 50; 19 do. average 1,260 lbs. at \$5 50; 9 do. average 1,183 lbs. at \$5 20; 8 do. average 1,289 lbs. at \$5 65; 14 do. average 1,869 lbs. at \$5 50; 19 do. average 1,195 lbs. at \$5 40; 13 do. average 1,140 lbs. at \$5 50; 19 do. average 1,196 lbs. at \$5 55; 22 do. average 1,081 lbs. at \$5 65; 24 mixed butchers' stock average 931 lbs. at \$4 75.

SHEEP—Receipts, 33,000, against 25,100 the previous week. On Monday the receipts of sale sheep were about 45 car loads. The market ruled dull and slow at the closing prices of the previous week, and ten loads were left over at the close. Prices were a shade lower on Tuesday, and closed weak on Wednesday at a decline of 10¢@15 cents. Fair to good 70 to 80 lb. clipped sheep sold at \$3.25@3.75; 80 to 90 lb., \$3.85@4; 90 to 100 lb., \$4@4.15; 100 to 115 lb., \$4.25@4.50; culls, \$1.25@2; clipped lambs, \$4.25@5.40. We note sales of 370 clipped Michigan sheep, av. 102 lbs., at \$4.37; 119 do., av. 82 lbs., at \$4.10; 54 clipped lambs, av. 62 lbs., at \$5.25; 67 do. woolled, av. 83 lbs., at \$6.50; 230, av. 74 lbs., at \$6.05; 670 do., (contracted) av. 90 lbs., at \$6; 97 do., av. 63 lbs., at \$6.

HOGS—Receipts, 40,545, against 47,720 the previous week. The offerings of sale hogs on Monday consisted of 48 loads. Trade opened very slow and prices ruled weak. It was dull again on Tuesday, but on Wednesday prices averaged a little better than at the opening on Monday. Good to choice Yorkers sold at \$4.06@4.45; fair do., \$4.30@4.35; medium grades, fair to choice, \$4.40@4.50; good to extra heavy, \$4.40@4.45; pigs, common to choice, \$4.65@4.75; skips and culls, \$3.75@4.

Notices.

If any of our subscribers desire an illustration of their stock, buildings, or any useful invention for the farmers, they should write us and give particulars at once, as the summer season is the most desirable time to make drawings.

THE PHENIX FOUNDRY, LONDON.—We regret to announce the destruction of this fine block of buildings by an accidental fire last week, which laid nearly the whole block in ruins, destroying an immense amount of material, valuable machinery, and 400 harvesters ready for shipment, and lots more in preparation. It is fortunate that Mr. Elliott has other premises, and having some of his harvesters shipped, he will be enabled to fill this season's orders and will most probably rebuild in the fall. Despite having \$60,000 insurance on the premises, the loss must be a heavy one to Mr. Elliott.

Messrs. A. Harris, Son & Co., of Brantford, Ont., lately received per cable from South America, an order for fifty of their celebrated Brantford Binders. Sample binders, both of American and Canadian manufacture, were forwarded to South America for inspection, and twenty-five tons of binding twine go with these machines. Preference was given to this firm over all others.

We are in receipt of the ninth volume of the Canada Shorthorn Herd Book, containing the pedigrees of animals registered in 1884, compiled by Mr. Henry Wade, Secretary of the Agricultural and Arts Association.

TO ENQUIRE.—It is our opinion that lightning rods, properly constructed and properly put up, are a great protection to buildings. We believe the Globe Lightning Rod Co., in this city, make as good rods as are procurable. They offer a reward of \$500 for any case of accident by lightning in which the building is properly protected by their rods.

HINTS ON DAIRYING.—This neat and ably written work is just published by T. D. Curtis & Sons, Syracuse, N. Y. The author is Mr. T. D. Curtis, Editor of the Farmer and Dairyman, who is also a practical dairyman. The book contains 112 pages, and includes a description of different breeds of cattle, breeding of stock, cheese making, and butter making.

