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THE FARMER'S ADVOCATE

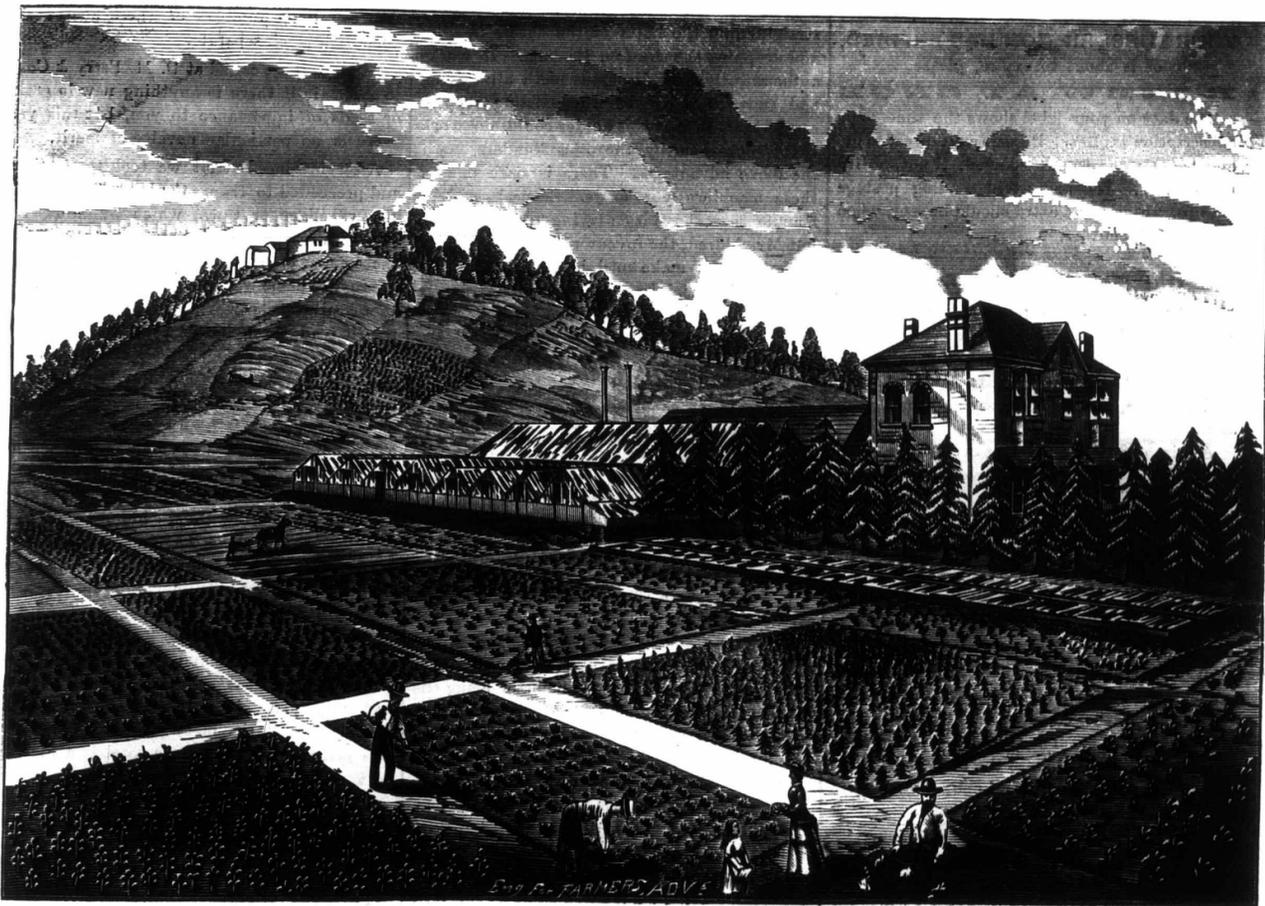
AND HOME MAGAZINE
 FOUNDED, 1866.

VOL. XX.

LONDON, ONT., MAY, 1885.

Whole No. 233.

REGISTERED IN ACCORDANCE WITH THE COPYRIGHT ACT OF 1875.



Kensington Park Nurseries, London, Ont., the Property of Mr. A. R. Murdock.

The accompanying sketch represents the green houses, grounds and residence of Mr. A. R. Murdock, near the western part of this city. These are, perhaps, the most extensive hot-house, floricultural and horicultural grounds that we have seen west of Toronto; in fact, in the floricultural department, in some respects, they are said to exceed the best in that city. The green houses are well arranged to economize labor and fuel, and a constant supply of bloom is insured by the arrangement. Mr. Murdock, besides supplying large quantities of flowers and plants

to this city, ships large quantities of flowers, flower plants and vegetable plants to many of the towns, villages and private families in the western part of Ontario. Mr. M. is a trained, practical gardener, thus his success. In a few years he has, principally by his own labor, earned and built up this valuable establishment. He imports his rose bushes and small trees from England and Scotland, and his seeds are procured from Germany. His grounds consist of ten acres, which he is rapidly improving. This shows what may be done by others with energy

and enterprise. In the distance may be seen the adjoining experimental plot of Canada's eminent Chemist, Entomologist and Botanist, Mr. Wm. Saunders, where experiments and researches, we believe, are doing more good to this continent than half of the millions of dollars that are being expended by the different Governments. We consider that such private enterprises as these should meet with every encouragement, and that no obstacle should ever be thrown in the way of honest individual prosperity, and progress.

FOUNDED 1866.

The FARMER'S ADVOCATE and HOME MAGAZINE

Is published on or about the 1st of each month, is handsomely illustrated with original engravings, and furnishes the most profitable, practical and reliable information for dairymen, for farmers, gardeners and stockmen, of any publication in Canada.

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Our Monthly Prize Essays.

Our prize of \$5.00 for the best original essay on "*How can Greater Confidence be best Secured amongst Dairymen, Patrons, and Dealers?*" has been awarded to Mr. D. Leitch, Mt. Brydges, Ont. The essay appears in this issue.

A 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?* Essays to be in not later than 15th May.

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 letter received on April 14th containing money, with no writing whatever, either in the letter or on the envelope. Peterboro P. O. stamp April 13th. The sender will please state the amount enclosed, also the kind of envelope used, otherwise it will be impossible to give credit.

There is no "general purpose" grass.

Breed for legitimate profits, not for records, pedigrees, and booms.

The best mixture for the production of good crops is brain and elbow grease.

In your seeding operations remember the saying: "Well sown, half grown."

A celebrated Arabian horseman says:—"The two greatest enemies of the horse are rest and fat."

Not only does the quantity of your dairy products depend upon your soil, but frequently the quality also.

That sour food is not natural for cows should be a strong argument against its use. At any rate it is common sense logic.

You need no science to teach you how to exhaust your soil; where the science is required, is in the restoration of fertility.

Editorial.**On the Wing.**

THE WEATHER—CROPS—LAND IMPLEMENTS—
EMIGRATION—POULTRY HOUSE, ETC.

April 20th.—The snow has now melted, but ice still remains in many places; at one place at the forks of the river in this city, it is still 12 feet thick on the banks where it has been jammed as it left the river. This we state to show how unusually late the ice has remained with us. The weather is warm and dust begins to fly.

We took the Grand Trunk on a tour of inspection, and go as far as Detroit. We stopped at Glencoe and saw a new harvesting machine at work in the workshop. To us it seems a wonderful improvement on all the binding machines we have yet seen; the great improvement consists in its taking the grain from the table, straightening the butts of the sheaf, binding and dropping the sheaf on its butt. It works automatically and dispenses with all belting and canvases. Any of the existing reapers can be built so that this binder could do work that is now done by the other binders, with the above advantages. There is only one of these machines yet made. Several leading manufacturers have been trying to get the right, but Mr. Aldred, the inventor, will not dispose of any right to make until he has made another machine, in which he thinks he will have some great improvement on the one now in use. It is our opinion that excellent as many of the present harvesters are, they may in another year be in the background.

There is an excellent foundry in Glencoe, which has recently been purchased by Mr. Swaisland, who is working with a full staff of hands, building reapers, plows, &c. He makes a novel harrow. The driver, by raising a lever, can lift either part of the harrow when in motion and remove any obstruction; also, he can turn the two side harrows up; by doing this he has two runners, and can draw the harrow about from field to field as if it was loaded on a stone boat.

We stopped at Chatham, in Kent county. This county has claimed the name of being the Garden of Canada, and for wheat production it has exceeded all other parts of Ontario. In this locality \$50,000 has been refused for a 300 acre farm; this farm, we presume, might have been purchased at \$5 per acre when we came into this country. The drainage and improvements have added to its value. There are thousands of farms yet capable of being improved and being made as valuable as this one, in this western peninsula. The Chatham Wagon Co. are erecting a new saw mill, and have a large stock of saw logs ready to cut into wagon material. They have every facility to turn out any number of wagons, and to select the material. Manson Campbell has an immense demand for his fanning mills, and turns out more than any shop we know of. An implement manufactory is also established here; they make 500 binders this year.

Here we took a livery rig and drove into the country. We called at Mr. F. W. Wilson's; he has a fine farm of 200 acres, and has commenced the nursery business; he has doubled his stock, his sales and the extent of his nursery every year since he commenced, and

bids fair to command a large business, as he conducts his business on strictly honorable and honest principles. In a field a long way from his house we noticed a small building; on inquiry we found it to be a hen house constructed by himself on a novel principle, which we think the best yet. We took a sketch of it (see page 140) so that you can adopt the plan; there is no patent on it. The building is constructed of 8 foot board, being 8x8x8; it is built on the runners, 2x4 cedar; it is double boarded, and the nests are made on each side, as shown. The hens get into it by means of a board ladder; it is locked, has a light near the door, and perches near the end where the hens enter. Neither man nor animal can get in to rob the nests or kill the birds. This can be drawn to any field on the farm, and in the winter it can be hauled up to the barn and partially covered with straw; by this means poultry men can keep numbers of these houses and keep their stock separate.

At Detroit we called at D. M. Ferry & Co.'s, to ascertain if there is anything new in grains or seeds of importance to you, but this year there is no particular novelty of merit.

After leaving Detroit we took the C. S. R. and proceeded to Essex Centre. This is quite a new village or town, which we think will soon be a city, as it is situated in the centre of the county of Essex and is the most rapidly improving place we have ever seen in Ontario. It was all woods when the Canada Southern ran its road through this part of the country. Saw mills were soon erected, and now stores and factories have sprung up; last year one foundry was erected 240 feet in length; now engines, boilers and farm machinery are made there, employing 60 hands and rapidly adding to their works. There the sound of the hammer proceeds; around there is work for all, and more are wanted; higher wages are paid here than at any other machine shop we know of. Good laborers are wanted. Land is cheap and good. Wild land sells in Essex from \$16 per acre; cleared farms from \$35 upwards. This is the most southern county in Canada. Peaches and grapes thrive to perfection; excellent grazing lands prevail, and this place is only sixteen miles from Detroit, one of the most prosperous cities on this continent. They have already a driving park, spring and fall agricultural exhibitions, and as for timber the finest white ash and hickory are burned in this locality. We saw some flowers in pots here; we enquired where they were raised, and were told in Detroit and 20 per cent. duty paid on them. The only sorghum sugar mill in Canada is erected at this place.

We remained one night. A shower—the first this spring—fell during the night. It was perfectly astonishing to see the change that had taken place; the grass was all green, and the soft maples had strewn the sidewalks with their discarded bud encasements, and the leaves on some of the trees began to open. It appeared as if the vegetable kingdom had been touched with a magic wand.

We returned to London via the Canada Southern and the L. & P. S. R's. On our way we walked through the cars and found nearly two car loads of returning, dissatisfied emigrants and speculators. The tales of many of

their experiences and sights were disheartening, but this only shows the amount of unrest; people are continually changing. Some were Canadians, but by far the largest number were from the Western States and Territories. Many, had they known of the advantages to be had of markets, health, fertility and opportunities of acquiring comfortable homes in this progressive locality, would not be expending so much in travel. The advantages of a wooden country are not to be despised, and we deem it proper to call the attention of capitalists and others to the fact that there is ample room for thousands of good farmers to procure good lands, that must rapidly increase in value, in the whole of Ontario west of this city. We think the over-booming of some of this continent has mitigated against the progress of some of our country, and European emigrants with means would often do better in partially improved localities than enduring the uncertainties and trials of a pioneer's life. The winter wheat was looking remarkably well on both lines of railroad.

The Value of Roots.

A short time ago, while in conversation with a prominent farmer, he objected to raising roots on the ground that they contained little else than water, asserting that he could not afford to raise substances which nature supplied free. That roots contain about 90 per cent. of water has been ascertained by analysis, but the objection against their cultivation on this ground proves what a dangerous thing a superficial knowledge of science is. This is a very important question, inasmuch as farmers recognize the necessity of manuring heavily for this crop; and if roots require so much manure which produces so much water, there is apparent evidence of waste.

The percentage of water in roots varies with the soil and mode of cultivation; the richer the soil or the more the manure applied, the greater the percentage of water. By way of parenthesis let us here observe the enormity of the humbug in the present system of awarding prizes to vegetables,—the more the water the surer the prize. In other words the less nutriment vegetables contain, the greater are the chances for a prize. An average crop will often contain more nutritive value per acre than one raised under the high pressure system. The same principle is illustrated by cattle prepared for our fat-stock shows. The average percentage of water in all our root crops is about 85 per cent., but for the purpose of giving our opponent the benefit of any doubt, and in order to make round numbers of the figures, let us take 89 per cent. as the average, making the comparison with the yield of an acre of wheat. Take wheat at 20 bushels per acre and roots at 500. Now wheat contains about 14 per cent. of moisture, and in order to reduce the water in the roots to the same percentage as that contained in the wheat, let us imagine that 75 per cent. of the water is squeezed out of the roots; then 75 per cent. of water from 500 bushels leaves 125 bushels. Now we have 125 bushels of roots placed against 20 bushels of wheat, and the next question to be decided is, which of these two products contains the more nutritive value? Mangels would have nearly the same

nutritive value, but turnips and other roots somewhat less. On an average, 12 per cent. allowed off would be reasonable, reducing the 125 bushels to 110.

Now let us compare these figures with the market prices. Twenty bushels of wheat at \$1.25 will bring \$25; and 500 bushels of roots at 10 cts. will bring \$50. It will now be seen that while the root crop only brings twice as much money per acre as the wheat, yet it brings 5½ times more nutritive value.

With regard to the difference in the cost of cultivation, every farmer must make his own calculation, not omitting the benefits of roots as a mode of cleaning the land, and their many other advantages in the system of rotation, besides being a succulent food which is necessary to stock during the winter season. No farmer should be guided by the market price of roots. Being too bulky for extensive shipment, they will always command a lower price, compared with their nutritive value, than more concentrated foods, but this is no reason why they should not be raised more extensively for home consumption. These figures harmonize with the practice that roots require liberal manuring; for they require much more food than other crops. We think every effort made to discourage root-growing will be a failure—at least until ensilage brings their art into a higher state of practical utility.

Application of Manure.

The old process of applying manure requires changing as much as the old style of treating the heap. It is still the practice of many farmers, regardless of conditions, to haul their manure to the field and throw it into small heaps, waiting for the season in which they spread it and plow it under. It sometimes remains on the field in this shape during the whole winter, and in other instances it so lies during many of the more temperate months. If there were any appreciable substance left in the manure when it reaches the field, the farmer would soon experience the error of his ways; for the large quantity of soluble fertilizing material which would be washed into the small area of soil covered by the heaps would, under many conditions, rather retard than assist the growth of the crop, the strength of the soluble salts being greater than the tender plants could bear.

The present tendency of the times is towards top-dressing in place of plowing under. Every method, however, depends upon a great variety of circumstances, so your best plan is to study the principles involved and then use your judgment. It was formerly supposed that a large quantity of manurial substances was lost by top-dressing or spreading for any considerable length of time before plowing the manure under; but experimenters have put this question to rest. At any rate, under the usual method of treating the manure, there is very little substance to lose in the field, no matter what the system of application is. If the manure is turned over or hauled out while fermentation of the heap is going on, a considerable quantity of ammonia escapes into the air; but fresh, or even well-rotted manure, contains very little free ammonia, so that it can be applied in these forms without fear of loss by volatilization. But there is also the character of the soil to be

taken into consideration, there being a liability to loss by drainage as well as by the evolution of gas into the air, under certain conditions. Clayey soils, or those containing an appreciable proportion of clay, have the power of absorbing and retaining the drainings from the manure spread on the surface or plowed under. The nature of the soil therefore decides when and how the manure should be applied; for if the subsoil is sandy or gravelly, and the application made some time before the crop begins to grow, the liquid fertility will be carried down by the rain beyond the reach of the roots, which calamity could not happen in a retentive soil. So far as loss is concerned, it will now be seen that on clay soils you may haul and spread at any time, and you may safely leave the manure spread on the land any length of time before plowing it under.

But the texture of the soil is another important consideration, as is also the kind of crop to be grown. An undrained clay soil is apt to be too stiff, so that plowing the manure under will improve its texture; but if it is already in the right mechanical condition—that is, neither too loose nor too firm—top-dressing is the preferable mode of application, especially if the crop is a shallow rooted one. In top-dressing the drainings uniformly saturate the surface soil, making it rich for early growths and shallow roots; whereas plowing under has a tendency to enrich the subsoil for deeper rooted crops. Of course the quantity of rain also plays an important part in this particular. A heavy dressing of coarse manure is mechanically injurious under any system of application; for as a top-dressing it checks evaporation too effectually, favoring mould, fungus growths, slugs, and tender plants, and when plowed under, the manure hinders the free upward movement of moisture from the subsoil in dry weather. Coarse manures can only be applied advantageously in the fall, when it will exercise a beneficial influence on stiff clays, keeping them open for the free admission of frost, which pulverizes the soil, and the manure will be sufficiently decomposed for the ensuing crop.

Under ordinary circumstances, all experiments have proved the economy of using dry earth as absorbents in the stables, and of spreading the manure on the fields in winter. It has been objected that the spring rains will wash away the soluble portions by surface drainage. Although this may take place on steep portions of the field under heavy showers, yet it has been observed that the rain which thaws the manure will also thaw sufficient soil to absorb and retain the fertilizing portion of the drainings under all ordinary circumstances.

The latest remedy for the cabbage worm consists simply of ice-cold water, or water but a few degrees warmer than ice-water, sprinkled upon the worms during the heat of the day. An application in the hot sun is said to cause them to quickly let go their hold upon the leaves, curl up, roll to the ground, and die, while the cabbages suffer nothing, but look all the fresher for the application.

The rain and the atmosphere are the poor-farmer's fertilizers.

Only a rich man can afford to buy or work a poor farm.

Special Contributors.

A Chatty Letter from the States.

[FROM OUR CHICAGO CORRESPONDENT.]

There is a good deal of complaint among the farmers of the States just now about the lack of profit in nearly all branches of their work, but there is really more complaint than is warranted by the situation. They have been accustomed to have such wide margins that they have in many cases not been compelled to exert every effort and employ every resource in order to reap fair profits. When necessity does call for closest management, the "times" are blamed for being dull. But then it is true that prices have lately been comparatively very low.

Speaking of low prices: The Jim River valley in Dakota, which has been noted for its richness as a wheat country, is being converted, in large part, into a stock or mixed farming country. Last year, for instance, farmers who sowed 500 acres of wheat, will this year put at least half of it into corn to feed to the stock. The late prices for wheat have not paid the growers, and they cannot be blamed for wanting to divide their attention between crops, all of which can hardly fail.

As a general thing it has been pretty clearly demonstrated that no matter how safe may seem a certain kind of crop or crops, it is always better for a farmer to raise a little stock. Without raising stock the substance of the farms is exhausted too soon, and it becomes necessary to resort to commercial fertilizers or permit the ground to be impoverished a little more each year. Cows, pigs, and a few sheep ought to be found on nearly every farm. They utilize much that would otherwise be wasted, and furnish a reliable source of income.

The severity of the past winter, which greatly reduced the profits of stock feeders, has been followed by an unusually cold and late spring. It was generally thought that the natural compensation for a hard winter would be an early bursting of buds and springing of grass; but these hopes have been dashed. With a heavy snow and freezing weather in the middle of the spring season, the much wanted grass was held in check, and full winter feeding had to be kept up by farmers for several weeks longer than usual, thus making the production of live stock more troublesome and costly than it is wont to be in ordinary years. All farm work is of course delayed, and those luckless, careless farmers, who are seldom ready to commence a given work until it ought to have been well under way, are considerably behind in their spring work.

It is surprising to see to what extent the centre of fine stock supplies has moved westward in the last few years. Take it five years ago; if a man wanted to buy thoroughbred Shorthorns, and lived anywhere west of Illinois, he only knew one place where they could be had, and that was in Kentucky. The great blue grass State was for many years the chief source of the best cattle, as well as of other kinds of live stock, but now the buyers of the west are beginning to think that it is not necessary to come this side of the Mississippi, as they can get very good stock well west of that historic stream. Missouri, Iowa, and Kansas are rapid-

ly growing out of the habit of replenishing their herds from old Kentucky, as they have in late years bought so many fine animals that the seeds are now being sown broadcast, and they expect rather within the next few years to have cattle to sell to those who remain in what were once the hot beds of fine stock.

Even Colorado and Nebraska, and some of the Territories, are beginning to raise fine bulls to supply the western range trade, offering the not inconsiderable inducement that the stock does not have to undergo any acclimatization.

The assertion was made to the writer a short time since, by one of the oldest stockmen at the Chicago market, that there are not now as many good cattle in proportion to the whole number raised in Illinois as there were a score of years ago. To be sure there are many more extra good cattle in the State now than ever before, but he claims that the proportion of good cattle prepared for market in the State is growing smaller rather than larger. The reason he gives for this is that the feeders of the "sucker" State do not depend as of old on raising their own cattle, but buy all their feeding cattle chiefly outside of the State, and largely from the section to the north, where the calves are raised on skim milk, and are large belled. It is claimed that feeders cannot afford to raise their own young cattle when their acreage is limited and land is worth \$40 to \$85 per acre. This may all be very true, but one thing is certain: it does not pay for feeders to put their time and money and high priced grain into inferior cattle. There is a saying that the breed does not matter much if there is a good man to look well to the feed. This may be true to a large extent, but it is usually poor policy for owners of high-priced lands to buy the so-called cheap cattle to feed and care for. It is not consistent.

The amount of change that is going on in the sources of supplies as well as demands of trade is truly wonderful. The tastes and habits of the people are changing. The Americans are now growing more and more to be mutton eaters. It is true that as yet they do not have a great deal of very choice mutton to eat, but the grade has improved very remarkably within the past few years. It is well that there is a better home demand for sheep, because the advent of the Australian frozen mutton trade in Britain offers a competition that cannot be met by the American exporters.

Producers are almost each year confronted with some new difficulty in the shape of new sources of supply, or adulterations of products, etc., which call for closer margins of profit. There is a continual pressure brought to bear on producers, and it behooves them to be sharply on the lookout for changes. A farmer or stockman to be up with the times these days is compelled to watch his chances closely and make the very most that is possible out of every resource at hand.

The southwestern sheep raiser can no longer grow wool and utterly disregard the mutton possibilities of his sheep. The profits on wool are too slender to stand that, and so he is now looking for sheep that will yield a good fleece and then convert into mutton.