We are in receipt of an ably written and extensively illustrated work, entitled, "The American Fruit Culturist," by John J. Thomas, a practical fruit grower of many years' experience. The book is the most practical and exhaustive which we have yet seen, and contains all the information required for the raising of fruits of all kinds, including the destruction of insect pests. Published by William Wood & Company, New York.

Ladies, you should read Professor Arnold's article on "Wife Killing Arrangements," then turn to our advertising columns and draw your father's, husband's or brother's attention to the advertisements of churns, and procure none but the best. Send a letter or post card direct to the advertiser, and get price and particulars. Do not put up with an inferior make or kind that has to be hawked around the country.

Brantford is fast gaining its reputation as the Sheffield of Canada. J. O. Wisner, Son & Co. have now commenced the manufacture of hay tadders, and are making more than any other firm in Canada, and we believe the best in the Dominion.

FOUST'S PATENT HAY LOADER.

The Foust, from its good working qualities, is pronounced by competent judges to be one of the greatest labor-saving machines of the day, and its superiority is proved by the fact that ten times more Fousts are annually sold than all other makes combined.

Received the Highest and Only Award at the Centennial Exhibition.



Manufactured by **MATHEW WILSON & CO.,** Hamilton, manufacturers of Hay Loaders and Hay Tadders.

This machine has been in successful use in the East for several years, and has lately been introduced with great success in Ontario. Each succeeding year has added new evidence of the practicability of the Loader, and shows conclusively the necessity for pitching hay on the wagon in the field by Machinery.

All other work in hay-making has been done by machinery for a long time, leaving the pitching on the wagon the only part accomplished in the same manner and with no greater speed than during the earlier period of hay-making. With the use of the Loader as much time is saved in pitching as is saved by the Mower, Horse-Rake, Horse-Fork, or Hay-Carrier, thereby making it safe for the farmer to cut at least double the amount of grass daily, knowing that he has the facilities for securing it.

For descriptive catalogues, etc., send to
M. WILSON & CO., MANUFACTURERS OF HAY TOOLS,
Cor. Barton and Caroline Sts, HAMILTON. 232-c

COGENT REASONS WHY



THE CHATHAM WAGON

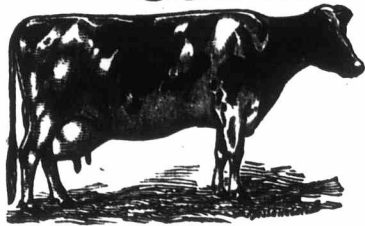
Adopted by the Government of the Dominion of Canada as the STANDARD WAGON, should command your preference:—

The intrinsic cost and value of it is at least \$10 more than any other wagon made in Canada, and any unprejudiced practical man will tell you so, and the thousands who now have them in use say so, because it is not only made from the best, carefully selected and thoroughly seasoned timber and best of iron, but the skeins used, made only by us, are superior to any skein made or used in Canada, and are constructed specially to receive our Climax Truss Rod, which doubles the strength of the axle; the boxing of the hubs are pressed, not wedged in; a guarantee for a year accompanies each wagon, and notwithstanding this additional cost and superiority the Chatham Wagon can be purchased at no greater price than is charged for inferior wagons. Bear in mind, it is the running gear that carries your load, and no amount of fancy painting on the box will make an easy running and great carrier of a poorly constructed wagon.

Liberal Terms to Parties Buying in Carload Lots. Correspondence Solicited.
CHATHAM MANUFACTURING CO., Limited.

Holstein Cattle

500 HEAD ON HAND.



Largest and Choicest Herd in this Country.
Every Animal Selected by a Member
of the Firm in Person.

Over **THIRTY YEARLY RECORDS** made in this Herd average 14,212 lbs. 5 oz.; average age of cows, 4½ years.

In 1881 our entire herd of mature cows averaged 14,164 lbs. 15 oz. In 1882 our entire herd of eight three-year-olds averaged 12,388 lbs. 9 oz. April 1, 1884, ten cows in this herd had made records from 10,000 to 15,000 lbs. each, averaging 15,608 lbs. 6 3-10 oz. For the year ending June, 1884, five mature cows averaged 15,621 lbs. 1 2-5 oz.

Seven heifers of the Netherland family, five of them 2 years old and two 3 years old, averaged 11,556 lbs. 1 2-5 oz.

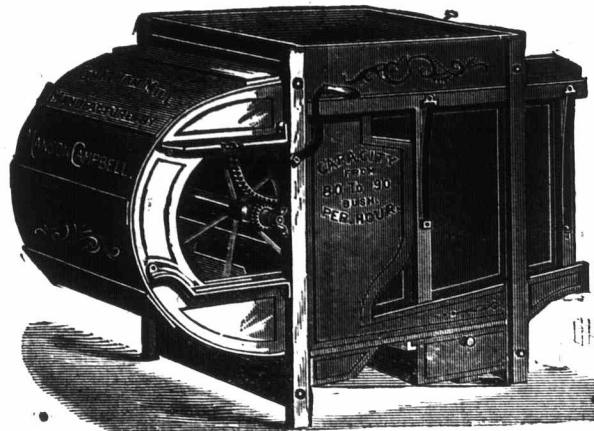
BUTTER RECORDS.

Nine cows averaged 17 lbs. 5½ oz. per week. Eight heifers, 3 years old, averaged 13 lbs. 4½ oz. per week. Eleven heifers, two years old and under, averaged 10 lbs. 3 oz. per week. The entire original imported Netherland family of six cows (two being but three years old) averaged 17 lbs. 6 1-8 oz. per week.

SMITHS & POWELL, Lakeside Stock Farm, Syracuse, N. Y.

When writing always mention FARMER'S ADVOCATE.

233-c



THE CHATHAM FANNING MILL

Over 10,000 of these Mills are now in use!

FARMERS, BUY THE CAMPBELL AND HAVE NO OTHER, IT CANNOT BE SURPASSED IN AMERICA.

More Improvements for 1885:

Increased capacity. Shoe being 25 inches wide (inside measure) giving a capacity of from 30 to 90 bushels per hour.

A Screw Feed to raise and lower the Hopper Slide with ease.

Shoe can be given six different shakes—fast or slow, short or long—as desired.

Each Mill will be furnished with my Patent Riddle for Extracting Cockle and Wild Peas or Tare from grain. It will separate as much Cockle as ever grows in wheat with one running through the mill.

A first-class Gang Riddle and Grader goes with each mill for separating oats from wheat, which does a thoroughly first-class job that any farmer or grain dealer will be pleased with.

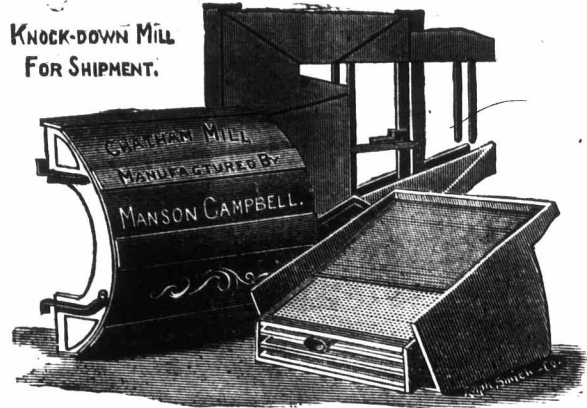
In addition to the Cockle Riddle and Gang and Grader for separating oats from wheat, each mill will have Screens and Riddles for cleaning Chess and Whitecaps from wheat, also to clean Oats, Barley, Peas, Beans, Corn, Clover Seed, Timothy Seed, Flax, and first-class for Chaffing.