Prices for fine breeding stock have been somewhat lower than growers have expected, and in some cases stock has been withdrawn from sale on that account, but as a rule the decline in

prices for fine breeding stock is not greater than the shrinkage in values for other kinds of stock and farm products, unless one dates from the boom prices of two or three years ago on certain strains.

Now is certainly the time for stockmen to improve their herds if they ever intend to do so, as it is the opinion of good judges that while the day of exorbitant prices for fine stock may be over, good useful animals of reliable strains are not likely to be any cheaper than at present.

What is Agricultural Science?

BY MARSHFIELD.

An agricultural writer having recently asserted that science is truth, is my apology for inflicting this article upon your readers. If agricultural science is truth, we cannot have too much of it, and the more it disorganizes practice the better.

Several years ago neighbor Jenkins settled in our locality, and upon his arrival the report soon spread that he came from "down below." Many farmers in the neighborhood, myself included, took a bad meaning out of this phrase, but as soon as it became known that one of the remote eastern counties was meant, all fear was dissipated, even from the minds of the wives and children. Jenkins seemed to have had a mission—that of an agricultural reformer, and he preached the "down below" principles of farming just as vigorously as he practiced them. That neighbor Jenkins had more style in his methods than his backwood comrades was true, and those of us who regarded him as an oracle promptly fell into his system. But before many years had elapsed Jenkins and his adherents were forced to adopt the *up above* principles of farming; and even to-day, when he is twitted about his foreign methods, he good-naturedly replies, "All depends upon circumstances."

This lesson proved to be of more practical value to us all than anything we had previously read in agricultural papers. Since the occurrence of this episode, we, as neighbors, learned much from one another; but the experience of farmers in other localities, as published in the papers, we have always been willing to accept under the limitation that "All depends upon circumstances."

Now agricultural science is the offspring of experiments conducted at the stations of different countries. One experiment usually proves nothing, for several, conducted under the same conditions, often produce conflicting results. Let us suppose that an experiment is repeated a thousand times, and that in a large majority of instances the results have been identical, then there is strong presumptive evidence of the truth or falsity of the theories originally advanced; but the practical utility of the truth established, which may now be called science, is restricted to farmers who either labor under exactly the same conditions, or know to what extent the other stated conditions affect its validity. This brings us to the most vital questions of the issue: Who shall now decide how many experiments are required to break down the theory, if false, and establish the truth? Who will assert that all the principles upon which the experiment was based are sound? Who will deny that a multitude of theories have

come down to us shielded under the sacred name of truth? Numerous instances can be pointed out in which the results of investigation have come to us under the cloak of science, and upon deeper research, it was found that some of the principles affecting the conduct of the experiments were false. In other instances hot-headed experimenters have advanced theories, and have taken every precaution to arrange every detail of their experiments so that the results would harmonize with their preconceived theories.

Whether we as farmers should accept agricultural science as our guide, "All depends upon circumstances." There is always a great deal of competitive strife for popularity amongst our agricultural investigators, and reports of every trifling experiment are scattered amongst us for the purpose of convincing us that the manipulators are dearly earning the money which comes out of our pockets. Are we to accept all this rubbish as science? Is there one ounce of truth in every ton of it? If I were asked if these stations should be abolished, I would answer, "All depends upon circumstances." If agricultural writers will guarantee to give us nothing but the pure science, explain to us in each instance where the theory ends and the science begins, depend only upon the results of professional experimenters of established character, study our circumstances and necessities, and show us in plain language how we can apply the science to our individual wants under our varying conditions and circumstances, then we will applaud science, and I venture to assert that it will be the means of elevating the farming community from their *down below* practice high upward to the art—*up above*.

PRIZE ESSAY.

How can Greater Confidence be Best Secured Amongst Dairy-men, Patrons and Dealers.

BY D. LEITCH MOUNT BRYDGES, ONT.

The dairy industry of Canada during the last twenty years has made rapid strides, particularly in the production of cheese, but is capable of still greater extension in quality and quantity. This desirable result must be accomplished through the co-operation of both manufacturers and patrons, who must produce the raw material, milk.

The manufacture of cheese is carried on in Western Ontario chiefly by private individuals and companies, each of which systems has some merit. The company factories have flourished in some localities chiefly by inducing a number of the leading farmers to take shares or stock in the same, which is a source of strength to them, but not so in private ones, whose weakness consists chiefly in having managers who know nothing practically of the article they produce, consequently, they are at the mercy of their cheesemaker and of the article manufactured. This is a standing error, for the maker and the produce change generally every year. Private factories are conducted by practical farmers or cheesemakers who have by prudence and forethought saved their earnings. Some are also managed by speculators, who buy and sell cheese for a speculative consideration.

The value of the private factory consists in being under the control of men who understand the science and practice of their business. The property being their own causes them to make every effort to enhance the value of the same, and to please their patrons, knowing that they must produce a superior article in order to bring the highest price, and being connected with their factories from year to year, enable them to improve and carry out any suggestions coming from any quarter that will improve the article under their control; hence we find that whatever improvement has been made in quality has been chiefly through the efforts of this class, who should therefore command the full confidence of their patrons by furnishing them with the material in its purity—no watering, skimming or holding back strippings; and perfect cleanliness should be exercised in all vessels used in milking, or carrying the milk to the factory. This should be the inviolate rule of all patrons.

Mr. J. B. Harris says that there is more confidence between dealers and producers in Scotland than there is in Canada, which would imply that there is more honesty in that country than here; but the reason to my mind is this: In that country the producer and the consumer are close together, rarely more than fifty miles apart and hence there is less risk on the part of the buyer. In this country dealers have to be more cautious, knowing that their customers are thousands of miles away, and that dairy goods are continually changing in their condition, so he must be more alert in order to judge their merits for his market. It is not because the producer is less honest or inclined to take advantage of the unwary dealer; for we find by experience that there is already a large measure of confidence established between our oldest dealers and manufacturers. We are cognizant of one transaction to the amount of \$20,000 by a dealer in London from one manufacturer in Middlesex county last fall, without seeing the goods; and they were shipped to parties in Britain and sold on a small margin; the money was drawn on the goods and paid to the producer before he left the city.

In conclusion I may say there is no royal road to gain confidence in dairy matters, except through the narrow and straight path of honor, justice and integrity. This is the golden key that unlocks the door to confidence in commercial matters, and I cannot recommend any other course.

Experiments made at the New York station proved that a low temperature alone was not the cause of seed corn rotting in the ground. It was ascertained that moldy seed, or seed taken from moldy cobs, was favorable to rot and unfavorable to germination and growth. An experiment was also made with regard to loose vs. firm covering of the seeds, and it was found that hills with the soil firmly packed over the seed produced better results than those with the soil covered loosely with the hoe. These are experiments which every farmer can make for himself without extra labor or expense.

A motto for the breeders of dairy stock—The best is not too good.

A sure prize winner is not a sure "getter." Better stock doesn't make better manure.

The Dairy.

How to Improve Your Butter.

BY M. MOYER.

The time is rapidly approaching which will find us once more in the midst of our dairy work for another season, and as the country has again sustained serious losses through the badly marketed butter of last season, every precaution should be exercised to avoid the mistakes we made. For the storekeepers, who have been the heaviest losers, I see no hope, but must repeat what I often said before, that they have no business to handle butter at all. They are not in a position to do justice to themselves or to those who make the butter. On the part of the farmers there is hope, and room for improvement, and it is in their hands to make butter making satisfactory and highly remunerative. To accomplish better results, there must be co-operative work, united effort, and each one must do his duty, not only for his own individual benefit, but for the good of the butter industry in general.

There should be a willingness on the part of the farmers to support any enterprise which is calculated to improve and to overcome the causes which have ruined our butter trade. The tastes and wants of the people are becoming more refined, and the butter made collected and mixed in a haphazard way, will no longer do. Inferior butter is not wanted, and even the abominable practice of coloring it will not make it palatable to the taste. It is taking dishonest means to hide our sins and to deceive others, and is little less reasonable than putting green goggles on a cow to make her eat shavings for grass.

It is discouraging to us who are laboring among the farmers with a view of improving our butter industry, when we see that coloring is recommended by men who would consider themselves contemptibly dishonest if they would recommend that good wheat should be put on the top of the bag to hide the inferior stuff below. One is no more dishonest and misleading than the other, both being calculated to deceive. White butter is always the result of bad dairying, and generally can be overcome by putting more coloring into the cows. This natural and honest way of coloring butter will also very much improve the quality. Try it. What the farmers want is less trickery, more real practical knowledge, and more men willing to work with them to overcome the difficulties. We want some practical machinery to root up the unfair, unsatisfactory and unprofitable course pursued in the past, and establish a system which will raise the reputation of our butter and put into the pockets of our people the millions of dollars which are lost every year in bad butter.

To do this, united effort is required, and it will not only be necessary for the most enterprising to turn over a new leaf, but they should see that all their neighbors are doing their part as well. Don't lose sight of the fact that as long as bad butter is made by any, it will have an effect on the good, and all must suffer.

To overcome this difficulty I see no other way except by the creamery system, where all the cream is made into butter by practical hands. To make the creamery a success, the

generous support of the farmers is necessary. The gatherer should not pass a door without getting the cream. Very often I find where creameries are started, that a good many hold back the first year to see how it will work, and if it goes all right they will support it the following year. This is a cowardly and unmanly course to take. They are injuring their neighbors, and are expecting them to experiment for their benefit. It is not enough to furnish the cream, but they must see that it is in good condition, and use their influence to make their neighbors do the same thing.

The cow must have proper attention. She must be treated and fed properly, and if she is expected to pay, she must have more food than she requires to sustain life, otherwise there will be a loss. If it pays to convert food into butter, the more you can put through one machine the better. Cows must not be chased to and from the fields with dogs; it will pay better to treat them like pets. Treat them kindly, milk regularly, and give them plenty to eat, and clean, fresh water to drink. Every farmer should prepare himself with a few acres of green corn to feed his cows with during a drought, or when from any other cause the pasture fails. This should under no circumstances be neglected. If cows are allowed to break off in their milk on account of poor pasture, they are in a great measure spoiled for the season. Cleanliness in milking and handling the milk and cream is of the greatest importance. Not only must the cow's udders, the hands of the milker, the pails, etc., be clean, but the custom of setting the milk in wide shallow pans, and have the cream spread over its large surface to absorb the impurities and disease germs for several days in a damp, underground cellar, should be abandoned. It does not matter how cleanly the cellar is kept, it is never quite free from dust, nor of a musty smell peculiar to almost all cellars.

I just lately satisfied myself more than ever of the aptness of cream to absorb any odors or smells in the air, and of the folly of supposing that ordinary air will purify cream. I took some cream, and by means of bellows I forced air through a tube into the bottom of the vessel containing the cream, causing the air to bubble up through the cream. I kept this up for about an hour, and the flavor of the butter when churned was anything but pleasant. This shows that the cream retained the impurities of the air.

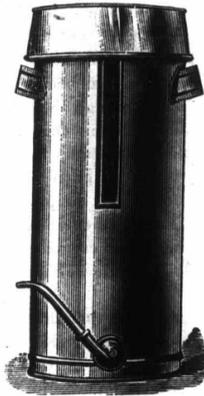
Prof. L. B. Arnold says a dairy farm costs ten per cent. less to operate than grain growing or mixed agriculture; second, the mean returns average a little more than other branches; third, prices are nearer uniform and more reliable; fourth, dairying exhausts the soil less; fifth, it is more secure against changes in the season, since the dairying does not suffer so much from the wet and frost and varying seasons, and he can, if prudent, provide against drouth.

Every advanced farmer recognizes the necessity of regularity in feeding milk cows, without any violent changes of food. This principle is often violated at the very outset of the dairy season in suddenly changing from hard feed to pasture, thus injuring the milking qualities of the cows not only for the dairy season, but for all time to come.

A New Creamery Can.

The accompanying cut represents a can recently invented and patented by Mr. M. Moyer, Walkerton, Ont., who has had long experience in the creamery business.

The can containing the milk is completely submerged in water, the air compressed under the lid preventing the water from running into the milk. The cover is arranged in such a



manner as to allow the surrounding cold water to absorb what the heat from the milk throws off. The tap is adjusted to suit the depth of cream as measured through the glass, and then the arrangement works automatically, stopping when the cream reaches the level of the mouth of the tap. By reversing the direction of the tap, the aperture is closed.

Principles and Practice of Cheese-Making.

After a long series of years, chiefly through the arduous labors of Willard and Arnold on this continent, and a few other noted experimenters in Europe, cheese has gone through a severe scrutiny, and a high degree of excellence has at length been attained. Its nutritive value, as well as its many other properties, has been rigidly solved, a tolerable uniform system of manufacture has been established, and there is little likelihood of material change in the near future.

Although cheese-making is largely taken out of the farmer's hands, yet he should be familiar with the process—not only because he can imitate the established system, should he wish to manufacture his own cheese, but also because he should know how to value it nutritively, as an article for his own consumption under different modes of treatment. The time is fast passing away when the farmer should be governed by market prices alone, for his success now largely depends upon his knowledge of the difference between the intrinsic value and the market price of everything he produces.

Although the system of cheese-making on the whole may be regarded as complete, yet much depends upon strict attention to details, a knowledge of which can only be acquired by experience and observation, not by arbitrary rules, so that science has not yet completely banished "luck." There are differences in the condition and composition of the milk in the ever-changing seasons, and the food, drink, and management of the herd produce variations which can only be controlled by the personal ingenuity of the operator. From these facts it

will be seen that the greater the variety and conditions of the herds the greater the "luck" upon which the expert must depend.

COMPOSITION OF CHEESE.

Milk being composed of about 87 per cent. water and 13 per cent. solid matter, the first object is to separate the liquid from the solids. The solid constituents of the milk are not all alike, but are composed of about 3 parts casein, 3½ parts fat, 2 parts mineral or saline matter, and usually about 4½ parts sugar. There is also another substance called albumen, which, however, has about the same composition, and performs the same nutritive functions as the casein. Now if all this 13 per cent. of solids could be turned into cheese, you would get over 13 pounds from every 100 pounds of milk, the weight of the moisture being included; but you know that 10 or 11 pounds are all that are usually procured, and there must therefore be considerable waste. Of all these constituents the sugar is the most valueless, and it causes the milk and whey to turn sour. In point of nutritive value the casein and the mineral matter stand highest, for they are required to build up the tissues of the consumer's body, or to repair the waste that is constantly going on. The next object then is to save as much of these valuable constituents as possible and to get rid of the sugar. The sugar being soluble, runs out with the water, but as some of the water is retained in the cheese, some sugar must be retained too. Some of the other constituents and all the albumen also go off with the whey, and the 10 pounds of cured cheese which are made from 100 pounds of milk, will then have about the following composition:—

Casein	3.00 pounds.
Fat	3.20 "
Minerals60 "
Water	2.90 "
Sugar and acid30 "
	10.00

You will now see that, taking milk as a complete food, cheese cannot be regarded as such, even were it all digestible; for the sugar being a heat former like the fat, is mostly all gone, leaving the cheese rather rich in flesh forming substances.

THE OPERATION.

The first process is to apply heat to the milk, stirring it in order to mix the cream. The heat applied should raise the temperature of the milk to 80° in very hot weather; 82° in hot weather; 84° in warm, and 86° in cool weather. At a higher temperature the operation will be too fast, producing too dry a curd; at a lower temperature the curd works too slow, making it too tender. As soon as the milk is thus heated the rennet is put in, sufficient to coagulate in 15 or 20 minutes, stirring thoroughly for a few minutes. In 30 or 35 minutes after setting, the cutting of the curd should begin. The curd is stirred while heating, commencing gently and proceeding continuously and cautiously. The heat should be increased about one degree every five minutes, and continued until 96° or 98° are reached. If the curd still contains whey, or has not become firm, keep the temperature at 98° for a while. Continue to stir occasionally after the heat is removed to keep the curd from packing. Draw off a portion of the whey, leaving merely enough to

float the curd, and it is a point of great importance to draw off the remaining whey before acidity develops. When the curd is gathered into a solid mass on one or both sides of the vat, it is cut into large pieces which are turned over on the top of one another, and when the curd can be pulled into fine threads about an inch long, it is passed through the curd mill, allowed to stand in the air, say for an hour, until mature, and salt is added, 2 or 2½ pounds per 100 pounds of curd. It is then ground again so as to mix the salt thoroughly, and is put into the press. The pressure is exerted gently at first, and increased every half hour. After two or three hours the cheese is turned and the bandages folded over the ends.

One of the most important considerations is the temperature of the curing room, and many an excellent cheese has been ruined by inattention to this part of the business. The cheese should be set at 60° or 65°, and the temperature should never be allowed to rise above 70°, or 75° at the most. No cheese should be marketed for a month after entering the curing room; if two months old, so much the better.

OBSERVATIONS.

1.—When the object of cutting the curd is understood, the work will be apt to be done properly. Cutting fine facilitates the separation of the whey, and it is important that as much as possible shall escape, for the pressing of the cheese will not force any out, as some makers suppose. Cutting the curd early, before it gets tough, greatly assists the expulsion of the whey.

2.—When heating the curd, the importance of equalizing the heat throughout the mass cannot be too strongly enforced. This is not an easy task, for curd is a poor conductor of heat, so that the heat must be introduced gradually, and the stirring should be gentle at the commencement. Let the temperature be gradually increased till it reaches blood heat, as this is the temperature at which the rennet is most effective. Too fast heating will cook the outside of the small masses while the interiors will remain comparatively cool, thus retarding the escape of the whey.

3.—The quantity of rennet is dependent upon the temperature, a large quantity at a low temperature having the same effect as a small quantity at a high temperature; but the cheese having much rennet and worked at the low temperature will cure faster than the other, if both cheeses are cured in the same curing room. This is an important point in making spring cheese, when fast curing is required, but the same result can be attained by varying the temperature of the curing room.

4.—An important point is gained in getting the start of the acid. This is accomplished by cutting early and fine, for reasons already given. It is usually difficult to know when acidity is about to begin; but a test may be made by which you need not wait for the acid to appear. If the previous manipulations have been correct, you can test the firmness of the curd and its freedom from whey by its elasticity, taking a handful and squeezing the whey out; if it falls to pieces on the opening of your hand, it is firm enough, and you may then remove the whey before acidity appears.

5.—In the old process of cheese making, the acid was allowed to develop, whereby the min-

eral matter was ignorantly swept out with the whey, and the hogs became the lucky recipients of the most nutritive and valuable portion of the milk. It is true that many a palatable cheese was made by this method, but when people come to know that a palatable food contains little nutriment, their tastes soon change. When the minerals or phosphates are in the whey, sourness causes the development of lactic acid, and by a chemical process which then takes place, these phosphates become useless for human consumption, and are even deleterious to the system. Therefore avoid drinking sour whey.

6.—To a successful cheese-maker the *why* is as important as the *what*, the former being the science and the latter the practice. The *what* may be sufficient so long as absolute rules can be blindly followed, but this cannot be done by a successful cheese-maker; and unless he knows the *why*, he cannot foresee the effect of a departure from the general rules, which variations are indispensable to success.

Breeding for the Dairy.

Before the breeding season arrives, you should decide what line of live-stock husbandry will be the most profitable for you to follow. At present there is an incipient boom for creameries; fat stock is losing its former interest, and cheese-makers are resolved upon maintaining the reputation which this Province has already established,—that of being the best cheese country in the world. Our creamery is a somewhat new institution,—so is the science of butter-making, and advice must therefore be tendered with caution. A beef herd can be built up in a few years, and little doubt exists with regard to the course to be pursued. Our native stock must be graded up with a prominent beefing breed. You must select your largest and beefiest cows, and put them to a Hereford, Polled Angus, or Booth Short-horn bull; but you must not fall into the blunder of those farmers who devote the offspring to dairy purposes, especially if you want to make a specialty of dairying.

You cannot steer your way so clearly in breeding for the dairy, but you must make some sort of a commencement now, if you have not already begun, for it takes several years to build up a good dairy herd. Efforts are being made by interested parties to weed our native stock out of existence, but no evidence can be produced to prove that it "must go"—out of the dairy business. The inflated records of breeds of the long pedigreed type are introduced for the purpose of extorting large sums of money out of your pockets. Pedigrees are good, records are better, but honesty is best. The days of inflated prices soon have their little run, but not until incalculable injury and loss are sustained by the innocent and unwary. If you are a judge of individual merit, and are personally acquainted with the performances of the animals for a few generations back, you had better not run the risk of dependence upon pedigree. You will certainly not select a bad animal with a good pedigree in preference to a good animal with little or no pedigree; although if all other points and conditions are equal, select the pedigreed animal by all means, but pay only the intrinsic value, not the market price. Bear in mind that the longer the pedigree the

surer the transmission of the weak points, so that pedigree should be associated with perfection. Meanwhile breed from the native best of your own or your neighbor's herd, and when there is evidence to prove that you should take a different course, we will let you know, remembering that by following this advice you will have less risk, and your personal acquaintance with the stock is better than a paper pedigree. In short, our native stock is sufficiently thoroughbred for all practical, though not for speculative, purposes. In addition to the other virtues of the sire, see that he also bears the reputation of being a good "getter."

Breeding for the dairy is complicated from the fact that cheese and butter are two distinct features. The time will come when the mere quantity of milk will not decide the value of a cow for cheese-making; the quantity and the quality of the solids other than the fats will be reckoned, as well as the fats themselves; but for the present your profits will be proportionate to the quantity of milk you can produce. As a rule, if you breed and feed for quantity alone, the milk will suffer in quality, and *vice versa*, but so long as your profits do not depend upon the quality, it is to your pecuniary interest to breed for quantity alone, and the rules for doing so have been given in a previous issue.

If, however, your locality is better adapted for a creamery than for a cheese factory, you should build up a herd of cows that are specially adapted to the purpose. Although it is a safe rule to breed for the greatest quantity of butter and not for the greatest percentage, yet the possibilities must be taken into consideration. For example, a fair average cow will give 4000 pounds of milk in a season, and about 7 per cent. of cream, so that $4000 \times 7 = 2800$ pounds will be the quantity of cream produced in a season. Now it will be more difficult to breed from her so as to produce 6000 pounds of milk with 5 per cent. of cream, than to produce 3000 pounds of milk with 12 per cent. of cream, although in the former case the total quantity of cream will only be 300 pounds, while in the latter it will be 360 pounds, and the cow which gives the smaller quantity of milk with the larger percentage of cream will be the more profitable. She will be much easier kept, her offspring will require proportionately less skim milk for their support, and it is quite possible that her cream will produce as high a percentage of butter as that of the other cow. If you understand the principles of breeding and feeding for the objects named, you will find your herd quite plastic in your hands, and you can easily attain the figures above stated, the one extreme adapted for cheese, and the other for butter. By the use of a cream gauge you can easily weed out one or two of your cows every year, and the object sought can thus be easily and speedily accomplished. In selecting the creamery in preference to the cheese factory, there are two points to be borne constantly in mind, viz., (1) that it is just as difficult to overstock the markets of the world with good butter as with good cheese; and (2) that you can improve your soil by the creamery system, while you may impoverish it by the cheese factory. In all your calculations you should include more than the bare cash received, for in many instances a present surplus of mere money may bring final ruin upon your business,

Stock.

What Horses you Should Breed.

Whether you breed horses for your own use or for the market, or partly for both, there are some important points which you should now consider.