Send for descriptive circular. Address

MANSON CAMPBELL, CHATHAM, ONT.

Mills sold wholesale in lots to suit agents. AGENTS WANTED. 231-a

KNOCK-DOWN MILL FOR SHIPMENT.



THE AYR AMERICAN PLOW CO. (LIMITED.)

DIRECTORS--JOHN WATSON, President; DAVID GOLDIE, Vice-President.
THE HON. JAMES YOUNG, JOHN D. MOORE, AND ALEXANDER BARRIE.

MANUFACTURERS OF

PLOWS, HARROWS AND CULTIVATORS

OUR BUFORD SULKY PLOW, improved, is lighter in draft than any Hand Plow cutting a similar width of furrow. Any boy who can drive horses can handle it. It is made with steel or chilled mouldboards, and in 12, 14, and 16-inch sizes.

OUR No. 23 PLOW, CHILLED JOINTER, has no equal for all the lighter soils.

OUR ADVANCE PLOW, STEEL JOINTER, is guaranteed to run steady in the hardest clay, and to clean in any soil.

OUR SIDE HILL PLOW will save its cost every year on a hilly farm.

OUR WHIPPLE SPRING HARROW will do more and better work than two spring-tooth harrows, old-fashioned field cultivators, or gang plows.

OUR BETTSCHEN CORN AND ROOT CULTIVATOR is the best. It is large enough to run steady on the ground.

At the Provincial Exhibition held at Ottawa in September last, our No. 23 PLOW was awarded the **FIRST PRIZE**.

At the Provincial Plowing Match, open to the Province, held near Woodstock in October last, our Sulky Plows carried off all the prizes in that class; and our Jointer Plows, competing with ten different makes, carried off all the prizes in their class except the fifth.

These First Prize Plows do not cost more than the price asked for inferior plows. Dealers find them the best selling line of plows in Canada. Send for Circulars and Catalogues.

THE AYR AMERICAN PLOW CO. (Limited.)
YR, ONT., CANADA.

231-f

Stock Notes.

In our last issue we stated that the American Jersey Cattle Club contemplated the abandonment of their tests, basing our information on reports in some of the leading agricultural papers in the U. S. Mr. Valancey B. Fuller, of Hamilton, Ont., the leading Jersey breeder of Canada, writes to us as follows, contradicting our statement, and we are pleased to publish his remarks: "In your last issue you remark that the Jersey Cattle Club contemplate the abandonment of the butter tests of the Jersey cows. As I am one of the directors of the American Jersey Cattle Club (being the Club you doubtless refer to), I am in a position to know whereof I speak. In place of abandoning the butter tests of the Jerseys, the Club is encouraging them, and steps are being taken to appoint an official tester, whose duty it will be to supervise on behalf of the Club all official butter tests."

THE FOLLOWING

FIRST-CLASS FARMS FOR SALE

A choice stock or grain farm of 112 acres, pleasantly situated on the River Thames, in the Township of Blandford, 1½ miles from St. Marys. Price, \$6,500.

Westminster Township—An excellent 76 acre farm; about 70 acres improved; good orchard; soil, clay loam; brick house, eight rooms, frame addition; two frame barns, stables, shed, &c. School and churches one mile. The above is a thoroughly good farm, in a pleasant situation, five miles from London. Price, \$5,700.

London Township—100 acres; the lot overruns, there really being about 106 acres; 90 acres in cultivation, and free from stumps; about 10 acres of bush, beech and maple; two acres of good bearing orchard; soil, clay loam; creek; farm well underdrained; brick dwelling house, eight rooms and kitchen, cellar, &c.; two frame barns, stables, cattle stables, sheds, &c. The above is in every respect a first-class farm; 12 miles from London. Price, \$8,500.