While recently in conversation with one of our distinguished horse breeders, in reply to one of our questions, he answered emphatically: "Farmers should breed the horses that bring the most money, shouldn't they?" At first our mind naturally gave tacit assent, but upon a moment's reflection we confess this was a "stunner." "During what boom?" we inquired. This was a stunner to our interviewer. We then pointed out the desirability of farmers always breeding the best horses which are best adapted to his conditions and circumstances, in which case they will always command ready sales at remunerative prices, and come in for their share of boom prices besides, when their time in the rotation arrives.

The points for you now to consider are (1) what these conditions are, and (2) what breeds are the best. Before doing so it will be necessary for you to review the causes of the decline, if not the fall, of some of the hitherto popular breeds, and the causes of the greater fitness of others to survive them. This question is better illustrated in cattle than in horses. When the boom starts, prices soon go up fabulously. The competition in the show ring becomes keen and the prizes offered are large. The stallions and mares are gorged for the purpose, like beef steers for a Christmas fat-stock show, in order to make them sleek, heavy, and sure for the prize. They are tenderly nursed and diligently drugged, and the innocent owners deem it a ruinous sacrifice to put such high-priced, aristocratic animals to honest employments; the prizes and awards must make amends for all the iniquities. The result is that both they and their offspring decline in constitutional vigor, fall off in stamina and become more or less sterile; the crash then comes, and there is a howl for mules. Action and stamina are wanted for legitimate purposes, and cannot be procured at any price.

We do not assert that the whole breed are thus immolated on the exhibition altar, and even if they were, should any educational advantages be gained, the sacrifice would not be so enormous, or the example so appalling. Judge A. insists that the big animal should have the prize, perhaps for reasons urged by Judge B.; Judge B., on the contrary, is in favor of the fat animal, possibly for reasons given by judge A.; judge C., as umpire, gives his decision on grounds unknown to himself or anybody else, and yet you are expected to learn a practical and profitable lesson from this advanced system of judging, especially when these decisions are reversed by other tribunals.

But only half the injury and injustice is usually perpetrated by the exhibitions. The owner, either by necessity or choice, must get quick returns from his large investment, and the plan he fixes for doing so is to breed too young and attempt too much. The young stallion is called upon to do double the service which nature intends. Just prior to the travelling season he is fattened and sleeked up on

fat-stock show principles, and in order to accomplish this, he must lack exercise. The customers having received an exhibition education, are taught to regard the show standard of fatness as emblematic of perfection. While all these historic events are taking place, those breeds which are earning honest money, are rapidly gaining what the boomed and doomed breeds are losing, a reaction takes place, and the life history of the busy-boom parasite is thus ended.

Apart from the trotter and the racer, in the breeding of which you have no business to dabble, there is one of three classes of horses which you can raise with certainty of success. The first principle to be settled is this, that you must breed a class horses which will be the most profitable for your farm work, and sold a few years after they are broken in. If your land is a heavy clay, and especially if you have not much light teaming to do, your forte should be the breeding of heavy drafts, and for this purpose you will require a stallion weighing not less than 1,650 pounds, and between 16 and 17 hands high, for your mares not very much lighter in weight—not less than 1,200 pounds. These are the weights when the animals are in good breeding condition, not fitted up for a fat stock show. See that the stallion is regularly fed and exercised all the year round, and not specially prepared for the service season.

The "general purpose" cow is a myth; but to make the same accusation against the horse of this description would not be fair without some reservation. What you need in the former is an extreme quantity of beef, butter or milk, not a medium of all three; but in the latter case, you have no work suitable for a span of elephants, neither have you ample occasion to trot to town at Maud S. speed. Hence the value of a compromise. The greater part of your work is in the field, and if your soil is light, you need a span that have some snap. Such a team will trot to the market and back with two light loads while the drafts are making only one trip with double the load. There are two types of this class, one in which the draft predominates, and the other possessing the chief attribute of the trotter, both usually having more stamina and endurance than the draft, for the reason that rational feeding and exercise are indispensable to action as well as to hardiness and all the other desirable qualities that the horse is heir to. In these classes you will have much more difficulty in fixing a type in your mind's eye, at which you should certainly strive in all your breeding operations, and if the exhibition has aided you in fixing upon a desirable type, give it credit, therefore, by all means, and consider that your time has not been ill-spent. For such a general purpose horse or roadster you will require a stallion not lighter than 1,250 pounds, standing 15.3 to 16 hands high, crossed upon your heavier mares.

There are good reason why the character of your farm and the other conditions mentioned, should decide the line of breeding into which you should enter, for then you will be more likely to double the profits of those breeders who make a specialty of breeding in competition with you. The constitution of your animals can always be kept in a vigorous state, and will therefore be in more active demand.

There are two things that should never be confounded, viz., weight with size, and size or weight with strength. Weight and size are mostly dependent upon fatness, while strength is associated with muscular development, and strength, action, and endurance are largely connected with form and conformation.

Skim vs. Buttermilk for Hogs.

The value of skim-milk and buttermilk as food for pigs was carefully tested last summer at the Mass. Experiment Station. The skim-milk was estimated at 20 cents per hundred pounds, and the buttermilk, which was procured from a creamery, at 13.7 cents per hundred pounds. Corn meal was bought at \$28 per ton. Six Berkshire pigs, from 40 to 50 pounds each, were used for the experiment. Three of them were fed together with corn meal and skim-milk, and the other three were fed with corn meal and buttermilk, all they would eat in each case. In the first lot 713½ pounds corn meal and 982 gallons of skim milk made 617½ pounds gain live weight; dressed weight gained during the experiment 510 pounds. In the second lot 717½ pounds of corn meal and 995 gallons of buttermilk produced a gain in live weight of 619 pounds and of dressed weight 514.4 pounds. In the first lot the cost of feed to produce a pound of dressed pork 5.8 cents; with the second lot 4.6 cents. The difference in cost is approximately equal to the difference on the cost of the buttermilk and skim milk, thus showing them to be of about equal value as food for pigs.

Breed up the Native Best.

A "Live Stockman" writing to the N. Y. Tribune, gives the following hint to farmers, which comes to them very seasonably:—"I haven't the firm faith commonly held in the potency of blue blood; it is one of the humbugs of the day, created and fostered by interested breeders of pure stock to lift their own kinds into undue prominence. There is a very great uncertainty in breeding any kind of stock. The constant falling out of sight of one noted family of Jerseys after another proves it. Who hears now of the Rex family, which may be taken as a type of scores? Farmers' Glory, the noted bull which cost several thousand dollars, because of the assumed certainty of his blood, was finally sold for \$140, as a thorough failure.

"And so it is, has been, and will be, all through the history of all the pure breeds. I know of many instances of farmers rearing the calves of their best cows and in a short time doubling the value of their herds. The Soles herd, well known to be a success in this way, and that of Mr. Cheever are instances of this. No; there is no more uncertainty in breeding from the best of our native stock than there is among Jerseys, Aryshires, Devons or Short-horns. Breed from the best; feed well from the first; train to milking habits; and keep on doing this, and we shall soon make our natives quite equal to the much puffed pure breeds, which have been built up in this very same way from no better material."

Prof. Roberts estimates that average straw is worth \$3.50 per ton as manure.

Self-Adjusting Stanchion.

The accompanying illustration shows a swing cattle stanchion, which comes to us well recommended by those who have used it. Ease and comfort in the stall have a great deal to do with the milk or beef production of cattle, and to some extent are a substitute for feed. In this stanchion the cattle can be more quickly and easily fastened than by any other method, this being done by simply pressing on the side piece, by which the stanchion adjusts and locks itself. Although the animals have more liberty in the stall than by any other method of fastening, yet their droppings fall more regularly into the gutter, and there is therefore less trouble in keeping them clean. The stanchion is manufactured to suit any stall or kind of cattle by Messrs. Flannell & Anthes, Berlin, Ont.

Food in its Relation to Farmyard Manure.

At a late meeting of the Western New York Horticultural Society, Prof. Roberts, of Cornell University, described his system of preserving the manure on the University farm, of which the following synopsis is found in the Country Gentleman:—

Prof. Roberts gave an excellent practical discourse, describing the system of manuring by which the exhausted University farm had been doubled in its crops. Wheat had reached forty bushels per acre, and they were now disappointed when it was not over thirty bushels. They had manufactured 466 tons of rich manure, and drawn it out on the land the past year. In addition to the clover, hay and rich food given to the cattle, the cotton seed, and other materials—plaster was strewed in the stable, which Prof. Roberts thought as good as any way to apply it to land. From each cow were thus made eighty pounds of manure daily. By careful examination, the liquid portions, which were carefully saved, were found on an average to be equal to the solid parts. More than one-half the cost of the feed given to the cattle went to the manure, or in other words, while the cost of the food of each animal was found to be 23 cents a day, the manure from it was worth 16 cents. Superphosphate is of little or no value on the land at that place, and the improvement made had been effected with home-made manure carefully saved. Prof. R. said that in common practice in farming, half of the materials of which manure is manufactured from the farm, never gets back to the land to benefit the crops, and often only a quarter. To prove the difference in the richness of manure, an experiment was made with three portions of land, the first of which was

left unmanured; the second was enriched with the common manure from the town; and the third with the best home-made manure from rich food kept under cover. The last mentioned gave a product as much greater than the town manure, as this was better than the unmanured land.

The manufactured manure is drawn out and spread on the land as fast as made, from September to February; after that time the spring accumulations remain in a covered yard, and are applied to the wheat in autumn. If the heap becomes too dry, water is thrown on it; and if it is found to ferment too freely, furrows are plowed around the heap and the earth thrown on it by the men in spare portions of time.

Lament of a "Scrub" Cow.

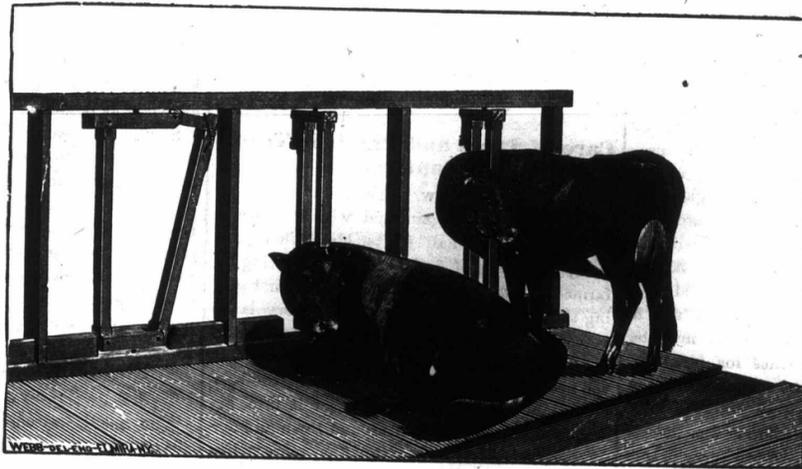
One blizzard morning when the thermometer stood 16° below zero, a poor, defenceless "scrub" cow, which had spent the previous night in the shade of a straw stack, from which she derived her food and shelter, was observed to be gazing wistfully into a neighboring box-stall in which there stood a pure bred cow.

inside is better than mine. Perhaps my inside contains as many straight lines as hers. Look at her sleek coat compared with my tousy hair. See, she has to lick and scratch herself shaggy as well as me. Behold, she can hardly waddle. She looks daggers at me. How she would go for me if she could waddle a little faster. I am not afraid of her although she is bigger than me. Did my master take her in because she was a stranger and could not stand the cold like me? How kind my master is to strangers. I wish I were in a strange land. One's stomach is nearer and dearer than one's country. I can't stand this any longer. Would it be more honorable to die peacefully than to die in revenge? My master must have been led astray by those crazy people who come here every day to look into this stall. I see nothing worth looking at—except those nice tickets on the wall. Perhaps some day in the far future some man of sense and honor will take a notion to give some one of my progeny good feed and treatment, and will keep a record of her milk, and when he finds out that she fills his pocket, though not his eye, he will repent of his cruelty to me and perhaps put a monument on my grave; he will learn to love crooked lines better than straight ones. Then I shall have my revenge."

When calves have the scours the best plan is to give half a pint of linseed oil or olive oil, if the calf is three or five months old, to cleanse the bowels of the irritating cause. If the first does not operate give a second dose. If younger the

dose must be smaller. After the operation give a little boiled flaxseed with the food, but don't feed the food that has created the difficulty. Give cooling food, such as wheat middlings, and continue for a few days the boiled flaxseed in small quantity. The calves should be kept in a comfortable stable or sheds. The calf feeder should depend upon prevention of disease, and should not expect much of cure. It requires the presence of the skilled veterinarian in chronic cases.

The inveterate experimenter, Prof. Sanborn, of Missouri experiment station, being convinced that fat meat has had its day, has been testing the value of foods rich in lean-making constituents (albuminoids) as producers of lean meat in hogs, against foods rich in fat. The former consisted in shipstuff and dried blood, giving a nutritive ratio of 1:1.64, the other food, corn, having a ratio of about 1:3. The corn produced less increase in weight, but more fat; the other ratio producing more lean and bone. If a reaction takes place in favor of lean meat instead of fat, it will be a glad day, both for the consumer and the consumed.



SELF-ADJUSTING STANCHION.

The upper part of the door had been accidentally left open by the cattleman while he was preparing a warm dessert for the precious occupant of the stall. The "scrub" cow placed her weary chin upon the door, looked piteously into the stall, seeing its fat occupant rooting amongst all the luxuries which the ingenuity of man can procure, and with shivering frame uttered the following doleful lament:—

"Well do I remember the pleasant days and nights which I passed in that stall. My master was kind to me then. Although I got nothing but straw and chaff to eat, with a few turnips sometimes for a change, yet I was happy and contented. O, how I did relish that morsel of hay which my kind master gave as a Christmas present. I get no Christmas presents now. Who is that intruder in there? Would I could read those red tickets that inflame the walls. Just look at those straight lines which make her appear so ugly in my eyes. I wonder if I shall get red tickets when curved or crooked lines come into fashion. If I could only get at the leavings of her trough for a few minutes every day, my body would soon become surrounded by straight lines too. I wonder if her

Garden and Orchard.

Planting Apple Trees.

BY L. WOOLVERTON.

Most farmers will be more or less occupied during this month with tree planting. Either ornamental trees are to be set along the roadside and in the door yards, or vacancies in the orchard need filling, and new orchards are to be planted. The trees that have been ordered from the nurseries are seldom at hand before May; and if they are, few farmers find their soil dry enough for planting any earlier; while on the other hand, it will not be safe to delay this work beyond the 15th or 20th inst.

1. *Thorough preparation of the soil is most essential to success in tree planting.*—Many careful farmers, who would never sow grain without preparing the soil with the utmost pains, plant their apple trees in the most careless manner. They throw down the bundles of trees where they are, exposed to the burning rays of the sun, as if they were so many fagots for kindling fires; they dig holes like post holes into which they crowd the roots, down so deep that neither the action of the atmosphere nor the benefits of cultivation can reach them; and then in after years they wonder at the slow growth of a profitless orchard. Hurry never pays. Pennywise and Poundfoolish never got rich yet, and never will, whether he is a farmer or a fruit grower. The ground for an orchard should have been prepared the previous autumn as carefully as for grain, and if wet, properly underdrained. If single trees are to be planted in the lawn or orchard, the sod should first be removed in a circle of say three feet in diameter, the larger the better, and this space well graded and pulverized to a depth of one or two feet. When the soil is ready for their reception, the trees may be brought out from their trenches for planting, but their roots should still be shaded from the sunshine.

2. *No tree should be planted that has not an abundance of fibrous roots.*—In the hurry of tree digging many trees are ruined in the nurseries. I once bought one thousand peach trees from the States, and found on their arrival that fully one-half were worthless for want of roots. Better throw away such trees than plant them. It would be well to have a special clause in the order for trees, giving the buyer the right of refusing to pay for trees which lacked fibrous roots proportionate to their tops. A buyer would at once refuse a tree with a broken or mutilated top; why then should he not with more reason refuse a tree from which a far more important part had been severed by careless diggers? The profits of apple culture are cut down too low to allow any margin for planting poor trees. Before planting the torn ends of the roots need to be smoothly pared, and the top boughs shortened back according to the loss of roots; but where a tree is young and can be removed entire, no pruning will be necessary.

3. *It is a common mistake to plant trees too close together.*—To gain correct ideas upon this point, it would be well to measure the diameter of the space covered by a full-sized tree. One will be astonished at the space covered by a full-grown oak, maple, or apple tree, when ascertained by actual measurement. I have an

apple orchard of nearly a hundred years of age, and each tree covers a space of about forty feet in diameter. It is evident, therefore, that forty feet each way is not too great a distance for apple trees on good soil, unless for Northern Spy, or Early Harvest, or other upright or slow growers.

4. *It is a great mistake to plant trees too deep.*—It is the action of the atmosphere upon the soil that converts the elements of fertility into such a state that they can be absorbed by the little spongioles of the roots. But if these rootlets are buried so far below the surface that they cannot reap the benefit of such action, the sure effect must be a most unsatisfactory growth.

Mr. S. E. Todd, in his "Apple Culturist," describes an experiment he once made of planting apple trees directly upon the surface of the ground. It was a plot which could not be ploughed for rocks, stones, &c., and the trees were set right on the grass; they were then banked about with loam, shovelled from a wagon. He states that the result was eminently successful.

I have also frequently observed trees set in deep furrows to fail or become stunted, while those set upon the top of ridges grew luxuriantly. Some say, plant the same depth as the trees stood in the nursery; probably it would be quite safe to say, plant your trees with their roots as near the surface as possible without bending them out of their natural positions.

Care of Trees and Plants in Transplanting.

BY W. W. HILBORN.

Spring has come again, and with it a desire to plant trees, small fruits, etc. There are many thousands of dollars lost every spring by farmers buying trees and plants, and not giving them any chance to grow. A very large percentage of the nursery stock sold in Canada is sold by travelling agents, and delivered at the nearest village, sometimes not in the best condition. The farmer will load it into his wagon and perhaps stop around town an hour or two, then drive two, three or more miles with the roots of his trees and plants exposed to the wind and sun, perhaps getting home too late to plant that day; hence they are left in the wagon or barn quite often without any protection from the air, sometimes with a horse blanket thrown over them. The next day planting begins. He perhaps takes out quite a number at once, and lets them lay out in the hot sun and wind until the holes are dug.

Planting not being a very rapid process with those unaccustomed to the work, the last trees have to stand the exposure quite a length of time; the wonder being that so many live, and in most cases the nurseryman gets the blame for all that perish. If the trees, plants, etc., had proper treatment after leaving the nurserymen's hands, there would be but few failures, comparatively.

In the first place, when you start after trees, put enough straw into your wagon to cover up all the roots well; put on water enough to thoroughly wet them; then get your plants packed into the wet straw as soon as possible after they are taken out of the boxes; or, if you go right to the nursery, as soon as they are taken out of the ground. Then cover up with a horse blanket as soon as you arrive home, to

prevent the wind drying the roots. Dig a trench in mellow soil deep enough to admit the roots, then untie your packages and plant, covering up all the roots well. If you are not ready to plant out for several days they will take no harm. When you are ready to plant, take a number out of the trench at once, and when you get to the planting place, throw a few shovelfuls of earth on the roots to prevent drying.

When trees, currants, gooseberries, raspberries, blackberries or grapes, have become shrivelled in the roots or tops, dig a trench long enough to admit the whole length of them and cover up root and top with earth, throwing on water, and letting them remain from three to ten days; the larger and more shrivelled the trees or bushes, the longer they should be left covered. As soon as the bark swells up and the buds begin to start, they may be taken out and planted. In this manner I have saved trees that would never have sent out a bud, if planted out in the condition I received them.

The whole secret in successful transplanting is to keep the roots in as near the same condition as possible while out of the ground that they were while in, and the nearer you approach that, the greater success you will have.

Plant about the same depth as they were in the nursery, spread out the roots well, putting the finest soil among the roots and packing in as firmly as possible.

Should the weather become very dry, so that it is necessary to water them, do not put the water nearer than a foot from the plant or tree. When it is put against the tree it follows the roots and is apt to loosen the earth around the small rootlets, preventing them taking hold readily. A mulch of straw or coarse manure, or oft-repeated hoeing, is better than water in nearly every case.

Planting Flowering Shrubs.

BY HORTUS.

The usual custom in planting shrubs is simply to mass them indiscriminately in borders without any attention being paid to the different habits of growth or those conditions which best suit the requirements of each plant. The consequence is that in a few seasons the strong and tall growing kinds soon dwarf if not entirely crowd out of existence the low growing ones. To plant to advantage and to best show off the various beauties pertaining to shrubs, it is desirable then to so arrange them that each may have a reasonable space allowed it to grow naturally. Syringas, Lilacs, Tartarian Honeysuckles, Purple Fringe, Viburnas, and all strong, tall growing shrubs, should be planted singly in conspicuous points about the grounds, or if intended to form a screen to hide any unsightly sheds or back premises they can be planted alternately in a line with a row of shorter growing shrubs in the front of them. Never plant tall growing kinds in front of the residence, as in this position they obstruct the view from the house and hide the house from the public. For such positions select the dwarf or low growing species of Spireus, Mahonia, Mezeremis, Deutzia, Corchorus, Calycanthus, &c. Where grounds are of a size to permit of it, and especially in cities, it is much nicer to

make a narrow border, say three feet wide, to plant the shrubs in, the border to be at least four to five feet from the fence. This is better than the common practice of planting the shrubs right against the fence, as it allows space on each side for the shrubs to assume a more pleasing and natural form than they could by being crowded against fences and having the branches and flowers during the blooming season ruthlessly destroyed by thieving people from the street. When space will also permit of it, planting shrubs of the one sort in groups from three to seven is more desirable than by laboriously assorting them singly. Planting in masses produces fine effects. What could be more admired than a group of five or six *Pyrus Japonica* in bloom—a glowing flame of color, they would be effective from any distance. Shrubs that bloom first in summer should be planted at such points that other plants, like *Hollyhocks*, *Dahlias*, &c., may afterwards produce an effect of flower by being planted near them. For instance, a flowering Almond, or the double-flowering Plum, are exceedingly showy, but the blooms last only a few days and all the summer afterwards has only its unattractive foliage to serve as an ornament. Shrubs belonging to this class, therefore, can be planted in gate corners and other places, that their absence of flower may be not so noticeable. A neat, compact shrub, of peculiar interest with its fragrant blossoms and wood, is the *Calycanthus floridus*. A good position for this desirable shrub is to plant by the steps to the verandah, and in fact all shrubs having fragrant flowers, as the *Syringas*, double flowering *Currant*, &c., should be planted at such positions that their perfume may be inhaled from the house. Climbing *Roses* and *Honeysuckles* are invaluable for training on trellises and around the pillars of the verandah or against the house itself. The *Clematis* for this purpose is also largely planted. All shrubs may be pruned annually in spring or fall with the knife. This will keep them dense and of a neat rounded form; but I do not think anything can be more objectionable than these poor trimmed and clipped deformities we see in so many city gardens, standing stiffly in set places like barber's blocks. There is nothing natural or graceful about such specimens. The green grass would be preferable, or better still their place would be better occupied with evergreens. All shrubs are easily transplanted; the most of them possessing very fibrous roots, grow easily on all soils.

How to Make a Concrete Walk.

An engineer of experience in this work tells us how to make a cement or concrete walk, requiring no great skill in preparing materials. These are water lime, and gravel or ashes, or both. The gravel and ashes are put in a heap and wetted. One barrel of the water lime is mixed with sharp, clean sand (dry), being shovelled over back and forth several times to get a thorough mixture. A portion is then mixed with water into a thin, soft mortar, and five parts of the wet gravel or ashes are well mixed with it, so that every fragment is coated with the combining mortar. This is important, for obvious reasons. This concrete is spread on the walk and beaten down with a rammer until the moisture gathers on the surface. Some of

the dry sand or cement is then scattered over the surface to absorb the moisture, and the surface is smoothed over with a plank rubber having a sloping handle to work it back and forth. In a few days this is hard, and becomes harder with time. By making divisions of thin strips of wood or tarred paper the cement may be laid down in blocks or squares, and for extra good walks the blocks may be colored by mixing the finish coat with brown or grey or other colors alternately.—[Farmer's Gazette.

Sales of Fraudulent Fertilizers.

During the present session of the Dominion Parliament a bill was passed with reference to the sales of concentrated fertilizers, including all brands valued at \$12 per ton and over. It should be borne in mind that such fertilizers are valued according to the percentage of nitrogen, phosphoric acid, and potash they contain, and a chemical analysis is necessary in order to ascertain the quantities present. Cases have been known in which adulterations were made till the fertilizer was worth little more than one-tenth of its original value, and sales were effected at these fraudulent prices. The only protection which the farmer can have is through a stringent law which provides for a public analyst, whose duty it shall be to analyze the brands made by the different manufacturers, and to regulate the price according to the value, exposing the fraudulent vendors, as is the case with food stuffs.

The act provides that every manufacturer shall send a sample of his fertilizer to the Minister of Inland Revenue, with an affidavit as to its genuineness as a fair sample of the fertilizer made or imported by him, and it is afterwards placed into the hands of the chief analyst. The manufacturer's certificate is to be attached to each package, bag, or barrel, as the case may be, before it can be exposed for sale, or have the Inspector's tag attached. A penalty not exceeding \$50 for the first offence, and not exceeding \$100 for each subsequent offence, is attached to a violation of the act.

The fertilizer business is daily enlarging its dimensions in Canada, and frauds allowed to be perpetrated now will be hard to eradicate. It is to be hoped that this act will be the means of nipping all fraudulent intentions in the bud.

The practice of making ensilage on the continent is the reverse of what is considered the best method in America. In Europe the fodder is packed firmly and rapidly and no heat is developed, while in America the reverse of this plan is adopted, producing heat and incipient decomposition. If sufficient weight can be produced to squeeze out and exclude all the air without costing too much, the fodder can be preserved fresh and sweet, and the ensilage question will then be solved.

Another boom crushed.—The Jersey Cattle Club contemplate the abandonment of the butter tests of Jersey cows. This will go hard with the breeders, but will be grand for the farmers. What farmers want is honest tests.

The FARMER'S ADVOCATE is what all stockmen, milkmen, and farmers should have.

R. McN. ROBERTSON.
MARSEFIELD, P. E. I.

Veterinary.

Lameness in Horses.

No. IV.

We have now given the main points of the most usual forms of lameness in the limbs; with regard to the many forms of lameness which occur in the foot, we may remark that we cannot intelligibly present them to you without getting special illustrations made for the purpose, which we intend to do at some future time, meanwhile hoping that you have benefited by the cut already given and our remarks thereon.

We shall close this series of articles by making a few remarks on the general treatment of lameness. Of course the first thing to be done is to make a correct diagnosis; you must locate the seat of the pain, and if you can ascertain the cause, remove it. Watch how the horse puts down his foot, and shoe in such a manner as will give the greatest ease, or put him in slings if the case is a severe one. In addition to the local treatment, it is advisable in most cases to treat constitutionally as well, such as the giving of purgatives, and the dieting must be faithfully attended to, restricting it chiefly to bran mashes with a little good hay.

With regard to the local treatment, the very earliest opportunity of subduing the inflammation should be seized, before any organic change takes place, in which case the lameness may become incurable altogether, or not until after considerable trouble, expense and time. The inflammation is reduced by hot and cold fomentations, warm in the earlier stages, followed by cold. Poultices have the same effect, but the seat of the lameness does not always easily admit of these applications. The acute pain having thus been subdued, a mild, stimulating liniment is applied, of which there are many kinds in use, but a good one is composed of methylated spirits, 2 ounces; tincture of arnica, 4 ounces; water, 1 pint. Sometimes bandages are used for the purpose of aiding the absorption of the exudate. If the lameness still remains after the acute form has subsided, counter irritants must be resorted to, such as rubefacients (applications which produce redness of the skin), blisters, setons, or actual cautery (burning by hot iron). These treatments tend to produce the same effect, but in a different degree, some being severer than others, and operate more rapidly and permanently. If you can succeed by blistering do so, for hot irons leave a blemish; so may setons to a small extent. Pyro-puncture is a term used for a remedy in which a hot wire is forced into the bone.

A celebrated Scotch veterinary surgeon says with regard to a horse:—"Fat is not power, but it hides a multitude of sins of conformation. Excess of fat and a forced condition predispose to disease, especially of the liver, and give an animal a poor chance of battling against adversity when it comes upon him, and in the case of mares (as of cows or ewes) is very apt to interfere with impregnation and the nutrition of the foetus. Not only does high condition swamp sins of conformation and tend to produce sterility, but it more seriously, and very largely, distracts the attention of judges from the one point of importance in connection with breeding animals, viz., soundness."

Poultry.

The "Best Breeds."

BY L. G. JARVIS.

"Which is the best breed?" is a question often asked by the farmers, and a very difficult question to answer.

We have come to the conclusion that as long as we must keep hens in order to supply poultry and eggs for market, we might as well keep some one of the pure breeds as to keep a lot of mongrels, as you will see in most farm yards. The best breeds for those who care nothing for the size of eggs or fowls, but desire to get the greatest number of eggs for market, are the Leghorns and Hamburgs. The best breeds for those who want non-setters that will lay good-sized eggs, are the Spanish and the Houdans. The best breeds for spring chickens are the Plymouth Rock and Wyandotte. The best for winter layers are the Asiatic. The best "general purpose" breeds for the farmer are the Plymouth Rocks or the Dorkings; and the best for the table are the Dorkings and Games.

PLANT SUNFLOWERS

in every place in which you can find space about the barn or fowl house. It is well known that this plant is especially valuable for its health-giving qualities. All that is needed is to press the seeds under the soil, and the plants will care for themselves. On the margin of the sink drain, near the out-houses or pig sty, or in the unused runs of the poultry yard, these plants will be filling the place of the health committee, and the fall crop of seed will make a valuable change of diet for the fowls during winter and spring.

SOD NESTS.

I have found it beneficial to put a sod in the bottom of the nest box, and during the warm months in summer take a spade and cut a sod large enough to cover the whole bottom of the nest box, and about four or five inches thick; put it into the box grass side down; then make a hole in the fresh earth large enough to hold the eggs, but not deep enough to allow the eggs to "double up," as they are more apt to get broken; then put the eggs on the fresh earth, and you will find good results.

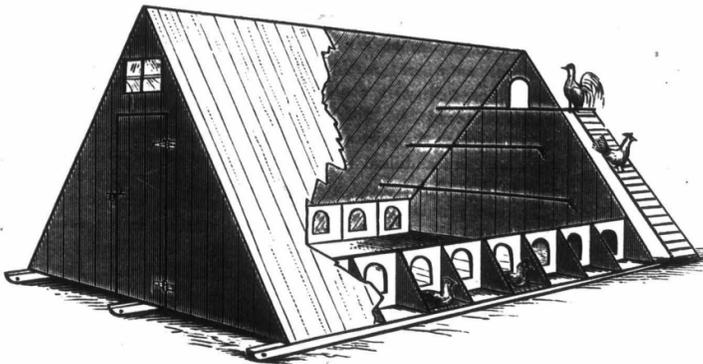
LATE HATCHING.

Early hatching is a good thing for the accomplishment of certain purposes, and is absolutely essential. The man who raises poultry for market, the breeder of the largest varieties for exhibition and other purposes, the rearer of pullets for fall and winter laying—each wisely heeds this advice. March, April and May are the favorite months for hatching Asiatics, and May and June for the smaller breeds, like Leghorns and Hamburgs. A great many have found advantages in later hatching, especially of those breeds which feather early and mature rapidly. Leghorns hatched out early in September get well clad and pretty well grown be-

fore winter sets in, with the exception of their combs, which, in some cases at least, have a tendency to remain small until the winter is over and warm weather begins. This is not a disadvantage. The combs are not permanently stunted, but only retarded in their growth; they develop rapidly previous to the pullets commencing to lay. The chicks grow through the winter and begin to lay in March.

WHY EGGS DO NOT HATCH.

Although every possible precaution is sometimes taken to make the setting hen as comfortable as possible, the eggs often fail to hatch. The difficulties are of a character that can not be discovered, but much depends on the condition regarding the management of the laying hens. If a hen is very fat she will lay but few eggs, and the eggs from such hens will often fail to hatch. When cocks are allowed to range with too many hens, the vitality of the chicks is lessened, and they die in the shell. Fowls that are fed under a forcing process pro-



Novel Poultry House. (See "On the Wing," page 130).

duce weak offspring, and those that have been bred in-and-in are not to be relied upon to give good hatches or produce healthy chicks. The hen that steals her nest is generally successful, but why this is so has been a puzzle, not only to the farmers, but to scientific men as well. One thing we know is that her eggs are never disturbed, and they are surrounded only by the pure uncontaminated atmosphere. When we place eggs under a hen we know nothing of them, as a rule, and if they contain fertile germs it is only a matter of guess with us in selecting the best, but the hidden hen's eggs are always impregnated. The nests should be secluded, and in a place which will be secure from the approach or intrusion of man or fowl, with the surroundings free from all impurities or odors, and every convenience afforded in the way of dusting, food and water. We handle the eggs too freely, approach the nest too often, and disturb the sitting hen when she should be easy and quiet. There are birds that abandon nests after the eggs have been disturbed, and this may partly teach us to place the sitting hen alone by herself, with freedom of action, the eggs being from good, strong hens, of which only a few have been mated with a vigorous cock. Avoid setting hens if they are nervous or quarrelsome. Such hens are never careful, and break their eggs, as well as trampling the young chicks to death.

The Farm.

Useful and Profitable Breeds of Horses.

Mr. J. H. Sanders, Chicago, Ill., in a recent work published on horse breeding, makes the following pointed allusions with regard to the classes of horses which should be bred by farmers:—

The general farmer cannot afford to breed for speed alone; he must leave that to gentlemen of means, who, with the choicest brood mares, as well as sires, and with every appliance for successful training, can engage in the lottery of breeding for speed, because he finds a considerable portion of his reward in the relaxation from other cares, which this business affords.

The next class in the scale of prices is the large, stylish, high-stepping carriage or coupe horse. Such horses may be bred with a good degree of certainty, with the proper stock to breed from, and there is but little expense at-

tending the breaking and training. Such as prove rather deficient in size, style and action may make very serviceable farm horses; but to command the best price for the carriage or coupe there must be rather more of spirit, and they must be rather more "rangy" and "leggy" than is desirable for the farm. Such horses may be produced by coupling large, stout mares with a good-sized, highly-bred stepping, trotting stallion, or a stylish, large thoroughbred. The latter is the course of breeding by which the

so-called coach horses of England are produced. For the better class of horses of this type there is an almost unlimited demand, and they could be raised in this country and exported to England at a very handsome profit. If thoroughbred or very highly bred mares are used to produce such horses, I would recommend the use of a well-bred trotting sire; and even with cold-blooded mares deficient in trotting action the trotting sire should be used. But if the mares are low bred, and yet possess a fine trotting gait, I should, as a general rule, prefer a thoroughbred sire, the object being to combine, so far as possible, size, style and fine high-stepping action.

Another class of horses, for which the demand is almost unlimited, is the blocky, compact, low but quick stepping and active draft horse. For use on our farms and for our city street cars they are wanted of from 1,000 to 1,300 pounds weight. For our omnibuses and express wagons the demand is for the same style of horse, but heavier, weighing 1,300 to 1,500 pounds, while for carts and heavy freighting they can scarcely be too large, provided they are sound, hardy and active. The great trouble with horses of this class is lack of endurance. Too many of them have broad, flat, brittle hoofs, or the opposite extreme of contracted, narrow heels; both are to be avoided. Many of them have unsound joints,

especially the hock joint, and the bone is round, beefy, and of a coarse porous nature. In selecting breeding stock to produce this class of horses, especial regard to these points should be had. The hoof should be of good size—neither flat or contracted at the heel. The legs should be clean and flat; the joints firmly corded, free from spavins, curbs and beefiness. The flank should be full and low, for that indicates a good feeder. The chest should be wide and the girth large, for that indicates lung power and what is termed "constitution." The fore legs should set under the horse, and not be stuck on the outside, "like a pin in a log." He should be short on the back, long on the belly, slightly arched at the coupling, ribbed up closely in the flank, heavy boned, short legged, compact, blocky, gentle, good tempered, active, wide-awake, but not nervous or restless. Such a horse will sell, and sell readily at all times and at good prices, no matter what his color may be; and his price will increase in proportion to his size, from 1,100 pounds up to 1,700 pounds.

But the general farmer must raise horses that he can sell. He must do the work of the farm mainly with mares while performing their farm labor satisfactorily, but which each year will produce colts that at four or five years of age will make saleable horses. He must keep such brood mares as when coupled with good stallions will invariably produce horses that meet the demands of commerce.

Should you Grow Crops that are Hard on the Soil?

We often hear complaints from farmers that certain crops are "hard on the soil" and should therefore be eliminated from the rotation. Such farmers are far from being unanimous as to the kinds of crops which are alleged to be so exhaustive. This diversity of opinion is quite natural, for a crop which is exhaustive on one kind of soil will enrich a soil of another character for another crop. We ask these farmers if they object to raising a heavy crop of any kind because it is more exhaustive than a light one? In their minds this is a horse of a different color.

This error arises from a misconception of what farming is. Agriculture is the manufacture of the soil and atmosphere into finished products, such as grain, milk, beef, wool, etc. Now what would be thought of the manufacturer, for whose wares there is a good demand at remunerative prices, if he curtailed his productions for the reason that his running expenses would be less? No; he buys more raw material, employs more men, and the greater his legitimate outlay, the larger his profits. The farmer, in this respect, is in a much more favorable position than other manufacturers; for all he requires is more raw material; he needs no more men, and performs little more labor himself.

The manufacturer can also increase his profits in another way. Instead of buying more raw material he may be able to economize the material he has. The cloth may be made more suitable to the patterns, producing less waste.

Surely no farmer can be so ignorant of the fact that the "hard" crop, which takes so much extra substance out of the soil, contains that substance, and this represents so much more

manure, butter, cheese, and cash. This money again should represent so much more raw material, and the farmer who studies this system of rotation is a level-headed business man, as well as a sound practical and scientific agriculturist. Don't let your machinery rust.

Raising Roots.

It has been said that farmers should feed their fattening stock for their manure, not for the beef or the cash. Perhaps the same principle will apply to root growing; it is not the roots that are wanted so much as the cleaning, preparing, and enriching the soil for future crops, especially wheat. Roots in England are the corn of the United States, but our climate is more general purpose, and we can raise a great variety of crops with more than average success. Roots give quality and healthfulness to beef and dairy products, and one of the most effectual means of building up a herd of butter cows is by the extensive use of carrots and parsnips. Per nutritive value, the cost of production is much less than that of corn.

A great deal has been said about the varieties of soil adapted to the different kinds of roots, leaving farmers to suppose that this is a matter of primary significance; but the modes of preparation, manuring, the methods of cultivation, and the system of rotation are of much greater importance. By studying the feeding habits of the different kinds of roots, very few mistakes can be made, remembering always that some varieties of the same root are deeper rooted than others, and therefore feed differently.

Weight for weight, mangels have the highest nutritive value among roots, and the soil best adapted to their growth is a deep, loose, friable loam. Deep cultivation is necessary, especially for the deep rooted varieties. Mangels have the property of feeding readily upon all the elements of plant food, and therefore a general manure is best adapted to their growth, providing the soil is equally balanced in all the constituents of plant food. Turnips, on the other hand, being shallower rooted, cannot get down to the phosphates in the subsoil, and have little power to absorb the portion which they can reach. A dressing with superphosphates or bone dust has therefore been found beneficial to turnips, and will save immense quantities of farmyard manure, providing there is a good supply of vegetable matter in the soil. Turnips take nitrogen very greedily, so that when nitrogenous manures, such as nitrate of soda or sulphate of ammonia, are applied in large quantities, the turnips run too much to leaf, just the same as when the soil contains an excess of vegetable matter.

Carrots and parsnips require about the same treatment. Of all the roots they are the most relished by our domestic animals. The parsnip contains more nutriment than the turnip, and cannot be surpassed for butter cows. It will produce June butter all winter. Both will flourish in a deep, rich, warm loam, providing no coarse manure is applied.

There is a war raging amongst root growers with regard to ridge and flat cultivation, and the modes of applying the manure. This war is carried into the potato field. If the soil is poor and the manure rich, it is likely that any mode of application will be beneficial,

while under different conditions great loss may be sustained. All roots require a soil of fine texture, which will be destroyed by coarse manure. Putting the manure or fertilizer in the drills has many advocates, but we believe the practice to be a bad one. It will stimulate the growth and will often produce large yields in proportion to the quantity of manure used, but the qualities and keeping properties of the roots are thereby impaired, and the land will not be in such a good or rich condition for the succeeding crop. The finer the manure, and the more thoroughly it is mixed with the soil the better. It is a great mistake to apply all the manure of the rotation to the root crop, as many farmers do.

Ridging is a good plan in a wet season and when the crop is deep rooted, as cultivation is thereby facilitated; but shallow rooted crops will suffer in a dry season for want of moisture, and they should therefore be cultivated as flat as possible.

The standard varieties are as follows: Mangels—Mammoth, Long Red, Champion Yellow, Globe, Improved Yellow-fish Tankard, and Norbiton Giant. Turnips.—Imperial Prize, Westbury Improved Purple-top Swede, Skirving's Improved Purple-top Swede, East Lothian Purple-top Swede, and Bangholm Purple-top. Carrots.—Large White Belgian (French), Improved White Green-top Orthe, Yellow Belgian, and Giant White. Beets.—French White Sugar.

Corn, its Value and Culture.

The value of corn is over-estimated by most farmers. The green fodder contains about as much water as root crops, and the dry portion has less nutritive value. However, it has other valuable properties not possessed by roots; it will flourish when other crops fail, and can easily be used for either winter or summer feeding.

For early summer feeding (soiling) it is usually sown broadcast, although many farmers recommend planting in drills under all circumstances. They say it cleans the land better; but it must be remembered that it makes more labor, and when cut young, before the weed-seeds ripen, large quantities of weeds will be destroyed. It is a great mistake to use corn alone as the only soiling crop for the whole summer, especially if the pasture is bare; for corn can only yield its greatest value when fed with more nutritious and concentrated fodders, such as clover. However, farmers who have not yet tried the soiling business, should not fail to sow a strip. For fodder, soiling, and silos, the Mammoth Southern Sweet variety is best.

For ripening, the seed is sown in hills three feet apart each way. The best varieties are the Longfellow, Pierce's Prolific, White Flint and Common Canadian Yellow.

If we dare be so reckless we might say to the owners of the despised "scrub cows": "Test your animals; feed them as much meal as they will eat, and see how they behave under the experiment." Who ever did such a thing? No one knows how many Princesses or Queens, or Pearls, or Creampots are hidden among the common herd which butters the bread of the world. But it would be quite safe to treat these humble worthies far better than at present, and to encourage all there is in them, to the limit of safety. There is no gold or silver mine in existence so full of undeveloped wealth as lies within our native stock.

The Apiary.

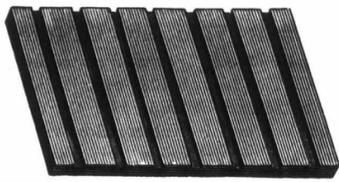
Spring Management.

(Continued.)

BY G. B. JONES.

TRANSFERRING—From a box hive: Choose a warm, sunny day, when the bees are very busy on apple bloom. In the shade of a tree or building some two hundred feet from the bees, prepare a table or box to work on. Have a milk pan, two large meat dishes, a dish-pan half full of water, and a pail of water near; also two or three dish towels, a honey knife, a large rough knife, and a pruning or pocket knife. You will need, too, an old chisel and a hatchet or hammer, a transferring board, and a good supply of transferring sticks. (See cuts.) Without the board you cannot do good work, and the sticks will pay their cost several times to each colony. They may be had from your supply dealer at 25c for the board, and 40c. per bunch of twenty-five pairs for the sticks. You will need ten to twenty pairs of sticks per hive. They may be used over and over again for years.

Now make a rough box to fit upon the bottom of your box hive and about a foot deep; leave the fitted end open. Smoke your box hive thoroughly and carry it some fifty feet



TRANSFERRING BOARD.



TRANSFERRING STICKS.

from its present stand. Turn it bottom up, but without the bottom board, and place the box you have made over it, open side down, and wrap a cloth about the joint and exit to make all bee-tight. This done, take a heavy stick and beat the side of the box hive till the queen and nearly all the bees have clustered in your rough box, which will be in about fifteen to twenty minutes. Now place the box, bees and all, in the exact place from which you removed the box hive, open side down, but with its front edge raised a little to make an entrance. Carry the box hive to your shady place, and set it upon the ground at one end of the table, and have the body of your new hive in a meat dish at the other end. With your rough knife cut the comb loose from one side, (the side of the hive is that piece which is opposite the face of the combs). With chisel and hammer remove this side. Now, one at a time, cut away your combs and lay each upon your transferring board, which have on a slant so that the loose honey will drain into a meat dish below it. Cut away all the comb containing honey only, and put it into the milk pan. When you have sufficient brood comb upon the transferring board to fill one frame, place a frame over it and fit the comb into a frame as you would patch a floor or lay a pavement; when done, slide the unwired end of a transferring stick down one of the grooves of the board as far as

it will go, and fasten the end with the free wire to it securely by twisting the wire around it. Use as many sticks as necessary, but no more. As each comb is transferred set it into the new body to drain. When all are ready fit a bottom to the body; interspace as many frames of foundation between the combs as are necessary for the colony; put on quilt and cover, and place the new hive upon the stand previously occupied by the box hive. Now shake all the bees from the rough box down upon a sheet spread in front of the new hive in such a position that they will easily run in.

To transfer from a movable frame hive, the rough box and drumming will be unnecessary—just shake them off the combs to the sheet, and put in the combs and foundation when ready. In two or three days the combs will be secure and the sticks may be removed. If the bees are not gathering sufficient honey for themselves, feed them by laying some pieces from the milk pan upon the quilt; make a passage way by folding back one corner of the quilt.

DIVIDING.—This should be practiced only by those who are well advanced in bee culture. The beginner had better increase his stock by natural swarming for a year or two; but as he would do well to try a few divisions, I give the following directions, which will place before him the principles, but he must consult his own judgment for the details:—When a colony shows signs of swarming place beside it a new hive, and into it put the comb which has the queen and half the remaining ones, being careful that they are those having most hatching brood. Carry the new hive to its stand, and shake at least half the bees from the combs now in the old hive in front of the new one. Fill up both hives by interspacing empty combs or frames of foundation with the combs already in. In about two days introduce a new queen (as directed below) to the old colony, or insert a queen cell from another stock (see next paragraph). If you have neither of these ready, let the old colony raise its own queen cells, and in eight or ten days from the time of the division cut all out but the finest.