In the Township of Caradoc—100 acres, 85 cleared and free from stumps, 15 acres fine maple sugar bush; good young orchard; soil, clay loam, with about 10 acres sandy loam; farm has good supply of water; brick dwelling house, eight rooms, &c.; frame driving barn, implement house and stable combined, 36x60; frame barn and shed, 100x34; cattle shed and stable, 50x30, all on brick or stone foundation. School and church close. Strathroy 8 miles, London 16 miles. This has been the homestead for a 300 acre farm, and is one of the best farms in the township. Price, \$7,500.

Township of Enniskillen—100 acres, 45 acres cleared, balance bush; soil, clay loam; small orchard; frame dwelling house, six rooms, &c.; log barn and stable. School one mile, churches, market and railway station two miles. The above is offered a bargain. Price, \$3,000.

For further particulars, address

C. E. BRYDGES,
233-a LONDON, ONT.

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Fruit Packages

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BASKETS

Of every description and of the best quality, send to THE

OAKVILLE BASKET FACTORY!

Strawberry and Raspberry Baskets.
Cherry, Peach, Plum and Grape Baskets.
Clothes Baskets. Butcher's Baskets.
1, 2 and 3 Bushel Baskets.
Satchel and Market Baskets.
Gardeners' Plant Boxes.
Grocers' Butter Dishes, &c., &c., &c.

W. B. CHISHOLM, - Oakville.

231-d

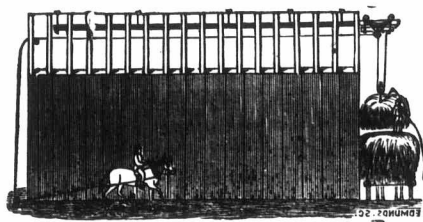
Choice Strawberry Plants

232-c **\$3 PER THOUSAND.**
Address **THOS. STEPHENSON, Appleby, Ont.**

TO BRICK and TILE MAKERS

If you want the Latest Improved
BRICK MACHINES or TILE AND BRICK MACHINES COMBINED, for Steam and Horse-power;
CLAY CRUSHERS AND STONE SEPARATORS, the most complete in the market;
 Also **ENGINES AND BOILERS** adapted to machines;
COMPLETE OUTFITS & Co., on short notice
 Address **M. C. FREEK, or C. NORSWORTHY & CO.**,
 232-c Builders, ST. THOMAS.

BUCHANAN'S
 Improved, Double-Acting



PITCHING MACHINE
 FOR UNLOADING HAY AND ALL KINDS OF LOOSE GRAIN.

This machine can be used in barns, sheds or on stacks. It can be used to unload to either side of the barn floor without being turned around on the track, thus saving the trouble and annoyance experienced in climbing to the top of the barn to make the change. This is a special feature in my double-acting carrier, for which I hold letters patent for the Dominion, and hereby caution the public against buying from any others than me or my authorized agents, any infringement, as I will hold all persons using imitations liable for damages. This machine has never been beaten, either on a fair ground or in the barn, although it has been submitted to any test that the opposing makers could suggest, and proved to be a much better machine in the barn at work than on the fair ground empty. We will send this machine to any responsible farmer on trial, and guarantee satisfaction or no sale. Agents wanted in a great many parts of the Dominion, where I still have no agents established. Liberal discount to good agents, no others need apply, as we will not deal with any but good responsible men. Send for circulars and prices to

M. T. BUCHANAN,
 231-d Manufacturer, Ingersoll.

THE LAND GRANT

—OF THE—
Canadian Pacific Railway

CONSISTS OF THE FINEST
WHEAT MEADOW and GRAZING LANDS in MANITOBA and the NORTHWEST TERRITORIES.

Lands at very low prices within easy distances of the Railway, particularly adapted for **MIXED FARMING**—Stock raising, dairy produce, &c. Land can be purchased **WITH OR WITHOUT CULTIVATION CONDITIONS,**

At the option of the purchaser. Prices range from \$2.50 per acre upwards with conditions requiring cultivation, and without cultivation or settlement conditions, at liberal figures, based upon careful inspection by the Company's Land Examiners.