To introduce a queen:—Two days after a colony has been deprived of its queen, place the cage containing the new one immediately upon the top of the brood frames, taking care that it is supplied with ten or twelve young bees. After one day open the slide of the cage about one inch, and fill this opening with a piece of comb honey. The bees will eat through this honey and liberate the queen. In three days examine the brood nest, and if fresh eggs be present all is well. If fresh queen cells are started something has happened to your queen. Tear out the cells and try again.

To insert a cell, merely cut a wedge-shaped piece out of the centre of a brood comb, so as to leave an opening that the cell with a piece of comb attached to its base, measuring about an inch on the longest edge, will nicely fit. Into this opening put the cell so that it will be supported by the tight fitting of the comb at its base in the opening. Hang the cell point down and secure it.

The hens of Kansas yield six times as much as the orchards, eight times as much as the market gardens, and fifteen times as much as the potato fields of that State.

Entomology.

Cut Worms.

Herewith you will see the moth (fig. 1) and caterpillar (fig. 2) of the cut worm. You will find the study of this insect interesting and important from the fact that its class includes the cabbage worm, which is becoming very destructive, and a great variety of other injurious insects, including the black army worm. There



FIG. 1.

are three leading genera (*Agrotis*, *Hadena* and *Mamestra*), but they all possess the same leading features. The number of species, however, is very numerous, presenting a variety of colors, habits and markings; but in general the caterpillar is a smooth, greasy looking grub of a dull color. On being touched it curls up and lies motionless. The genus *Agrotis* is most common, the larva of which is from one to two inches long, varying in shades of colors of brown from light ashen gray to almost black, with a lighter stripe along the back. The wings of the moth have various shades of gray and brown, the under pair being lighter colored.

Cut worms are classified according to their habits, as follows: 1. Those which operate on the ground, cutting off the plants near the surface. 2. Those which climb trees, destroying the buds. 3. Those which make a living by combining these two habits. The second class is specially damaging to the apple tree, climbing up after dark, and attacking both the flower and the leaf buds. The cabbage cut-worm belongs to the first class. Late in summer the eggs are deposited upon the plant near the surface of the ground, and the larvæ are soon hatched. Burrowing into the ground, they remain there during the winter, feeding on the roots for a while, but when the weather becomes severer, they burrow deeper, remaining torpid till spring. They commit their depredations at night, hiding during the day, and when full grown they form cocoons of earth, from which they spring as moths late in summer.

Late fall plowing will expose the larvæ to the birds and the action of frost. Where their



FIG. 2.

ravages are first seen, holes may be punched in the ground, into which they will fall in large quantities during the night, while crawling from plant to plant, where they can easily be destroyed. As a remedy against tree-climbers, roll a piece of cotton batting loosely around the trunk of the tree, over which they cannot climb. Should they once gain access to the top of the tree, shake the tree at night, and they will fall on a sheet placed below. Poultry in the orchard are excellent destructive agents.

Another good remedy for those which live on herbaceous plants is to use some substance having a strong odor, such as coal oil, saturating it with sand and sprinkling it around the plants, or between the rows.

The Warble or Bot Fly.

We have received several inquiries relating to the warble fly. You should understand its life history, for this is the only means by which you can effectually check its ravages, which are yearly increasing. We hardly think it necessary to give an engraving of the fly and maggot, for you must have seen them a thousand times. Not only are they a torment to the cattle, thereby checking their progress and diminishing your profits, but they also depreciate the value of the hide in the market. The fly is a tormentor in summer, and the irritating effects of the maggot during winter add to the provocation and loss. It is also called the bot fly, but it is known to entomologists all over the world under the name *Hypoderma Bovis*. It must not be confounded with the gad fly (*Tabanus Bovinus*), which is an entirely different insect. The office of the gad fly is to suck the blood, which also is very irritating and causes severe pain.

The bot fly is two-winged, a little over half an inch in length, and so marked and colored as to look considerably like the bumble bee. The face, with the part of the body between the wings, is yellowish, the abdomen whitish at the base, dark in the middle, and orange colored at the tip; the wings are brown, the legs black, the feet being somewhat lighter colored. It is a questioned point whether the female lays her eggs on or in the hide. She lays her eggs in summer, commencing in spring as soon as the weather gets warm. During the fall and winter the eggs hatch into what is called the bot maggot, which at first has a smooth surface and appears to produce little or no irritation in the hide; but the maggot soon moults and the surface or skin then turns rough and contains minute prickles. The object of this roughness is to produce irritation and ulceration. The ulcerated swelling is hard to heal, and so the irritation is kept up long after the grub or maggot makes its escape from the hide. The sore may first be observed by two semi-circular spots, produced by the black-tipped tail of the maggot, through which air is absorbed, and if these breathing pores are stopped the maggot will die.

When the warble maggot is mature its length is about an inch and its color is grey, and it presses itself out of the hide, tail first, falling on the ground, where it finds some sheltered spot, and turns into a chrysalis, being then dark brown or black, and somewhat resembling the original maggot in shape, but is not quite so oval, being flatter at one end than the other. In a few weeks the chrysalis turns into the bot fly, and the same history is repeated.

With regard to the remedy, you will now see that it is easier to catch the maggot than the fly. As soon as the black end of the tail is visible you may apply some dressing to plug up the breathing pores, squeeze the maggot out, positively not neglecting to destroy it, or you may puncture the spot with a hot wire. Smearing with tar or touching with mercurial ointment are good remedies.

Egg laying may be prevented by dressing the hide with some mixture which is obnoxious to the gad fly, and the following has been recommended:—Flowers of sulphur, 4 oz.; spirits of tar, 1 gill; train oil, 1 quart; mix well together and apply once a week along the spine.

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.—Would you kindly answer the following questions in your next issue: 1st. Can you get as much cream from milk set in deep tins which would hold a patent pailful, as from shallow pans? 2nd.—Should the deep tins be set in cold water; if so, how long would the cream take to rise? 3rd.—Please describe the kind of tins used for that purpose. 4th.—Which is the best feed for a milk cow, equal quantities by measure of raw potatoes, or bran; that is, which is the cheaper, a bag of bran or a bag of potatoes at the same price? A. A. W. MITCHELL SQUARE.

[1.—All depends upon the temperature. For reasons see our last issue. 2.—By setting in cold water you will get more cream, and the cream will rise faster; but a great deal depends upon the size of the butter globules; the larger the globules the faster they will rise. You should ascertain this by experimenting for yourself. See dairy implement cuts in our last issue. 3.—Deep setting cans are most used; for the best read our advertising columns. 4.—Bran contains much more nutriment than an equal measure of potatoes.]

SIR.—Will you please give me some information as to the best way of planting out an evergreen hedge, and as to its proper management afterwards; also the best way to plant out Norway spruce for pleasure trees. CONSTANT READER.

[The proper distance to plant Norway spruce for hedge purposes is about 30 inches apart. They may be planted, however, from 1 foot to 4 feet. Plants about 2 feet high are the suitable size. Set a garden line about six inches from the centre where the hedge is to stand when planted; then dig a trench about a spade and a half wide and a foot deep. Against the bank of the trench hold your plants, spreading the roots out carefully while another person puts in the soil. Put the plants the distance you decide apart, half fill the trench with soil, and tramp firmly. Now give the plants a good watering, after which fill up the trench and straighten your trees evening the soil firmly and neatly around them. Then mulch with any convenient litter. If your plants vary in size very much, it is well to assort them out in gradation and plant, keeping the largest at one end and tapering down to the smallest. Nip the leaders off any very much above the common line. The main thing to observe in forming a good hedge is to encourage growth at the base, keeping the top cut back till the growth thickens at the bottom. Keep the form of the edge tapering to the top like the natural growth. An annual clipping in the spring or fall will soon train the hedge into a uniform shape. Never clip a hedge when the plants are making their growth, unless you wish to weaken them, as that checks the growth. Do not cut the hedge when transplanting, but wait till they have one season over and are well established. Some hedge growers plant a double row of spruce when forming a hedge; this will make, of

course, a very strong hedge. The trees are planted diagonally 2 feet apart. When planting Norway spruce for ornament about the place, arrange the trees in groups irregularly about the place, say three here and five there. Do not plant them in square plots, but in uneven shapes, selecting to put on any elevated situation or center of a certain space some promising specimen. Norway spruce, in fact all evergreens, are invaluable for forming a screen to hide unsightly places or buildings. Thus a planter can produce pleasurable effects by judicious planting and grouping of evergreens, leaving views or vistas from the residence or giving a view of the house from the highway. The best season for planting is the first week in June, but so long as care is taken in keeping roots damp and not exposed too much, evergreens may be planted any time in which the ground is not frozen too hard.]

SIR.—Would you kindly favor by answering the following queries in your next issue: 1.—Is it advisable to nail a piece of leather under a horse's foot and between the shoe, covering the whole of the foot? 2.—How much alkali clover seed alone is sufficient to the acre, and how late can it be pastured in the season so as to have time to mature for seed. 3.—What are the best fertilizers for a sandy loam? Is wood ashes or sawdust beneficial? Would slack lime be better, and what quantity to the acre? C. G. K. ANCASTER, Ont.

[1.—A piece of leather is advantageously put under the shoe when the hoof is tender, but it must be cut the shape of the shoe both inside and out. It must not project over the frog. 2.—Eight to ten pounds. The field can be pastured till about the middle of June. In fact your best plan is to pasture till this date, as the clover will then escape the midge. 3.—If your sandy loam is deficient in vegetable matter, your best and cheapest way to enrich it is by plowing in clover. It may also be improved by a good dressing of well-rotted farm yard manure, or a smaller quantity of manure with the addition of superphosphate, say 300 or 400 lbs. per acre. It would be advisable for you to try each of these plans, and find out for yourself which is best. Should you do so please let us know the result. We can't give you a very accurate answer without knowing more fully the character of the soil and sub-soil. Too much clover or coarse manure plowed under all at once will injure the soil until decomposition is more or less complete. Leached ashes are good for soils deficient in lime, and unleached good for those deficient in potash. For particulars see our March and April issues. Sawdust would improve the texture of stiff soils, but it decomposes too slowly to have any material value as a fertilizer. It also has some value in retaining moisture. When used it should be thoroughly mixed with the soil.]

SIR.—1. About fifty per cent. of the cattle in this district are troubled with ringworms. Would you kindly inform me through the *ADVOCATE* the cause of the disease and cure for the same. 2.—Which variety of crab apple would you recommend as most suitable for planting in the Northwest, and where can they be purchased? 3.—What kind of a fruit is the dwarf Juneberry? Will it grow in the Northwest? Wm. D. CARLTON, N. W. T.

[1.—Ringworm is usually caused by living in filthy quarters, or coming in contact with animals affected with it. Apply a solution of nitrate of silver once or twice a week, according to the extent of the eruptions. 2.—Write to George Leslie & Son, Toronto. 3.—The Juneberry is a small fruit, growing on bushes something like currants. There is a variety called "Saskatoon" which flourishes in the Northwest.]

SIR.—What is the best time to sow clover and timothy on fall wheat? G. F. WALKERVILLE, Ont.

[Sow your timothy in the fall with the wheat, and the clover in the spring. Harrow the land again in the spring and roll it if necessary. We know little about the seedsman you mention; you had better patronize those who advertise in the *ADVOCATE*, as they are known to be reliable.]

SIR.—Can you give any information where binding cord is manufactured for use on self binders, as the farmers around here want to send direct to the factory for it. The cost of it in this country is, I believe, too much, and goes into the pockets of machine agents. Let me know in your next paper. J. R. P. DOMINION CITY, Man.

[The manufacturers of the self-binders usually supply the cord at cost price. The Dartmouth Rope Works Co., Halifax, N. S., and J. A. Converse, Montreal, Que., are the names of manufacturers.]

SIR.—Will you be kind enough to tell me, in next issue of your valuable paper, what is the best feed for milk cows, and if it should be fed boiled or raw. C. L. NEWMARKET.

[If you are feeding for butter, give chiefly rich concentrated foods; but if quantity of milk is your object, make succulent foods the chief portion of the ration. With regard to cooked vs. raw foods, all depends upon the authorities which we accept. Thousands of practical farmers have used cooked food all their lives and assert that they would have no other; while others have silently abandoned the practice in disgust. Many rough experiments have resulted in a pecuniary gain in the cooking of foods; but the most extensive and reliable experiments have been conducted at the Maine Agricultural Station, the trials covering nine years, and the average result showed that the feeding value of cooked to raw meal was as 83.3 to 100. There are principles involved in the question which indicate the superiority of raw foods, but the explanation would probably be rather too technical for you. The boom at present is in favor of cooked foods; and if you regard the testimony of a majority of practical farmers as more reliable than that of science, then cook your foods by all means. The common-sense view of it is that cooked foods are not natural, and therefore unpractical and deleterious. The question is still in the hands of investigators, and will probably soon be settled.]

SIR.—I see in the March ADVOCATE that J. G. asks if smut will grow from smutty wheat. I can tell him it will; I have seen it proved. I will give you my experience in preventing smut; I never knew it to fail: Wash the wheat with chamber lye and dry it with lime. Don't put it in a bag; if you do, and let it stand for half an hour when it is damp or wet; it will never grow. You will have to sow it immediately. If you want to keep the wheat after it is washed and limed, spread it thin on a barn floor and let it dry; then it will keep as long as you like. R. N. F. MUNSTER, Ont.

SIR.—I use a plan to stop cows from kicking whilst being milked, which may be of some use to your subscribers. Take a small rope (plow line), pass it around the cow's head, the same as for leading; then put a hall hitch on her ear; let an assistant hold this rope, and every time the cow attempts to kick, jerk the rope sharply so that it will pinch her ear. I use the same thing to lead cows. C. A. D. L.

SIR.—I was glad to see an account of wheat-chess men being cornered, as they always will be on close observation, for I think it is the want of close observation that makes wheat appear to turn to chess. I am 57 years old; my father was over 83 when he died, and was born on the same farm. Neither of us ever raised more chess than we could account for in the seed sown or in the hay that was fed to the cattle. It is for want of close observation that chess is sown. I have seen neighbors sowing seed wheat which I have no doubt they called clean. Two of them borrowed my drill; fall before last I counted several handfuls of the wheat left in the drill, and none of them had less than 12 grains of chess in them, and some of them 30. You could not believe farmers would sow such seed if you did not see it; then they will say if the wheat gets drowned out and the chess all grows well that the wheat turned to chess. Chess grows best on wet land; it can stand water equal to timothy. There is no use arguing with wheat-chess men; they are as strong as iron in their opinions as I am in mine. I have heard the most plausible stories imaginable about clean seed and clean new fallow raising nearly all chess, but I did not see it. I send you my opinion so that you will not think we all believe in wheat turning to chess. I believe every seed grows after its own kind. J. L. HOMER, Ont.

SIR.—I noticed in the Chicago Live Stock Journal that some one from this section has been asking for the pedigrees of certain stallions brought into this county the last few years, and, as many of us farmers look to you as a protector from the many schemes instituted to secure rather more than a fair deal. I would like to know what you would advise if a credulous farmer used one of these horses on the presumption that he was registered, and which afterwards proved not to be the case. Could the owner of such a horse collect for service? Where should the burden of proof rest in case a dispute arose as to the correctness of the representations made? Our farmers seem anxious about the pedigrees of the draught horses they use, partly in consequence of a lesson taught them a few years ago by the importation of a very fine looking English horse weighing about 2000 lbs., and taking prizes at many of our shows as a draught, but from which no one raised a draught colt. Many raised fair general purpose, and many more raised weeds of roadsters. AN OLD SUBSCRIBER. BOND HEAD, Ont.

[If the owner of the stallion falsely represented that the animal was thoroughbred or registered, your best plan is to let him sue you for his fee for service, and you can enter an offset (in the Division Court) for damages to the extent of \$50. However, should you consider the damages greater than this sum, or should he not sue you, you may enter an action for damages against him in

the County Court up to \$200, and in the High Court for more than this sum. In this case you should engage a lawyer and give him all the facts of your case. The register book will decide whether the representations are true or not. The burden of proof of the misrepresentations will fall upon you. If you accepted the service of the stallion without any representations being made as to his purity of blood, you have no case against the owner. We are always willing and anxious to protect the farmer from fraud in every form, but we must be cautious about what we publish, else action for damages may be brought against us. In cases of doubt farmers should first ask our opinion, and so prevent the occurrence of the fraud.]

SIR.—In looking over the ADVOCATE I see the wheat-chess question often discussed. Now, sir, I want you to show me a short space in your valuable paper for what I know on the subject, not of wheat, but of barley turning to chess. In the fall of 1882, as you will remember, the snow fell without any frost, and grain that was left on the stubble field after harvest, grew, and consequently was not killed. In the spring of 18-3, in passing over the fields that were not plowed, my brother called my attention to the barley growing, I, through curiosity, thinking it might in this way be turned to fall barley. We dug up several bunches of the barley and replanted it, and, Mr. Editor, to our surprise, when it headed out it was as beautiful chess as you ever saw grow. J. W. CLAUDE, Ont.

SIR.—I. Would you tell me through the ADVOCATE the cheapest and best way I can erect a telephone from my house to my man's house, a distance of about 75 yards. 2. I have a piece of low ground, black muck; would you give me some information about what grass, or grasses would be most suitable for sowing it with? 3. Will the grasses of permanent pastures cut much for hay? ANCASTER, Ont. P. K.

[1.—A tin tube is best. A tinsmith will furnish it for 3 or 4 cents a foot. 2.—Rye grasses, timothy, clovers (red, white, alsike and lucerne), meadow fescue, blue grass, red top, and orchard grass, if sown in the proportions, will do well for permanent pastures on low lands. Write to all seedmen advertised in the ADVOCATE, giving full particulars as to land, drainage, etc., and then make your choice. 3. Permanent pastures are not adapted for hay crops, as the various grasses ripen at widely different intervals; but they do for soiling crops.]

SIR.—I write to know if there is anything that will kill warbles in cattle without injury to the animal? My cattle are unusually full of them this spring. Would also like to know if situation of pasture land or condition of be at has anything to do in the matter. W. A. C. MUSKOGA, Ont.

[Read our Entomology article on the bot fly. Low lands are worst for the attacks of flies. All sorts of vermin thrive best on animals that are not in a healthy condition, either by too high or too low feeding, or any other cause.]

SIR.—We had a splendid winter with steady cold, no severe storms and not much snow. The snow has nearly all disappeared, and what is left is going very fast. A few farmers have commenced seeding. My more particular this spring, as many have been unable to sell their wheat on account of smut, and the price has been very low. Nearly every farmer will pickle his wheat with blue stone (sulphate of copper), applying about one pound to seven bushels of seed. There will be a good deal of late seeding, as very little land was plowed last fall. Many teams will be employed in transporting supplies, which will affect the area sown. Stock has wintered in fine condition. I feed cracked wheat to my pigs, young and old, which lose the power of their legs and are hardly able to get around, although they eat heartily and nothing else appears to be the matter with them. Can you give me cause and remedy? J. W. V. BRANDON, MAN., April 4th.

[This condition of your hogs is usually caused by not changing the feeding ration often enough, especially when too much fatty or concentrated foods are given and too little succulent foods, with a deficiency of exercise. The cure is to remove the cause.]

SIR.—1. My yearling calves have spots around their eyes, with a hard crust on. They are in good condition and have a good appetite. Could you give me a cure? 2. What would you consider the best food for laying hens? 3. Could you also give advice for my pigs which snort so when they breathe; do you think coals would be good? WOOLWICH. H. B. G.

[1.—Scrape the crust off with a knife; then apply a solution of corrosive sublimate, 1 drachm; alcohol, 2 ounces. Dress with a feather or small brush every two or three days. 2.—Middings, oats, milk and egg-shells (scorched and pulverized) are an excellent ration. 3.—

Your hogs likely have catarrh. Give sulphur in feed, about one tablespoonful per day to each pig. Coals would be of no use.]

SIR.—1. We had 8 young pigs, 6 weeks old, that seem to have got a cold. When they breathe they can be heard all over the pen. They swell at the throat and die. The pen is very warm. Please send the cause and remedy. 2. What are the best works on handling and judging pigs. J. W. CORWHIN, Ont.

[1.—Lack of ventilation and exercise is a fruitful cause of the symptoms you mention. Turn the pigs out for exercise and fresh air, and give sulphur in feed. 2.—"Harris on the Pig" is the best work. By consulting our book list in our advertising columns, you will see that it can be procured from us for \$1.50.]

SIR.—Will you oblige us in next number with information as to best method of helping cows to clean after calving. A number of our cows failed to do so, although in good condition, having been fed previously with turnips and mangels. Cows had been in warm stable, and had plenty of exercise during day time. H. B. BRACHVILLE, Ont.

[Give one pint raw linseed oil every second day for three days. This usually proves effective; but should it fail you should call a veterinarian and have the cleaning skillfully removed.]

SIR.—A year and a half ago I left here for Taylor County, Iowa, for the purpose of looking after some land which had been a drag on my hands for many years. As I could not sell at the time, I worked it myself last year. Ontario farmers think they have many causes for complaint over the hard times and other grievances, but if they went there in a body, they would raise a rebellion. You complain, Mr. Editor, that the farmers here don't organize, but if you were there a few months, you would see many more causes for organization. Iowa farmers are compelled to organize, or be devoured by monopolists and speculators. Freight on corn to Chicago (400 miles) was 16¢ cents per bushel until lately, when the farmers began to show fight, the railway company gallantly and generously reduced the rates to 15¢ cents, and the difference went into the farmers' pockets. The yield of oats ranges from 16 to 25 bushels per acre, and brings 14 to 20 cents; corn 30 to 40 bushels, and brings 15 to 20 cents, but in an extra good year the yield is 70 to 80 bushels per acre; wheat 12 to 15 bushels per acre, and brings about 40 cents, but in many years the yield is not more than 6 to 7 bushels per acre. Hay sells at \$2.50 to \$5 per ton, and first-class fat cattle bring \$5 per wt. on foot. Most every farmer raises a patch of sorghum to keep the family in molasses, which is considered the staff of life there. A farmer here who sells his farm to go there had better loan his money, for it brings 15 to 18 per cent, and he will run the risk of its bringing one per cent if invested in farming. Large farmers make money in stock speculations, but four-fifths of the farmers have themselves perishing in grain growing. The land is worth \$20 to \$40 per acre, but I would not give \$25 per acre for land there so readily as I would give \$75 here. There are scarcely any barns or cattle stables, and many cattle and hogs are constantly dying by excessive cold, heat or other grievances. Thousands of hogs are dying of cholera, but farmer who keep their hog premises clean and feed other foods with the corn, are not troubled with losses. Many hogs are fed on cattle droppings, two hogs being put after each cattle beast. There are many Canadian farmers in Iowa, but they are discontented and do not seem to thrive well. They are longing to return. Their motto is, "Go east, young man." W. G. WINGHAM, Ont.

SIR.—What is the cure for catarrh in a horse? STRATFORD, Ont. A SUBSCRIBER. [Dress the throat night and morning with a sharp, stimulating liniment. Give nights and mornings in food, nitrate of potash in drachm doses. Continue these remedies until you find an improvement. Feed chiefly soft and easily digested food.]

SIR.—Ploughing April 17th, land in good order. Fall wheat first class order, grass is looking well at late and sowing generally begun, will mostly be finished this week; cattle of all kinds came through winter in good condition; sheep raising mostly abandoned; old rags and shoddy are king. T. B. GLENGOE, Ont.

SIR.—Should mangels be spelled m-a-n-g-e-l-s or m-a-n-g-o-l-d-s? A. R. S.

[The word is derived from the German language, *mangel wurtzel*, meaning *without roots*, and therefore your former spelling is correct, although the mistake is made in many standard books and journals.]

Those of our correspondents who do not find answers to their letters in our correspondence columns, will please read the articles in the departments of this issue which comprehend subjects corresponding to their questions. By doing so they will find their questions answered. When overwhelmed with communications we are obliged to resort to this method of answering.

The Household.

The Sense of Taste.

The tongue is not the only organ used in the enjoyment of this sense, and alone it is scarcely capable of appreciating delicate flavors.

The difference between salt and sugar when placed on the tongue is hardly perceptible, provided the tongue is not allowed to touch the roof of the mouth and the lips. Indeed, the act of getting the full enjoyment of a flavor, commonly called smacking the lips, consists in bringing the tongue into contact with the roof of the mouth and lips. By this act the substance to be tasted is spread over the surfaces of these parts, particularly of the tongue, and mixed with the saliva.

Just how this act produces taste is not exactly known; but we do know that the tongue is covered with two layers of skin, the lower one thick and filled with nerves, and the upper one thin and porous. The nerves in the lower skin are the nerves of taste, and probably are set into vibration by the substance tasted, very much as the exquisitely sensitive nerves of the retina are affected by light, or the nerves of the ear by sound. At all events the sense is conveyed to the brain, where we involuntarily distinguish between pleasant and disagreeable tastes.

The nerves, moreover, of the tongue, are not all alike. In the tip of the tongue they are clustered together more closely than at the back, and transfer to the brain a different sensation. For instance, a little powdered alum placed on the back of the tongue tastes sweet, whereas on the tip it tastes acid.

The sense of taste is an almost certain guide to the wholesomeness of foods, and a monitor which warns us when we are in danger of swallowing any injurious or poisonous substance.

Poisons as a rule are extremely disagreeable to the taste, and it requires an effort to overcome the natural repugnance to them. Hence it is that accidental poisoning so rarely occurs.

In the case of foods, we soon tire of a thing as a regular diet, and the taste craves a change. Here the whole system rebels against the monotony of diet, because no one food is likely to contain all the elements of nutrition required by the body for the exercise of its functions, and soon the elements which are in excess cloy upon the taste, because the system is already supplied with them, while we crave the foods containing substances which the system lacks. A change is then demanded by nature and made manifest by the sense of taste.

If the change cannot be made, nature shows her disapproval by causing a loss of appetite, or a repugnance to the condemned article of diet.

Again, in the case of foods which are much concentrated, or have a strong flavor, like fruits or syrups, the taste so on becomes dulled to the pleasure of their sweetness, because the delicate nerves which convey the impression of sweetness to the brain become fatigued, and fail to respond to the exciting cause.

There seems to be, also, a set of tastes which are in some degree complementary to each other. That is, if we taste of some intensely sweet substance, we cannot detect a less degree of sweetness until the nerves have recovered from their first impression; but we can appreciate keenly any acid flavor.

To illustrate this, take a glass of lemonade, which contains substances designed to produce both sweet and acid tastes. If before drinking it we eat a lump of sugar, the lemonade will taste sour; but if we take a little clear lemon juice first, the lemonade will taste like sweetened water.—*Hall's Journal of Health.*

Family Circle.

THE DAY OF THE PIC-NIC.

"To think I must stay in the house and iron, on an afternoon like this! It's too bad!" was Marcia Wheeler's exclamation, as she stood for a minute at the open kitchen-door, looking at the shady grove, only a quarter of a mile distant, clothed in the marvellous robes of autumn. Then she turned to the kitchen table and went on to herself, as she spread the ironing blanket, "I just wish Jane Austin had to iron this white skirt herself. The idea of wearing such a thing at a pic-nic! I hope she will tear it, and—No, I don't either, for I shall have to mend it, if she does," and the little hands carefully smoothed a bit of the lowest frill, preparatory to beginning operations.

"Marcia Wheeler," said a voice, at that instant—a voice which the most vivid imagination could not have pronounced "soft and low," "haven't you begun that skirt yet? I declare it's nearly three o'clock! What on earth have you been doing since you washed the dinner-dishes?" "I have washed my face and hands, combed my hair, and changed my dress," replied Marcia, concisely.

"Combed your hair?" pursued the high-pitched voice. "That is always your excuse. How you can reconcile your conscience to wasting so much time over your hair is more than I can tell."

A bitter retort rose to the young girl's lips, but she refrained, for in a war of words the elder lady always came off victor; so she went on ironing, in utter indifference to the aunt, whose spare shrewish face, and keen, gray eyes, formed such a contrast to her own fair, oval face, and orbs of deepest, darkest blue.

It was not a happy life she led in the old farm-house, though, as Mrs. Austin informed her friends, "Marcia was well done by, but she never acted as if she was contented, and was so jealous of Jane, you'd hardly believe it."

Jane was Mrs. Austin's daughter; and all the love the stern old dame possessed was lavished on the fair-faced, helpless-handed, twenty-year-old woman, "sole daughter of her house and heart," whose mission in life it was to be waited upon by the willing hands of her mother, and the unwilling ones of her cousin, Marcia Wheeler.

Marcia's father had been Mrs. Austin's only brother, and he had married just such a person (so Mrs. Austin told her niece) as she, Marcia, was herself, and—Here the estimable lady shook her head solemnly, and looked more severe than ever through the immense steel-bowed spectacles she always wore.

Marcia could remember neither father nor mother; but once I heard her say, while looking at the pictured face of her mother, so like her own in its girlish beauty: "If my father at all resembled my Aunt Austin, I do not wonder my mother died before she had lived three years with him."

Poor Marcia! Her words sounded strangely from the lips of a girl of nineteen.

The golden October afternoon wore away, the numerous frills were carefully ironed, and about half-past four the tired hands shook out the snowy folds, and, with a sigh, Marcia exclaimed: "I am thankful!"

Mrs. Austin was sitting in the kitchen, knitting most industriously, and she echoed her niece's words: "I'm thankful, too, for I didn't think that you would ever get that white skirt done; an hour and three quarters by the clock you've been at it. Now, I want you to put on your hat, and go over to Miss Tucker's, and tell her that Jane has decided to have the trimming for her new dress cut on the bias, instead of the way she talked of when she was over there. There's plenty of time for you to get back before dark, if you don't dawdle on the road."

Marcia obeyed her aunt's gentle bidding with more alacrity than was usual on such occasions, for she had been longing all day to be put out in the fresh air; and the walk to the village nearly two miles distant seemed no hardship to her. Before she left the house, she said, quietly:

"I suppose you have no objections to my stopping to change my library book at the village, Aunt Austin?" "I want to know if you have read that last book through? Doesn't Jane want to read it, too?"

Marcia smiled, not a very sweet smile. "No, aunt: Jane has no wish to read it. I do not think, if she lives to be a hundred years old, she will ever read a volume of Carlyle."

"So much the better, then," retorted Mrs. Austin. "I'm glad she doesn't want to waste her time over such stuff."

Marcia passed out of the shady porch, and down the old-fashioned drive, to the road. She smiled, this time with real amusement. "Jane Austin wasting her time over Carlyle!"

Many and sharp words had been spoken between Mrs. Austin and her niece, before Marcia had been allowed to read what books she could obtain from the village library. Marcia had said, finally: "I will not stay here unless I can have a little time to read. I will knit faithfully while I am reading, but read I must, or I shall starve."

"What nonsense you are talking, Marcia!" good Mrs. Austin had answered, severely. "It's sinful to talk in that way, about starving for want of books when you have plenty of good victuals to eat."

Marcia had answered, quietly: "There are different kinds of starvation," and her aunt had, at length, given a grudging consent to her reading, providing she "kept at work on the sale socks;" for thrifty Mrs. Austin found her niece very useful, and had no intention of dispensing with her services. So Marcia knit pair after pair of coarse, steel-gray socks; she never counted how many, but knit and read every spare moment, and was happy when so doing.

When the momentous errand to Miss Tucker had been accomplished, Marcia exchanged her book for another volume of her favourite author, and then started homeward, a little tired, but happy, because, for the time, forgetful of everything but the present. She walked slowly

through the beautiful woods, stopping now and then to pluck a tiny fern or spray of richly-hued autumn leaves, and gave a little cry of dismay as a large dog bounded from the bushes with a sharp bark:

An instant after, however, a manly voice called to the dog, and almost immediately there stood beside her the owner of the voice.

"I am sorry Neptune frightened you, Miss Wheeler. He is very boisterous."

The speaker was Roland Ashton, a new-comer in the neighborhood, a city lawyer, who had inherited old Squire Ashton's house on the hill. Marcia had met him occasionally, and had talked with him, and sometimes she fancied he particularly liked to talk with her. She looked up shyly now, and blushed.

"I was not really frightened, Mr. Ashton," she said. "But he startled me with his loud bark." And she patted the dog's head as he came close to her.

"Allow me to take your book, Miss Wheeler, for I am going past your aunt's house—that is, if you have no objection," said Roland Ashton, who was congratulating himself on having met the rarely-beautiful girl thus alone, who, in secret, he had loved ever since the first time he saw her in the little village church at Riverton, and of whose mind he had formed so high an impression. From the conversations, rare though they had been, which he had enjoyed with her.

"So you read Carlyle?" he said, glancing at the volume. Marcia answered, frankly: "Yes; I like his writings very much."

Her companion looked at her a little surprised. "I do not know many young ladies who read Carlyle for pleasure. And what other authors do you like?"

"I like Ruskin, next to Carlyle; but I have not read many of his works—only 'Modern Painters' and one or two others," answered Marcia, quickly.

The young lawyer smiled a little at the odd choice of favourites—the authors so utterly unlike. He hesitated a moment, then said: "I have all Ruskin's works in my library. May I bring you some of them to read?"

Marcia looked up quickly, her shyness gone for the moment. "Oh! Mr. Ashton, would you be so kind? You don't know how grateful I should be. It is like seeing beautiful pictures, or hearing sweet music, to read Ruskin."

The walk passed pleasantly, and as they neared Widow Austin's house, he said: "Are you going to the pic-nic on Thursday, Miss Wheeler?"

"No," answered Marcia, the happy light fading out of her eyes; and her companion, quick to observe the change, said, gravely:

"May I ask why?" "Aunt Austin is going to be very busy on that day, and I must help her."

"Is the work of such importance that it cannot be put off for a day?" "Yes—no; that is, aunt does not wish me to go," said poor Marcia.

"Would you go with me if Mrs. Austin could be prevailed upon to give her consent?" asked the young city gentleman, looking at the rose-hued cheeks, with a world of admiration in his great, dark eyes.

"I should like to go, Mr. Ashton, but I am sure aunt will not—cannot spare me, I mean. I haven't been on the lake since I was a little girl."

As he opened the gate for her, he said, laughingly: "Are you not going to invite me in, so that I may try my powers of persuasion with your aunt, Miss Wheeler?"

Marcia stopped a moment, blushing painfully. "I would rather you did not say anything to Aunt Austin about the pic-nic, Mr. Ashton. I am sure I cannot go. Good-night." And she went swiftly toward the porch.

Roland Ashton closed the gate with a strange, new feeling in his heart. "Poor little girl," he thought, "she dare not ask me to come in. What a lovely face, and what a sweet voice! I am more in love with her than ever. My old nurse used to say that the Ashtons were a wonderful set for having their own way, and I mean to have my way in regard to taking her to the pic-nic. The old aunt must be hardhearted indeed if she resists my entreaties."

The next morning Mr. Ashton selected "The Stones of Venice," and wended his way to Mrs. Austin's, hoping, as he lifted the old-fashioned knocker, that Marcia would open the door herself. But Mrs. Austin stood before him instead, and to his morning greeting and inquiry, "Is Miss Wheeler at home?" responded, frigidly, "My niece is at home, out in the kitchen, cooking;" at the same time neither inviting him to enter, nor standing aside for that purpose.

But Roland Ashton was too much a man of the world not to feel at ease in the lady's presence, and he answered, pleasantly: "Thank you, Mrs. Austin; I shall be pleased to see Miss Wheeler a few minutes. She was afraid yesterday that she would not be able to go to the pic-nic on Thursday. I think she said you expected to be very busy—"

"If Marcia told you she couldn't go to the pic-nic, she told the truth. I've got work for her to do at home, and she'll stay and do it!" answered Mrs. Austin, more idly than before.

This was too decided even for a lawyer to think of arguing against; and, feeling the pic-nic disposed of, he went on as pleasantly as before, though his dark eyes flashed and his lips tightened a little under the heavy, black moustache: "Then I will speak to Miss Wheeler, if you please, to express my regrets, and give her the books I promised to bring."

Mrs. Austin turned and walked through the hall to the kitchen-door, and opening it, exclaimed with polite emphasis, "Miss Wheeler, here's a gentleman wants to see you." At the same time standing aside for him to enter the kitchen.

Marcia was standing before the table, busily working eggs and sugar together, preparatory to forming the loaves of golden sponge-cake that were to accompany Miss Austin to the pic-nic on the morrow. Miss Austin was also present in the kitchen, clad in blue cambric, and engaged in crimping the frills Marcia had ironed the day

before. This was the nearest approach to work the young lady was ever guilty of.

If Roland Ashton had thought Marcia beautiful before, he thought her doubly so now, with the rippling masses of pale-brown hair gathered in a knot low down on her white neck, the slender figure clad in the dark-brown print dress which Mrs. Austin considered a proper morning costume, the sleeves rolled high above the elbows, displaying the round, white arms. And what pretty arms they were!—so smooth, so white, with the blue veins showing so clearly.

"I will win that girl yet," he said to himself, "in spite of the old ogre of an aunt."

A vivid blush rose even to Marcia's white forehead as she saw who the visitor was, and she gave a quick, frightened look at her aunt before she returned his "Good-morning."

The young man saw plainly that it was not the time for him to make a formal call, and he laid the books on the table near her, after bowing politely to Miss Austin, and said:

"I came in to give you the books I spoke of, and to say how sorry I am that you cannot accompany me to the picnic."

The young lady did not seem to notice the latter part of the sentence; but answered, quickly:

"Thank you very much for bringing them, Mr. Ashton. I was very glad to do so," was Mr. Ashton's reply; "and I hope you will enjoy reading them."

Then, with a low bow to each of the three ladies, he left the house.

Mrs. Austin's knitting-needles clicked viciously; and when the sound of retreating footsteps died away, she turned to her niece.

"That's a dreadful polite gentleman, ain't he? I should like to know how you got to be so well acquainted with him."

Marcia made no answer; so her kind relative went on:

"Do you hear me, Marcia Wheeler?"

"I am not very well acquainted with Mr. Ashton. I saw him last night on my way home from Riverton, and he offered to lend me the books."

"And he asked you to go to the picnic, too, didn't he? Well, I never saw such goings on in my young days," continued Mrs. Austin, while the gray sock lengthened rapidly, for Mrs. Austin's knitting was like her temper—very quick.

Long before night Marcia wished that Mr. Ashton had been anywhere, except on the way from Riverton, the preceding evening. She went to bed, worn out with the continued fault-finding, added to physical weariness.

The next morning was bright and clear—the very day for a picnic. Marcia's first thoughts on awakening were far from pleasant. Why was it thus? Why could not she go as well as Jane? It was not fair nor right. She was younger than Jane, and she had so few pleasures.

What happiness it would be to drive along the winding road that encircled the foot of the grand old mountain, to the little lake, resting like a gem among the hills beyond.

Her first care, however, was to have everything in readiness for her delicate cousin. She it was who brushed and dainty knot of blue ribbon therein helped to arrange the dress of pale-blue doline the young lady had selected for the warm October day. Her hands, also, packed the luncheon-basket, and prepared early breakfast for her cousin. All this she did with a choking sense of injustice. She said to herself, over and over again: "It is not fair; I ought to be allowed to go. And to think it's carpet-rags that shall have to toil over, of all things! I hate rag carpets!"

In the midst of it all, she wondered if Mr. Ashton would go to the picnic.

After Miss Austin had safely started, in company with her escort, the young doctor from Riverton, Mrs. Austin brought all the powers of her mind to bear on the carpet-rag question. Numerous—I had almost said numberless—skeins were hanging in the old garret; some to be dyed yellow, some blue, some green, and others bark and tan colours. He had decided on coloring enough for and of course, and it wouldn't do for her to think she must be treated like Jane.

So Marcia obediently obeyed her aunt's directions. She dipped great skeins of rags in warm water; she wrung them out and placed them in the huge brass kettle, to scald or boil, as the different cases required; and she washed them in strong soap-suds or clear water, which ever her aunt ordered. Her head ached badly, but Mrs. Austin did not believe in headaches (her head never ached), and so the tiresome work went on. The board fence at the back of the orchard showed dozens of skeins of many-coloured rags, and still there were dozens more to dye.

About three o'clock in the afternoon, however, Marcia's strength failed, and she tottered, and so nearly fell to the floor, that Mrs. Ashton showed the innate kindness of her heart, by exclaiming: "I want to know if you ain't beat out? What's the matter with you?"

"My head aches dreadfully, but I think it is the green dye that makes me so faint. May I go out of doors for a little while?"

"I suppose you'll have to if you are going to look like that," answered motherly Mrs. Austin, adding "Maybe you'll meet Mr. Ashton again, if you walk towards Riverton."

The poor child's face flushed at the unkind taunt; but she answered, slowly:

"I am not going towards Riverton at all. I am going up to the orchard."

"Well, I don't care which way you go, only put a shawl around you, or you'll catch cold, after washing those rags out of the hot soap-suds."

So Marcia threw an old shawl around her slender shoulder, took down the heavy coil of hair to ease her throbbing head, and walked slowly towards the woods.

"After all, I am going to have a picnic in the woods, all to myself, too," she thought, bitterly. "I can do as I used to, when I was a little girl, make believe I am

rich, and beautiful, and happy. Oh, dear! oh, dear! how wretched I am!"

She felt an odd sense of suffocation in her throat; and when she reached the friendly shelter of the trees, she leaned against one of the old mossy trunks, and sobbed aloud.

Roland Ashton did not go to the picnic; and it so happened that afternoon he had decided to shorten the distance between his home and Riverton by crossing the fields; and Mrs. Austin's orchard was in his direct line of march. So, he saw the childish figure in the old gray shawl, with the beautiful hair falling loosely around the little shoulders, and heard the heavy sobs. It touched his heart inexpressibly. "Poor, poor child!" he said to himself.

Marcia heard the slight rustle in the first fallen leaves, and looking up, saw the dark eyes looking down upon her, with grave and lowly interest. She drew her shawl closer around her, and was moving by him without a word, when he stretched forth a detaining hand:

"Excuse me, Miss Wheeler, but do not go away now. Are you ill? You look so pale."

She made an effort to answer him, but her self-command was all gone; her lips trembled like a griefed child's, and she could not speak.

"Sit down on this old log for a few minutes," he said, gently, "till you are a little rested."

Poor tired Marcia, her strength seemed to have deserted her, and she sat down.

Roland Ashton would have given much to have sheltered her in his loving arms, but of course that was impossible; so he stood near, looking fondly on the fair young head bent down before him, waiting for her to speak. It was some time before she did so, and then it was with evident effort:

"I do not know what you will think of me, Mr. Ashton, but I thought no one was near, and I am tired, and my head aches, and—I—cannot help crying."

Roland Ashton sat down on the moss-covered log beside her, thinking to himself:

"Now is my time, if ever, for that old aunt guards her like the dragon guarded the apples of the Hesperides. I would have spoken the other day when we were alone, but I feared to frighten her. Yet if I let this chance slip, I may never get one again. Poor, dear girl! If she will only listen to me—only let me free her from her slavery."

Here he gradually approached the subject nearest to his heart. With what tact, and feeling, and earnestness he spoke at last need not be told. Suffice it to say that he asked Marcia to be his wife, telling her how he had been attracted to her from the first.

"I used to laugh at love at first sight," he said; "but I do so no longer; for, from the hour I saw you in church, I felt that you, and you alone, could make me happy. I see I startle you. But I seek in vain to meet you. You rarely go out with your cousin, and I must speak now—I must seize my opportunity, even if I seem to speak on too short acquaintance. Forgive me, and place it to the account of my love."

Marcia covered her face with her hands.

"Oh! no, no," she cried; "it would be wicked. Think what I am. I have nothing in common with the ladies you—"

Roland Ashton intercepted her.

"If that is all you have to say, we will imagine it said and answered." And he managed to obtain possession of the restless little hands and held them fast in his own, while he went on, quietly: "If you can raise your thoughtful eyes to mine and say the words, 'I cannot be your wife, Roland Ashton, because I can never love you,' I will take that for an answer, and go away, and leave you. Can you say them?"

The girl raised her eyes once, twice, to the face so near her own, and tried to speak; but no sound came from her lips.

The young man, still looking at the shy, sweet face, said once more, with infinite tenderness in his voice:

"Can you say those words, Marcia?"

Poor lonely girl! she looked at him, and shook her head.

A grave smile dawned on his face.

"Then you shall be my wife!" he cried, masterfully, and did the only thing possible for him to do—took the little figure, in the shabby print dress, in his arms, and drew her close to him, whispering sweet words of love and comfort while he softly stroked the beautiful hair, and pressed kiss after kiss on the white eyelids, the cheeks, so brightly flushed now, and the quivering little lips.

And Marcia—she who had thought so bitterly, a little while ago, of the old childish play of "making believe" these, and much more? Was she not loved? In her innocence and perfect trust, she rested in her lover's arms, without a shadow to mar her perfect happiness, till the thought of Aunt Austin came to her, and she started up, exclaiming:

"I must go home. Aunt will be so angry."

It was of no use to try and detain her after that; and as the young man folded the worn, gray shawl around her, he said:

"You are my promised now" stopping to emphasize the short sentence after the manner of lovers; "and I am going home with you to tell Aunt Austin."

And he laughed a little at the thought of his future relative.

"Why need you tell her to-night?" asked Marcia, frightened at the very thought of such a thing. "You have no idea how angry she will be, and she will talk dreadfully to me."

"No, she will not, my darling; for when we reach the house, I want you to go upstairs to your own room, and let me speak with her alone, will you?"

"Yes, indeed," answered Marcia, quickly. "I shall be only too glad to be out of hearing."

Marcia never knew what passed between her aunt and her lover on that memorable evening; but half an hour after her return to the house, she heard her aunt's shrill voice at the foot of the stairs, calling:

"Marcia!"

When she answered, the elder lady vouchsafed to say:

"Come down, now. Mr. Ashton wants to say good-night to you."

Marcia thought her lover looked a little pale in the early twilight; but as he placed his arm around her in the shady porch, he said, tenderly:

"Our marriage will take place one month from to-day, my darling. Your aunt has given her consent, and I foresee we are to be the best of friends."

"Was she angry?" whispered Marcia.

"I think she was a little upset at first; but it is all over now. I am sorry I must say good-night to you so soon; but I promised to be at Riverton by six o'clock, and it is past that time already."

"Good-night, Mr. Ashton."

"I must stop long enough, however, to teach you to say good-night to me properly," he said, in a very sober tone. "You must try again now, and see if you cannot do better."

The girl understood in a moment, and a half-smile flitted across the downcast, blushing face, as the sweet voice said, very softly:

"Good-night, Roland."