When the sale is made subject to cultivation **A REBATE** of one-half of the purchase price is allowed on the quantity cultivated.

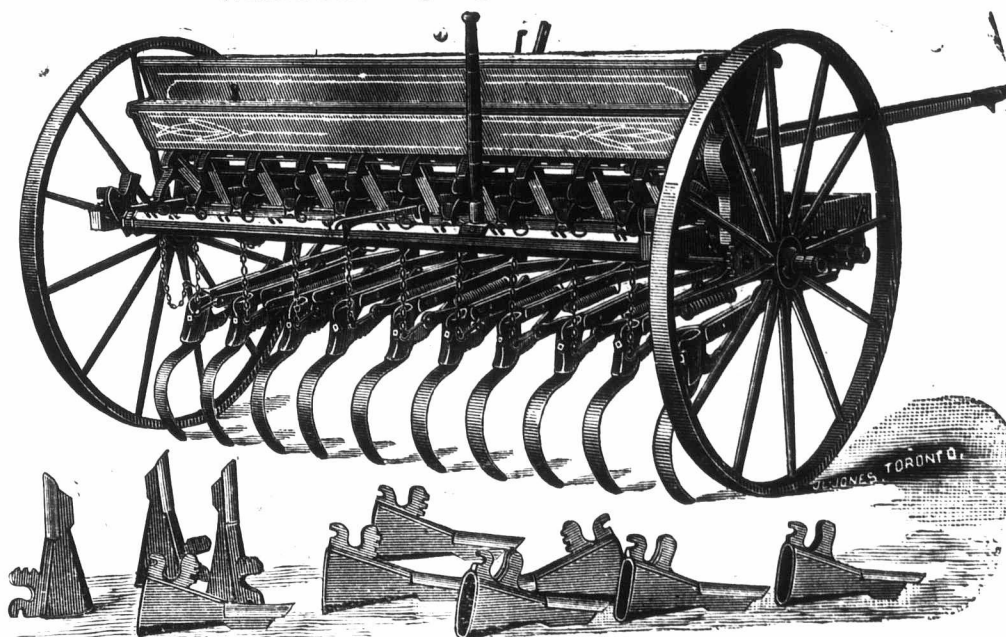
TERMS OF PAYMENT:

Payments may be made in full at time of purchase, or in six annual instalments, with interest. Land Grant Bonds can be had from the Bank of Montreal, or any of Agencies, and will be accepted at 10 per cent. premium on their par value, and accrued interest, in payment for lands.

Pamphlets, Maps, Guide Books, &c., can be obtained from the undersigned, and also from **JOHN H. McTAVISH,** Land Commissioner, Winnipeg, to whom all applications as to prices, conditions of sale, description of lands, &c., should be addressed.

By order of the Board,
CHARLES DRINKWATER,
 232-d SECRETARY.

WISNER COMBINED DRILL and SEEDER
 With Patent Spring Steel Seeder Teeth.



In addition to many other advantages, it is furnished with **THE WISNER NEW SPRING HOE**, which is the greatest invention yet made in this line. We have licensed several of the largest American firms to build it in the United States. With it the angle of Hoe or Tooth can be instantly adjusted, or Seeder Teeth exchanged for Drill Hoes as quickly, without removing a nut or bolt.

J. O. WISNER, SON & Co., Brantford, Ont.,

Patentees and Sole Manufacturers, also Manufacturers of

Grain Drills with Fertilizer Sower, Broadcast Seeders, Horse Rakes, Spring Tooth Harrows, and Cultivators.

(Name this Paper.)