The strong arm tightened around her, and with a hurried embrace, and a "Good-night, my own darling!" her lover parted from her.

Of all the happy days Marcia Ashton treasures in her memory, there is not one so brightly prized as that beautiful October day, so sorrowfully begun, so happily ended—THE DAY OF THE PICNIC.

Churn Slowly.

A little maid in the morning sun
Stood merrily singing and churning,—
"Oh! how I wish this butter was done,
Then off to the fields I'd be turning!"
So she hurried the dasher up and down,
Till the farmer called with half-made frown,
"Churn slowly!"

"Don't ply the churn so fast, my dear,
It is not good for the butter.
And will make your arms ache, too, I fear,
And put you all in a flutter—
For this is a rule wherever we turn,
Don't be in haste, whenever you churn—
Churn slowly!"

"If you want your butter to come nice and sweet,
Don't churn with a nervous jerking,
But ply the dasher slowly and neat—
You'll hardly know that your working;
And when the butter has come you'll say,
'Yes, this is surely the better way'—
Churn slowly!"

Now, all you folks, do you think that you
A lesson can find in butter?
Don't be in haste, whatever you do,
Or get yourself in a flutter;
And while you stand at life's great churn,
Let the farmer's words to you return,—
Churn slowly!"

A Fact.

Two persons were born at the same place, at the same moment of time. After an age of fifty years they both died, also at the same place and at the same instant—yet one had lived one hundred days more than the other. How was this possible? Not to keep our friends in suspense, the solution turns on a curious—but, with a little reflection, a very obvious—point in circumnavigation. A person going around the world towards the west loses a day, and towards the east he gains one. Supposing, then, two persons are born together at the Cape of Good Hope, whence a voyage around the world may be performed in a year; if one performs this constantly towards the west, in fifty years he will be fifty days behind the stationary inhabitants; and if the other sails equally towards the east, he will be fifty days in advance of them. One, therefore, will have seen one hundred days more than the other, though they were born and died in the same place and at the same moment, and even lived continually in the same latitude, and reckoned time by the same calendar.

Minnie May's Department.

MY DEAR NIECES,—We are glad to be able to state that the competition in knitting has been highly successful, both as regards the number of contributors and the excellence of the work. Indeed there were but few samples which were utterly devoid of good qualities, and accompanying them were a large number of very nice letters concerning the ADVOCATE, and our department in particular. Nothing would please us better than to answer each letter individually, but when you hear that we have received over seventy communications this month in our department alone, you will quite understand that it would be impossible; but we here state that we are delighted to know so many nieces appreciate the feeble efforts we have made to have the department interesting to all.

First we will speak of the crochet, as it was impossible to do so last month. Some of the patterns were exceedingly pretty and novel, and the work, with a few exceptions, neat and clean, the greatest fault being that some of the work was not firm enough; either the needle used was too coarse for the thread or the work was too loosely done, and in many cases the directions were anything but clear. Although the prize pattern was not quite as new as some others, it possessed all the other qualities requisite to good work.

In reference to the knitting, we have the same fault to find with much of the work, as to the needles being too coarse for the thread, which gives the work a very loose and untidy appearance. The patterns are various and very pretty, but in judging we take into account the clearness of directions, and the neat, clean and even appearance of the work, as well as the actual beauty of the pattern.

Among the samples were a few original designs which were commendable, but not necessary, as some may have thought. We regret not being able to give more than one prize, as there is so much really excellent work.

The subject of the new prize competition in needlework will be a sampler.]

Since sewing machines have come into such general use, the art of hand-sewing, for such it surely used to be and can be made, has been almost entirely lost sight of—a most deplorable fact, as few things are of greater advantage to the housewife than to be a good needlewoman. How would those who think so little of the needle and its many uses in the present age, like to go back to the time when sewing machines were unknown, and the possession of one needle was considered quite a household luxury, and cherished accordingly. Doubtless it is hard now to realize such a state of things, but so it was in England in the year 1566. Now do you not think we ought to appreciate that little article more than we do? We want our girls to be proficient in the art of needlework, therefore ask them to send us samplers, showing what they can do, and perhaps we may be able to help those who are deficient to improve. So as



FIG. 1



FIG. 2.

to encourage the younger, for the earlier they learn the better, as well as the older nieces, we will offer two prizes. 1st, a beautifully bound copy of Longfellow's Poems for the best sampler worked by any person over fifteen years of age. 2nd, \$1.00 in cash for best sampler worked by girl under fifteen years of age.

The samplers sent must be done without assistance, and just as they left the workers' hands.

In the large wholesale manufactories of underlinen, the work has to be performed with such delicacy and cleanliness that it passes at once into the hands of the ironers, being then ready for sale. In such condition as this we hope to receive the handiwork of all our girls, if they aspire to winning a prize.

Material of the centre of sampler is fine white cotton or linen, 8 inches long by 6 wide, with a frill of white mull, nainsoon, or lawn. The cotton to have a hem one inch and a quarter wide, down the centre of the side hems a row of button holes, three on each side, must be worked, and a row of herring-bone through the centre of the top hem, and feather-stitch through the bottom hem. Then in the centre of sampler the name and age of competitor is to be worked in cross stitch with red marking cotton or silk.

For example:

Mary E. Smith.

(16)

The frill to be two inches wide, is finished at the bottom with a narrow hem, and above that a narrow tuck, very neatly run, the top of the frill to be gathered and sown to the hem of the sampler. The samplers of successful competitors will be returned after the prizes have been awarded, and if any others desire theirs returned they can state it when sending the work; it would enable each girl to see for herself, after reading our list of faults, where she fell short.

The last day for receiving the work will be June 15. We hope to see as great an interest shown in this as in former competitions.

MINNIE MAY.

Note.

Since Minnie May's letter went to press, we find that we omitted to tell the nieces who was the successful competitor in the knitting competition. We have been pleased to award the prize of a "silver bracelet" to Miss Maggie E. Stephen, of Trout River, Que., whose work was beautiful in every way.

FIG. 1—Represents a pretty style of costume for almost any kind of summer material, particularly washing goods; the under skirt could be made of plain, and the waist and draperies of figured goods, or all of the same, if preferred.

FIG. 2—Child's dress; plain and easily made; could be used as an apron.

Prize-Pattern of Knitted Lace Edging.

SENT BY MISS MAGGIE E. STEPHENS, TROUT RIVER, QUE.

Cast on 29 stitches.

1st row.—Slip 1, knit 1, over, narrow 4 times, knit 6, thread over twice and seam two together, knit 1, thread over twice, narrow, knit 6, thread over twice, seam 2 together.

2nd row.—Thread over twice, seam 2 together, knit 7, knit the first loop, seam the second, knit 1, thread over twice, seam 2 together, knit 16.

3rd row.—Slip 1, knit 2, over, narrow 4 times, knit 5, thread over twice, seam 2 together, knit 10, thread over twice, seam 2 together.

4th row.—Thread over twice, seam 2 together, knit 10, thread over twice, seam 2 together, knit 16.

5th row.—Slip 1, knit 3, thread over and narrow four times, knit 4, thread over and seam 2 together, knit 1, thread over twice, narrow, knit 5, thread over twice, seam 2 together.

6th row.—Thread over twice, seam 2 together, knit 6, knit the first loop, seam the second, knit 1, knit the first loop, seam the second, knit 1, thread over twice, seam 2 together, knit 16.

7th row.—Slip 1, knit 4, thread over, narrow 4 times, knit 3, thread over twice, seam 2 together, knit 12, thread over twice, seam 2 together.

8th row.—Thread over twice, seam 2 together, knit 12, thread over twice, seam 2 together, knit 16.

9th row.—Slip 1, knit 5, thread over, narrow 4 times, knit 2, thread over twice, seam 2 together, knit 1, thread over twice, narrow, thread over twice, narrow, thread over twice, narrow, knit 5, thread over twice, seam 2 together.

10th row.—Thread over twice, seam 2 together, knit 6, knit the first loop, seam the second, knit 1, knit the first loop, seam the second, knit 1, knit the first loop, seam the second, knit 1, knit the first loop, seam the second, knit 1, thread over twice, seam 2 together, knit 16.

11th row.—Slip 1, knit 6, thread over, narrow 4 times, knit 1, thread over twice, seam 2 together, knit 10, now take the tenth stitch back on to the left hand needle, now slip 6 stitches over that stitch, thread over twice, seam 2 together.

12th row.—Thread over twice, seam 2 together, knit 9, thread over twice, seam 2 together, knit 16.

Work Basket.

A very useful device for the dressing-room is a plush or satin covered board with small hooks screwed upon it for hanging keys, buttonhooks, scissors, and other small necessaries upon. The board should be eight by ten inches in size, and ornamented with painting or embroidery as fancy dictates, suspended by satin ribbon.

WORK BASKET.—The common wooden grape baskets are made into pretty work baskets by lining with some bright color and putting in pockets and pin cushions. Bright ribbon bows are placed on the handles.

Pretty fringe for edging bedroom lambrequins and other cretonne decorations can be made by raveling strips of coarse gray linen, and at short intervals sewing in a strand of colored worsted. A heading is made by turning down the top on the wrong side, leaving a plain piece half an inch wide, which is covered with coarse herring-bone stitch in crewel or wool.

In lieu of the handsome boxes in which slices of wedding cake have been sent to absent friends, white satin bags, hand-painted, are used; the scroll or wreath of flowers incloses the monogram and date.

WIDE RICK-ACK EDGING.—This pattern is made from No. 17 braid and No. 20 white thread. Commence by doubling the braid in the twentieth point, count this one and eight more down the side, join these two points firmly, run the thread on the braid to the next and join the two seven points. Open the braid and buttonhole-stitch loosely into the remaining thirteen points, then loosely into every other one of those threads, which is seven, put the needle through each of the seven, draw to a circle and knot; then put the needle twice around each of the straight threads running to the bottom and fasten. For the next leaf double the braid and count eight points down the side, and make as the first, using the stem of the first for the extra point. Turn the braid, leaving four points on the end of each leaf to sew on by.

To make a rag carpet, crochet a chain of thirty stitches, turn, put hook through second stitch, rag over, and draw through first stitch, rag over, draw through second stitches, and repeat until a square is formed. To make a striped carpet, crochet six times across with plain rags; then commence the fancy stripe. When that is done crochet six times across with plain rags. This makes a beautiful carpet.

Answers to Inquirers.

LUCY N.—Worsted lace, differing only from yak lace in design, is very stylish for worsted garments, and will probably have a great run this season.

DEBUTANT.—We are sorry that your questions did not reach us in time to be answered last month. 1.—There would be no objection to you sending an Easter card to a gentleman friend in return for one received, but it is not necessary. 2.—If the invitation is sent in the name of a club, say: "Miss B— accepts with pleasure the invitation to — ball for Wednesday evening, May 6th;" or if in the name of a couple of gentlemen: "Miss B— accepts with pleasure the kind invitation of Messrs. — & — for Wednesday evening, May 6th." 3.—It is not necessary to make any particular reply; simply incline the head and say "thank you," or some such slight acknowledgment.

FLOSSIE.—You neglected sending your address; if you will do so at once, will send music.

FLORENCE NICHOLSON, Mrs. Francis Peck, M. M. Smith, Bella A. Robson, Louisa L. Ritchie, Wm. A. Smith, are thanked for sending words of "If Papa were only Ready," for Ida.

ROSEBUD.—If you have not talent for music and are not improving, why waste your money and time in taking lessons? Find something else that you do like.

J. W. K.—Never do anything in a sly, underhand way. Tell your mother that you and your friend wish to "keep company," and be guided by her wishes and better judgment.

SUBSCRIBER.—1. Shakespeare wore the dress of Queen Elizabeth's time. A wide frill round the neck, doublet, trunk-hose, shoes with buckle; pointed hat with wide brim. Sometimes he is represented as wearing a turn-down pointed collar. 2.—"The Exile of Culloden was the Young Pretender, who was finally defeated at the battle of that name, and sought safety by flight.

Queries.

E. P. would be glad if some of our readers could send her the words of the song of which the chorus is:

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

Recipes.

ROLL JELLY CAKE.—Brown sugar, one and one-half cup, three eggs, one cup sweet milk, two cups flour, or a very little more, one teaspoonful each of soda and cream tartar; mix all together and beat well. Spread thin in a long tin, bake carefully; as soon as done turn out on a clean cloth, spread jelly on the bottom of the cake, roll up carefully, and wrap one or two thicknesses of the cloth around it. This is best if made the day before using.

Here is an economical way to make icing: one egg being sufficient to ice a cake of four layers, or two good-sized round cakes. The icing is more difficult to make, but one successful effort will win your approbation. When it is just right it is very glossy, and will not flake off when the cake is cut, or be brittle when eaten. Take one-half pint of granulated sugar and a scant half cup of cold water; boil till it will shred from the spoon, then turn it slowly over the white of one egg beaten to a stiff froth, and stir briskly until it is nearly cool. The cake should not be quite cold when the icing is spread on. The difficulty in making this icing is in determining when it is boiled just enough. It begins to boil thick when it is done. If it seems too stiff when ready to spread, put in a spoonful of boiling water. If too thin there is no remedy; use it and do better next time. Stir occasionally while boiling. For chocolate icing it does not require quite as thick as for plain. The grated chocolate should be stirred in when the icing is partially cool, and the quantity is determined by the color it gives to the icing. MRS. C. G. HERBERT.

TO CLEAN BRASS ORNAMENTS.—Wash the brass work with roche alum boiled to a strong ley, in the proportion of an ounce to a pint. When dry, it must be rubbed with fine tripoli.

PASTE FOR CLEANING BRASS.—Rotten stone, two ounces; oxalic acid, half an ounce; sweet oil, three quarters of an ounce; turpentine, enough to make a paste. Apply it with a little water.

GINGER NUTS.—One pint of molasses, one egg, four ounces of brown sugar, one-half ounce of ginger, one-quarter ounce various spices, one nutmeg, coriander and caraway seeds to taste, one pound of butter. Make the mixture stiff enough to drop on tins with a teaspoon. Bake in a quick oven.

REMEDY FOR CUTS.—The leaves of geranium are an excellent application for cuts, where the skin is rubbed off, and other wounds of that kind. One or two leaves must be bruised and applied to the part, and the wound will be cicatrized in a short time.

GINGER DROP CAKES.—Three eggs, 1 cup lard, 1 of molasses, 1 of brown sugar, 1 large tablespoon of ginger, 1 of soda dissolved in a cup of boiling water, 5 cups of flour. Drop tablespoons of this mixture into a slightly greased dripping-pan about three inches apart.

The usefulness of rosemary may not be generally known. For rheumatism it has been proved an effectual cure; taken every second day on sugar as follows: First two drops, next four, so doubling the dose each time until sixteen drops have been taken, then decrease in the same manner. A few drops sprinkled in a room will prevent it being infested with flies, and by rubbing the hands and arms with it when working about bees there will be no danger of being stung.

The teacher asked the composition class to make a rhyming couplet containing the words nose, toes, two, kettle, boil, and ear. A boy responded:
A boil in the kettle is worth two on your nose;
And a corn on the ear is worth two on your toes.
Ladies, skip this paragraph! It is really unfit for publication. It got into my letters by mistake, and I ask the printer to destroy it or set it wrong side up.

If she had to stand up no one would see her head.
We knew she'd get at it somehow.
—read
This poem she's already read.
Now we'll wager ten cents to a farthing.
If she gets the least kind of a show.
But you bet she'll find it anyhow.
It's something she ought not to know;
If there's anything worthier a woman

To the milkman sounding his horn, the customer says: "No thank you, your milk was too thin yesterday." Milkman: "Indeed, madam, I assure you it was right from the cow, and not a drop of water in it." Customer: "How came that little fish in it?" Milkman: "I don't know, madam; guess the cow must have drank it!"

Where's the skule-mastur? A station agent on a New England railroad has put up this: "NOTES. Awl pussons ar fur Biddun tresspasm rounde this er Stasioun, under Penalty of Law. ther's bin dammig dun here an we knough who did it."

Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES.—Swelling buds, green fields, singing birds, and warm rains, lead us up to the beginning of another cycle in the round of nature. The thermometer is rising and soon your flowers and vegetables will be peeping above ground, though if you have not planted there is plenty of time, as most of the seeds do not want to be sown until the ground is nice and warm. The puzzles were not so good this month, either in number or variety. I wonder why I have to be constantly reminding you to make better puzzles; I am sure that nearly every one of my clever children could make up a good puzzle if they only tried. You can all make them out very easily after someone else has composed them for you. Many thanks for all the kind and encouraging letters; it does my heart good to receive so many newsy and interesting letters from my young nephews and nieces. Now I shall give you something about a bicyclist; perhaps some of you have or hope to have one some day.



ILLUSTRATED REBUS, No. 1.

Twenty years ago the bicycle was unknown, yet it has made such progress that to day these graceful steeds are numbered by tens of thousands in America, and by hundreds of thousands in England.

On the morning of April 22nd, 1884, Thomas Stevens mounted his bicycle at San Francisco, and began his successful tour across the American continent, arriving at Boston about three months from the time of starting, having spent considerable of that time in visiting the principal towns and cities along the route. Mr. Stevens now proposes to complete the land circumrotation of the globe, and with that end in view, sailed from New York City early in April of this year for Liverpool.

This intrepid wheelman expects to propel his bicycle through France, Germany, Austria, Turkey, Prussia, Turkestan, and the Chinese Empire, and will sail from Japan for San Francisco, and on arrival at that city will have made the journey from San Francisco to San Francisco, always travelling toward the east, and covering the entire land portions of the journey upon the bicycle.

UNCLE TOM.

Puzzles.

2—SYNOCATIONS.

Example:—A number, viewed; ans., seven, seen. The synocopated letter is v.

To cut off, a prophet.
To fancy, $\frac{1}{2}$ of an ox.
Extent, wrath.
Aches, vessels used in a house.
Profit, to allure.
An untamable enemy, to discover.
The synocopated letters give the name of a city in Italy.
J. ELMER STINSON.

3—BEHEADINGS.

My whole is near the fire found,
Behold, you'll see I'm pretty round,
Transposed, I keep life in the body, 'tis said,
Behold and curtail, and leave part of your head.
WILL THIRLWALL.

4—TRANSPOSITION.

Baolr thwi awth alze ew llw,
Tenoihsng lital manries odunen
Ghntomes potdloumeen llits
Tisaw teh girnai fo eht nus.
WILL THIRLWALL.

No. 5.

My 1st is in fuel, but not in fire.
My 2nd is in lend, but not in hire.
My 3rd is in cushion, but not in pad.
My 4th is in lonely, but not in sad.
My 5th is in comely, but not in fair.
My 6th is in portion, but not in share.
My 7th is in home, but not in hearth.
My 8th is in money, but not in worth.
My whole is a person well known to you all.
WM. A. LAIDMAN.

6—CHARADE.

Two-fifths of a melon, a
quarter of a beet,
One-third of a turnip,
two-fifths of a peach;
To tell any more would,
I think, be invalid,
But the whole is very
useful in making salad
ADA ARMAND.

No. 7—NUMERICAL ENIGMA.

I am composed of 22
letters:
My 21, 16, 11, 6, 7, 8,
20, 2 is a town in
Germany.
My 22, 13, 17, is a cave.
My 13, 3, 5, 9 is a price.

My 10, 15, 18, 19 is to melt.
My 4, 1, 14 is a small animal.
My whole is a proverb.
ANNIE M. SCOTT.

No. 8.—DROP VOWEL PUZZLE, AN AFRICAN PROVERB.

Th-d-st-n th-w-s-m-n's sk-rt-s b-tt-r th-n th-g-
ld-n-f - l's g-rdl-
ADA ARMAND.

No. 9—DIAMOND.

A consonant, to regret, poetry, to change, a
noted Canadian volunteer regiment, a part in
grammar, to attack, fear, a consonant.
ROBT. J. RISK.

No. 10.—ANAGRAM.

Etwet eples dsednec neim yess ot losce.
Dan won eihlw lal het lordw al tlial.
I vige ym dybo ot eorpe.
Ym lprist ot ym ahFrets ilwl.
MARY MARSHALL.

Answers to April Puzzles.

- 1.— D E A D
E A S E
A S E A
D E A R
- 2—Bare, care, dare, fare, hare, pare, rare, tare.
- 2—Sum, summer; be, bee; bit, bitter; bet, better; home, Homer; Ham, hammer; mast, master.
- 4—Khartoum.
- 5—The road.

6— C D
 THE TIN
 BLAZE RACED
 CHARLES DICKENS
 WALTZ THEME
 SEE ONE
 S S

7—Lamps, palms, alms, slam, la.

8— A S H E S
 P R O V E
 E R E C T

9—The sounds that fall on human ear
 As dewdrops pure at even,
 That soothe the breast or start the tear,
 Are mother, home, and heaven.

A. Laidman, Becca Lowry, Minnie Stevens,
 E. W. Hutcheson, May G. Monk, Ada Ar-
 mand, Dorson O'Phee, Ellen D. Tupper, Lottie
 A. Boss, Edmund Pepper, Will Thirlwall,
 Minnie A. Colpitts, Ida Armes, I. J. Steele,
 Anna M. Morrison, Robert Kerr, Alice Hume,
 Henry Willson, Albert E. Robinson, Lousia
 L. Ritchie, Maggie Thomson, Jane L. Martin,
 Milla Warren, Mary Morrison, I. J. Steele,
 Sarah E. Fuller, Clara McLean, Georgia Smith,
 Robert G. Risk, Henry Reeve, Frank L.
 Milner, Alice Hume, Alice Mackie, J. Elmer
 Stinson, Sophia H. Fox.

that their organization was, how their circula-
 tion was effected, and what their mode of de-
 velopment, we should not hesitate to put
 them into a class intermediate between
 what of the mammals and birds, and that of
 the reptiles. - The largest species shown in our
 engraving is called the iguanodon, which meas-
 ures nearly thirty-three feet from the end of
 the nose to the tip of the tail, and when stan-
 ing on its hind legs, the attitude it assumed
 when walking, it rose to more than thirteen
 feet above the level of the ground. They walked



DINOSAURS.

10—Ape—rill—fool=April fool.

11—Rollo, Apollo, sofa, asp, rasp, pair, fair,
 Flora, fail, assail, soar, floor, far, spar, poor,
 pools. April Fools.

12—Let W represent a white man,
 And N " " negro.
 Then W & N cross and W returns.
 2 N " " N "
 2 W " " W & N "
 2 W " " N "
 2 N " " N "
 2 N " " N "

13—Governors, rulers, and statesmen should
 possess courage, wisdom, and integrity.

**Names of Those Who have Sent Cor-
 rect Answers to April Puzzles.**

Edna F. Benson, Annie J. Richardson,
 Tillie Hodgins, Minnie Stafford, Joseph Allen,
 Annie M. Scott, E. C. Banks, William Jack-
 son, Jos. W. DeLong, Emma Dennie, William

The first naturalists who described reptiles
 as crawling animals would certainly have mod-
 ified the opinion that they expressed, had they
 known the strange creatures whose history we
 are about to sketch. These animals partake of
 the nature of mammals, birds, and reptiles,
 properly so called, while at the same time ex-
 hibiting characters that are proper to them-
 selves.