232-c

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Ladies admitted to full course. Terms reasonable. For further particulars address

E. A. GEIGER, M. L. RATTRAY,
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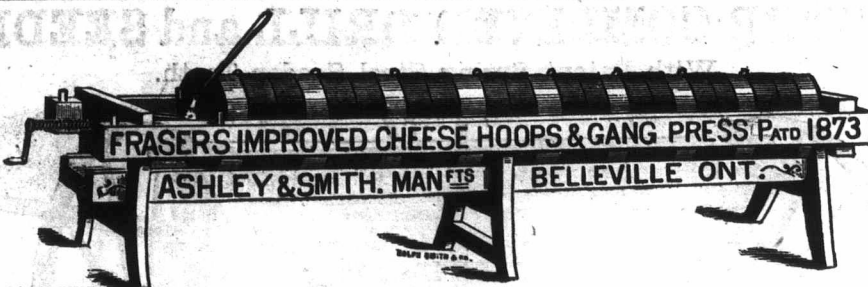
The Light Running Bain Wagon



MANUFACTURERS OF

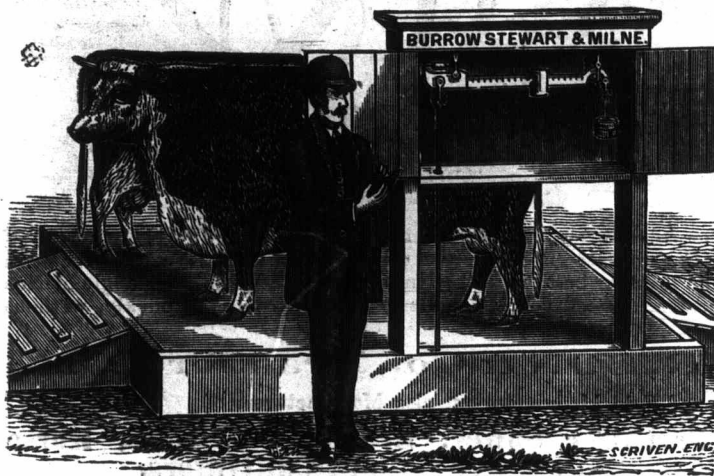
FARM, SPRING AND FREIGHT WAGONS

Team and Freight Wagons are made with Steel Skeins when wanted. Send for Circular and Prices to
BAIN WAGON COMPANY, WOODSTOCK, ONT.
 N.B.—Every Wagon Warranted 231-f

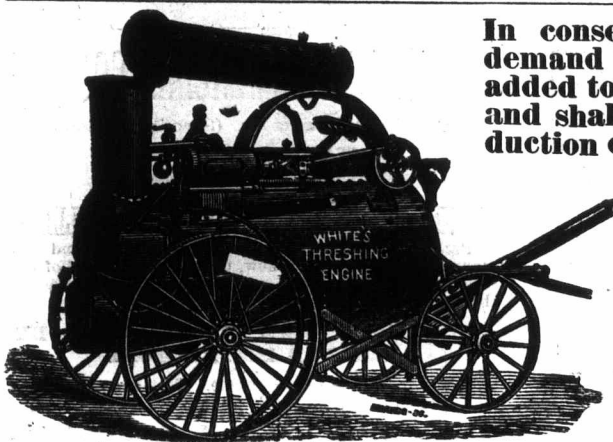


Warranted Capacity of Resisting from 40 to 60 Tons Pressure. Highly Recommended by all Cheese Makers. Prices Reduced for 1885. Price of Hoops, exclusive of Press—14 or 15 inches diameter, to press cheese 8½ to 10½ inches in height, weighing from 45 to 60 pounds, \$5.50 each. Full directions accompanying each Press, so that the most inexperienced person may easily put it in operation. Send for descriptive circular. Address 231-d HARFORD ASHLEY, Belleville, Ont.

SCALES! SCALES



The Platform of this Scale is 6 feet by 4 feet. No Farmer, Stock Raiser or Produce Dealer should be without one. It weighs accurately from half pound to 4,000 pounds. DAIRY SCALES, SPECIAL FAMILY SCALES, COUNTER SCALES, PLATFORM SCALES, HAY SCALES, &C., &C. Quality, Accuracy and Beauty of Workmanship Unsurpassed. BURROW, STEWART & MILNE HAMILTON, ONT. 232-y



In consequence of the increased demand for my ENGINES, I have added to my shops and machinery, and shall largely increase the production of engines for 1885.

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

As a proof of the popularity of my Threshing Engines, I may state that three or four other firms have commenced to imitate them, but sensible Farmers will see that they get a genuine WHITE ENGINE. I am now making a larger number than ever before for the coming season. 231-y

NOTICE TO FARMERS.—Wanted at once, active pushing men, to wholesale my famous teas to consumers. A good man wanted in every township. No peddling, no license to pay, no capital required. Commission or salary. To good men we pay salaries of from \$600 to \$2,000 per year. Write for particulars. JAMES LAUT, importer and jobber in pure teas. Head office 281 Yonge St., Toronto. 232-y

AGENTS WANTED—We are offering special inducements to good men to sell our pure Teas to consumers. Send stamp for terms. Farmers, School-teachers, Agents, and Clerks can double their income by handling our goods. TORONTO TEA CO., London, Ont. 233-c



A New Portable Saw Mill for sale or exchange for pine lumber, including a 25 horse-power locomotive boiler, an engine and a direct action saw mill to cut any length desired. Also a 40 horse-power second-hand Saw Mill complete for \$1,000, or will take lumber. 232-c C. NORSWORTHY & CO., St. Thomas, Ont.

AGENTS WANTED for best Family Bible published, containing 2,500 engravings, &c., also Prof. Fowler's Science of Life, Moody's Sermons, Story of the Bible, Our Department (new edition), Home Cook Book. No publishers offer such terms. Send for circulars. Address J. S. BROWN & SONS, Box 55, Paris, Ont. 225-y

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The most successful Veterinary Institution in America. All experienced Teachers. Fees, Fifty Dollars per Session. Session 1882-3 begins Oct. 25th. Apply to the Principal, PROF. SMITH, V. S., Edin., TORONTO, CANADA. 225-y

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Every Agriculturist should have it for reference on Stock, Dairy, Garden and Orchard, Poultry, Bee-keeping, Veterinary, Entomology, Underdraining, &c., &c. PRICE \$1.60.

ADDRESS—FARMER'S ADVOCATE, London, Ont.

FARMS FOR SALE

in Western Ontario a number of choice Farms. Full description list sent on application. Correspondence invited, full information given, and on personal application at my office, plans of the townships shown, enabling strangers to see the position of properties and their proximity to towns, railway stations, &c. Farms with acreage to suit every one. Send to

CHARLES E. BRYDGES, Real Estate Agent. Land office, 98 Dundas street west, London, opposite to the City Hotel, for list of farms for sale. 224-y



W. & F. P. CURRIE & CO.

100 Grey Nun St., Montreal, MANUFACTURERS OF SOFA, CHAIR AND BED SPRINGS. A LARGE STOCK ALWAYS ON HAND

IMPORTERS OF Drain Pipes, Vent Linings, Flue Covers, Fire Bricks, Fire Clay, Portland Cement, Roman Cement, Water Lime, Plaster of Paris, Borax, Whiting, China, Clay, etc. 229-y

Agricultural Savings & Loan Company
LONDON, ONTARIO.

President—WM. GLASS, Sheriff Co. Middlesex. Vice-President—ADAM MURRAY, Co. Treasurer. Subscribed Capital, - \$600,000 Paid Up do. - 575,000 Reserve Fund, - 61,000 Total Assets, - 1,339,000

The Company issues debentures for two or more years in sums of \$100 and upwards, bearing interest at highest current rates, payable half-yearly by coupons. Executives and Trustees are authorized by law to invest in debentures of this Company. For information apply to JOHN A. ROE, Manager. 229-1/2

DR. W. E. WAUGH—Office, The late Dr. Anderson's Ridout Street, LONDON ONT. 229-y