We know nothing of the dinosaurs except
 their skeleton, which was found along towards
 1820, when Gideon Mantell found the first
 bones of dinosaurians in the midst of Tilgate
 Forest, on the Isle of Wight. Their bones have
 been found upon the sides of the Rocky Moun-
 tains, in the United States, and other places—
 the most curious and strange forms of all the ani-
 malsthat the ancient ages have bequeathed to us.
 It is probable that if it were permitted us to know

on the ground by the aid of their hind legs
 only; they did not rest upon the tail, but al-
 lowed it simply to drag. Its habits were more or
 less aquatic, and it must have frequented muddy
 swamps, pretty much as the hippopotamus
 does.

Among the animals found in the Rocky
 Mountains, the strangest beast is doubtless the
 Bromtosaurus, the strange looking animal in
 the background. This animal reached a gigan-
 tic size; living it must have weighed at least
 thirty tons. The animal is remarkably small
 for an animal of such a size; the brain, which is
 extremely small, indicates a slow and stupid
 beast. The neck is long, flexible, strong, and
 very mobile; the legs are massive, and the
 bones solid.

"I can't get coin for greenbacks!" yelled a
 stump orator, while denouncing John Sherman.
 "I know the reason," said a small boy. "Why?"
 asked the orator. "Bekase ye haven't the
 greenbacks," was the answer.

The Little Ones' Column.

KING SPRING will give a concert soon
Within his palace green,
Where all the fashion, rank, and wealth
Of Woodland may be seen.

The hall is painted green and brown,
The ceiling sapphire blue;
The floor is laid with carpeting
Of many a gorgeous hue.

Great artists true, and not a few,
Come flocking at his call,
And when the concert's over, 'twill
Be followed by a ball.

Sweet Robin sings a coral gay,
With many a shake and thrill,
While Blackbird on his rustic pipe
Exhibits wondrous skill,

Tom Frog will bring his big trombone,
Phil Woodpecker his drum,
And Linnets, Finches, tiny Tits,
To swell the chorus come.

Jack Sparrow gayly struts about
With modest Jenny Wren;
Good Parson Rook hopes wedding fees,
And caws a gruff Amen.

When birds begin to flirt, 'tis time
For dancing to begin;
So all the beauties of the court
You'll soon see trooping in.

Queen Rose, and Lily, Violet sweet,
And modest Harebell blue,
Palm, Primrose, Daisy, Daffodil,
Speedwell, and Woodbine too.

A gay selection for the dance
The bustling Breezes play,
Of waltzes, reels, and minuets,
Quadrilles, and polkas gay.

King Spring will send you tickets all,
Post-paid to every part;
The court dress needful is a smile,
The price a merry heart.

How the Swallows Stopped the Clock.

Two newly married swallows, with the important business of building a nest on their minds, stopped to rest one morning on the hands of a great church clock in the town of Newark, New Jersey. Presently they noticed a little hole on its face just large enough for a swallow to enter. They looked in, and saw a lovely place for a nest among a collection of wheels that seemed perfectly quiet.

There is a great difference, you must know, in the movement of the wheels of the great clocks. Some turn swiftly, while the larger ones move so slowly that, unless they are watched for a long time, they seem to be standing still.

The swallows thought it would be delicious to live in the clock. No boys could disturb them, and unless some one should invent a new kind of flying cat, they would never have any unwelcome and dangerous visitors.

So they began to build. They carried hay and grass and cotton into the clock, and by night their nest was half finished. They slept in a neighboring tree, and in the morning flew back with fresh building materials.

Something very strange had happened. The nest that they had partly built had nearly disappeared. They had to begin again. All that day they worked hard. The next morning they

found that the same cruel trick had been played on them.

They now became very indignant, and that night they perched on the hands of the clock, so as to be near in case any one should try to destroy their nest. In the course of the night the hands of the clock turned around and tumbled them off, but in the morning they saw that their nest had only been slightly disturbed. They repaired the damage, finished their work, and moved in that night.

For two days they were very happy, but on the third day a man climbed into the tower to see why the clock had stopped. He found nearly a peck of straw and grass and cotton that had been drawn by the wheels into the inmost recesses of the clock, and had finally so clogged the wheels that they could move no more. Then he found the nest that the swallows had made, and threw it away, and stopped up the hole in the clock face.

And so it happened that the swallows had to go and build a nest under the eaves after all.

PREMIUMS FOR MAY.

For One New Subscriber:

YOUR CHOICE OF THE FOLLOWING

Raspberries.—Turner.—A very hardy variety; bright red color; excellent berry for home market. Three plants.

Blackberries.—Kittitany.—This is one of the best varieties for the farmer's use. Deep glossy black; sweet; very productive. Three plants.

Gooseberries.—Smith's Improved.—Fruit large, pale yellow; one of the best for family use. Three plants.

Currants.—Victoria.—Red variety; one of the best cultivated. Three plants.

White Grape.—An excellent white. Three plants.

Lee's Prolific.—A choice black. Three plants.

SEEDS.

A useful collection of **Vegetable Seeds**, ten varieties, and one packet novelties for 1885.

A choice collection of **Flower Seeds**, ten varieties.

STRAWBERRY PLANTS.

Two plants, **Prince of Berries**, said to be the latest and best of the many excellent varieties, and is of the finest flavor lately introduced.

Two plants, **Daniel Boone**.—This plant has grown in favor greatly during the past season, and bids fair to be in great demand, both as to flavor, productiveness and keeping qualities.

Three plants of **James Vick Strawberry**.—In addition to the already favorable opinions expressed about this berry, it has this season averaged fully as large berries as the Wilson, and produced more fruit. One large grower states that he could fill a basket sooner from the James Vick than from any other strawberry.

GRAPES.

One plant of the **Brighton Grape**. Claimed to be the best dark red grape known for general cultivation in Canada.

Or one plant of the **Delaware**, a delicious hardy grape.

Or one plant of the **Clinton**. This is the most hardy of all cultivated varieties; will grow in any part of the country where wild grapes ripen. No grape we have ever yet tried has given us so much satisfaction as the Clinton. We should be pleased to hear that every one of our subscribers had one of these vines planted where the more delicate varieties will not thrive.

For Two New Subscribers:
Float Thermometer—This is one of the most accurate thermometers in the market. Every farmer should have it. See page 102 of this issue.

For Three New Subscribers:
Cream Gauge—Every farmer and Dairyman should have this instrument to test the quality of each cow's milk. See page 102 of this issue.

For Four New Subscribers:
One plant of the **New White Grape, Niagara**, claimed to be the hardiest, best and most profitable white grape known for general cultivation in Canada.

Send for sample and commence your canvas at once. Sample copies sent free.

Address: **The FARMER'S ADVOCATE, London, Ont.**

Commercial.

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

The season still continues backward, and vegetation is still making little progress. Expectations are high, owing to the prospects of active movement upon the opening of navigation, the reports of diminished acreage and dark prospects in the wheat growing regions of the United States, and the prospects of a European war. Buyers who base their calculations upon previous war prices will meet with heavy losses; but should other influences continue to co-operate, tolerably high prices may be expected.

WHEAT

has been fluctuating considerably, the prices being based upon the war reports. The deplorable state of the wheat crop in the great wheat belts of the United States as well as the shortage in the acreage, is acting as a stimulus to wheat-growing in other regions. In England the weather has been favorable to vegetation, and the prospects are encouraging. On Wednesday, 29th ult., wheat in Chicago jumped up 5½c. per bushel, owing to the excitement caused by the war news.

LIVE STOCK.

There has been no noteworthy change since our last issue.

CHEESE.

T. D. Miller, of Ingersoll, writes to the Chronicle of that town from England, urging strongly against an early make of cheese. He says: There will be no demand for it here. Such large quantities of inferior American will block the market here for months to come. I find in my visits large retail houses have stocks on hand to carry them on till June, and the prevailing idea here is that Canadian dairymen will have to make up their minds to compete with the United States in furnishing a cheaper article of cheese food, or the whole dairy system of Canada will go to the wall. I am pleased to be in a position to give you this information for the dairy interests of Canada, which I hope you will receive in due course. There is no doubt in my mind that Canadian cheese the coming season will have to be sold down to 5 cents per pound, and the best quality will have to go cheap. Everybody who sent orders from Liverpool last year to many buyers in our town, will not do so again, owing to the inferior quality they furnished at high prices, so you have a pretty good account of cheese trade here.

In Montreal job lots are selling at 10c. to 11½c.

BUTTER.

The trade is dull and featureless, there being still a plethora of inferior grades, with a corresponding scarcity of good creamery. The following are the Montreal Gazette's quotations:

New Butter.....	17 to 20
Creamery, new.....	00 to 23
Townships, choice.....	00 to 15
" fair to good.....	12 to 14
" medium.....	10 to 11
Morrisburg, choice.....	00 to 14
" medium to good.....	10 to 13
Brockville.....	9 to 14
Western.....	7 to 13

PRICES AT FARMERS' WAGONS, TORONTO, May 1st, 1885.

Wheat, fall, per bushel.....	\$0 94	0 95½
Wheat, spring, do.....	0 94	0 95½
Wheat, goose, do.....	0 80	0 83
Barley, do.....	0 61	0 65
Oats, do.....	0 44	0 44
Peas, do.....	0 68	0 70
Rye, do.....	0 68	0 00
Beans, do.....	1 00	1 25
Dressed hogs, per 100 lbs.....	5 75	6 00
Beef, forequarters.....	4 50	5 50
Beef, hindquarters.....	6 00	8 00
Mutton, carcass.....	6 00	7 25
Lamb.....	7 00	8 50
Hay.....	13 00	17 50
Straw, do.....	10 00	11 00

PRICES AT ST. LAWRENCE MARKET, TORONTO, May 1st, 1885.

Chickens, per pair.....	\$0 50	0 60
Ducks, do.....	0 70	1 00
Butter, pound rolls.....	0 17	0 18
Butter, large rolls.....	0 13	0 15
Butter, inferior.....	9	12
Turkeys.....	1 00	2 00
Geese.....	0 95	1 00
Cheese.....	0 14	0 15
Eggs, fresh, per dozen.....	0 17	0 20
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 30	0 35
Carrots, per bag.....	0 30	0 35
Beets, per bag.....	0 50	0 55
Farsnips, per peck.....	0 15	0 20

(See Notices, page 154.)

NEW ADVERTISEMENTS.

ADVERTISING RATES.

The regular rate for ordinary advertisements is 25c. per line, or \$3 per inch, nonpariel, and special contracts for definite time and space made on application

Advertisements unaccompanied by specific instruction inserted until ordered out, and charged at regular rates.

The FARMER'S ADVOCATE is the unrivalled advertising medium to reach the farmers of Canada, exceeding in circulation the combined issues of all the other agricultural publications in the Dominion. Send for advertising circular and an estimate.

SPECIAL NOTICE.

THE FARMER'S ADVOCATE refuses hundreds of dollars offered for advertisements suspected of being of a swindling character. Nevertheless we cannot undertake to relieve our readers from the need of exercising common prudence on their own behalf. They must judge for themselves whether the goods advertised can in the nature of things be furnished for the price asked. They will find it a good rule to be careful about extraordinary bargains, and they can always find safety in doubtful cases by paying for goods only upon their delivery.

SPRING PLANTING
Gold Medal Nursery Stock

BESIDES FULL LINES OF

Fruit Trees,
Ornamental Trees,
Flowering Shrubs, &c.,
we invite attention to the following

SPECIALTIES:

Fay's Prolific Red Currant, new; Lee's Prolific Black Currant, new; the celebrated Goderich Plum, new, very hardy; a general stock of Plums, handsome trees, and all on hardy Canadian stocks, cheap; extra size Apple Trees, now in fruit buds, transplanted, fine roots, GIDEAR, Marlboro, Colossal, Hansell, Ohio, Nemaha and other new Raspberries; Cornelia, Daniel Boone, and other new Strawberries; Niagara, Jessica, and other new Grapes; Buckthorn, Berberry, and other Hedge Plants; Norway Spruce, one to three times transplanted, from one to four feet high; Austrian and Scotch Pines, all sizes; large Horse Chestnuts and other Ornamental Trees for immediate effect.

23 Descriptive Priced Catalogue (illustrated) free to all applicants. We pack our stock to carry safely anywhere. This is the latest season we have ever known, and the whole month of May will be a good month for planting.

GEO. LESLIE & SON,
233-a Toronto Nurseries, LESLIE P. O., Ont.

LIST OF
FARM LANDS FOR SALE
IN THE COUNTY OF KENT.

HARWICH TOWNSHIP—South-east part of Lot 17, in the Front Range from River Thames, in the Township of Harwich, 188½ acres. Price, \$9,000.
HOWARD—Rear parts of Lot 15, in the 2nd Concession of the Township of Howard, 100 acres. \$2,200.
Lot 8 and west half of Lot 9, Range 2, Township of Howard. \$6,000.
DOVER EAST—Most southerly 25 acres of most southerly 50 acres of south-east three-quarters of the north-east half of Lot 6, in the 8th Concession of Dover East. \$900.
CAMDEN—Part of Lot 5, in the 2nd Concession, 29 acres. Price, \$25 per acre.
CHATHAM—Part of Lot 3, in the 4th Concession, 14½ acres, at \$200 per acre.
HARRIS, MAGEE & MOFFAT,
Federal Bank Buildings, CHATHAM, ONT.
233-



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

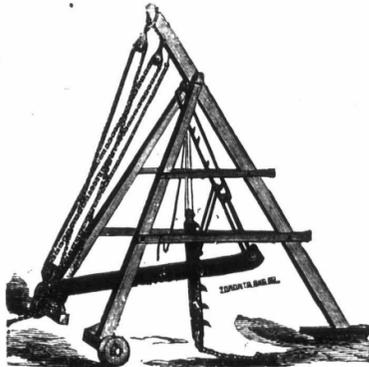
The WALKER BUTTER WORKER

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.

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 \$3 at Cayuga. 233-o

Procure the Best.



THE WHITFIELD STUMPIEXTRACTOR

The superiority of this machine consists in the rapidity and ease in which it can take out the largest stumps; the ease with which it is operated by man or beast, and the great strength and durability of this machine. It leaves no holes to fill up, nor any stumps or snags in the ground. Send for circular of testimonials and particulars about it before purchasing an inferior machine. JOHN WHITFIELD, Dom. Chain Works, Front St., Toronto. 233-1f

Choice Strawberry Plants

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

FOR SALE—SIX THOROUGHbred DURHAM BULLS
1 three years, 2 two years, 2 eleven months and 1 ten months old. All registered in B. A. S. H. B. The above stock will be sold at very low prices.
232-c JOHN CAMPBELL, Penetanguishene.

FOR SALE.

Three Thorough-bred Shorthorn Heifers

One Year Past.
One Shorthorn Bull,
Nine Months Old.

ADDRESS— ALLAN BOND,
233-a Inverary, Ont.

FLOWERS & PLANTS

I am now prepared to fill spring orders sent by mail or otherwise, at the following rates:—

COLLECTION No. 1—Consisting of 60 assorted Potted Plants for \$5.

COLLECTION No. 2—Consisting of 130 assorted Potted Plants for \$10.

COLLECTION No. 3—Consisting of 200 assorted Potted Plants for \$15.

These collections will consist of fine healthy assorted plants, of the best known varieties to ensure a constant supply of bloom and foliage, to produce the most pleasing effects in your gardens. They will be carefully packed and delivered in any part of the city, or at the express office.

N.B.—I am always prepared to furnish Cut Flowers for Wedding Parties, Balls, &c. Bouquets, Wreaths, &c., consisting of Camellias, Chrysanthemums, Carnations, Tea Roses, Orange Blossoms, Tuberoses, Marguerites, &c.

ADDRESS— A. R. MURDOCK,
233 Kensington Park, London, Ont.

BEEES.

For the latest, best and most approved
Bee Hives, Comb Foundations,
Honey Extractors,

and all necessary appliances, and 40 page catalogue,
Send to GOULD & CO.,
233-a BRANTFORD, Ont.

PLUM TREES.

A very Large Stock of very Best Sorts.
Splendid Trees. All on hardy Canadian stocks. Cheap.
Send for Catalogue, free.

233-a GEO. LESLIE & SON, TORONTO NURSERIES.

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 Blanshard, 1½ miles from St. Marys. Price, \$6,500.

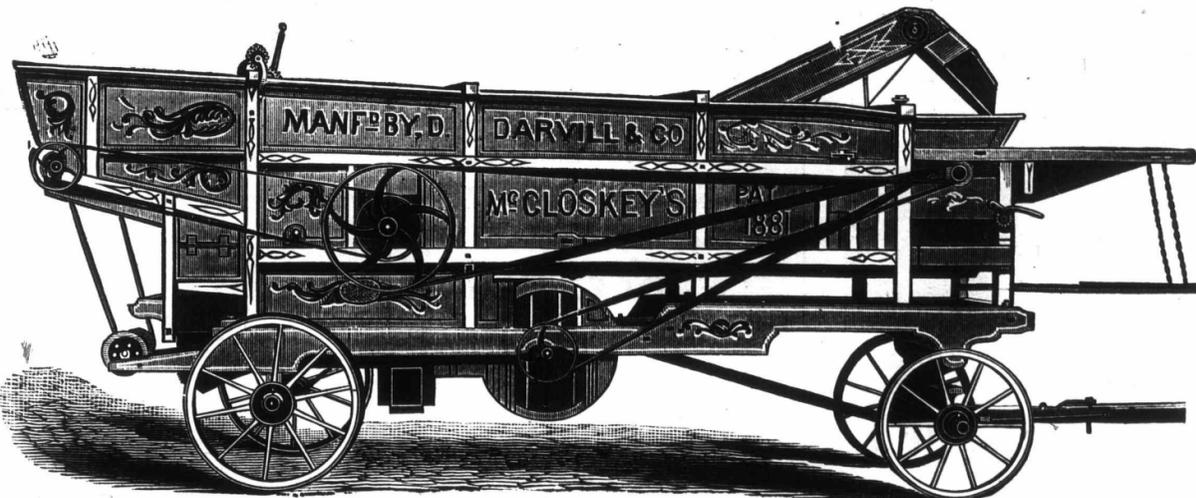
Westminster Township—An excellent 78 acre farm; about 70 acres improved; good orchard; soil, clay loam; brick house, eight rooms, frame addition; two frame barns, stables, shed, &c. School and churches one mile. The above is a thoroughly good farm, in a pleasant situation, five miles from London. Price, \$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; soil, clay loam; 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 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.



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



"ALBION" - Record 2.33 1/2.

ALBION, ch. h., sired by Highland Boy, he by Hamlet, he by Volunteer, he by Hambletonian; dam, Lady Martin, by Whitebeak's Black Hawk; said to be a son of Long Island Black Hawk.

Terms for Albion.—\$15 to insure that a mare gets with foal; other conditions see "Middlesex."

"MIDDLESEX."

This imported son of Rysdyk's Hambletonian will make the season of 1885, travelling the route same as Albion. He is a black-brown, with tan color on muzzle and flanks; stands 15 hands 3 inches high, with beautiful high action, and although he never has been handled for speed, he shows a very fast, rapid gait for a horse of his years. He made a short season last year at the Western Hotel stables, and nearly all the mares served by him were found to be in foal. I am placing the services of Middlesex at a price that any breeder wishing to use a good and well-bred horse can do so at a moderate figure.

Pedigree.—Middlesex, sired by Rysdyk's Hambletonian; dam by Fiddler, son of Monmouth Eclipse; 2nd dam Col. Felter's mare, Newburgh, New York, by a son of Messenger.

Monmouth Eclipse's 2nd dam was by Imported Messenger, giving Middlesex two direct crosses of Imported Messenger, through his 1st and 2nd dams, and a blood that has always blended well when united with that of Hambletonian. Rysdyk's Hambletonian, the sire of Middlesex, was the greatest sire of trotting stallions the world ever produced, and hundreds of poor men have been made rich by raising one colt from that noble sire, and he has transmitted to his numerous sons that wonderful power of getting horses of great speed, and it was this aim I had in view when I purchased Middlesex.

Appointments for both Horses.—LONDON—Western Hotel, Saturday, and to 9 o'clock a. m. on Monday. GLANWORTH—Monday, at noon. BELMONT—Monday evening, until 9 a. m. Tuesday. NILESTOWN—Tuesday noon. LONDON—Tuesday evening, and until 9 a. m. Wednesday. BALLYMOTE—Wednesday noon. BRYANSTON—Wednesday evening, and until 9 a. m. Thursday. BIRK—Thursday noon. ILBERTON—Thursday evening, and until 9 a. m. Friday; and continue during the season, commencing Saturday, April 25th, and ending Saturday, June 27th, health and weather permitting.

Terms for Middlesex.—To insure that a mare gets with foal, \$20; season (cash before service), \$15. Mares on insurance must be returned regularly for trial during the season, otherwise they must be paid for as season mares. Insured mares payable 1st February, 1886. All accidents and escapes at owner's risk. Good pasture will be found for mares sent to this horse at \$3 per month.

Also two standard-bred Stallions: **EDSALL STAR**, by Major Edsall; dam by Niver's American Star. **SUPERIOR**, by Wood's Hambletonian, the sire of twelve in the 2,30 list; dam Mag Borden, by American Star Jr. At private stable, London.

CHAS. LACKEY,
Manager.

T. D. HODGENS,
Proprietor.

NORWAY SPRUCE

One to Three Times Transplanted. One to Four Feet High. An Immense Stock. Cheap. Send for Catalogue, free.

233-a **GEO. LESLIE & SON TORONTO NURSERIES.**

—FOR— REFRIGERATORS

of all sizes and for all purposes.

Address—**GOULD & CO.,**
233-a BRANTFORD, ONT.

FERTILIZERS

London, Ont., April 23, 1885.

Messrs. THOS. ASPDEN & SON, City:
Gentlemen,—I have much pleasure in giving you a testimonial in favor of the Excelstor Fertilizer. The ton I purchased from you in September last I applied to eight acres of rye, the crop of which I am glad to say is now looking splendid; dark green, healthy and strong, showing the greatest difference to those portions to which no fertilizer was applied, which are very poor and spindly. I have already taken a great number of people to see this crop, who expressed themselves much surprised at the results, and as the farm is near the city I will gladly show anyone who may wish to see it. Wishing you the success with the Fertilizer which it deserves, I am, yours truly,
JOHN EVANS,
234 King St., London, Ont.

Best Quality! Lowest Price!

Send for Pamphlet and Samples.

THOS. ASPDEN & SON,

233-4f Phosphate Works, LONDON, ONT.

CHOICE FARMS FOR SALE.

1st.—166 Acres, parts of Lots 10 and 11, Balsam St., Dover. First-class clay loam; school house on the corner of the farm; good frame house, orchard, &c.; good water; four miles from Chatham; just worked long enough for stumps to be out. Price \$9000 cash, or 7 per cent. interest on mortgage.

2nd.—200 Acres, Lot 5, 5th Con., Chatham; very fine clay soil; four miles from town of Chatham; 40 acres cleared, balance long pasture; good neighborhood; good water. \$9000 cash, or 7 per cent. mortgage.

3rd.—50 Acres, in Raleigh, part Lot 6, 9th Con., well drained; 35 acres cleared; log house; corner 50 acres. Price \$2400 cash, or 7 per cent. mortgage.

Other lands on hand to suit purchasers. I always sell on cash basis. If time is given purchasers must pay market rate for money not paid at time of purchase.

Also 100 acres, south half lot 16, 8th Con., Tibury West; with dwelling house; "saw mill"; and out buildings now or nearly so. The whole for \$3300; or mill \$1500 separate. Lease of land if desired.

233- **S. BARFOOT,**
CHATHAM, Ont.

LIGHTNING WELL SINKING MACHINERY furnishes pure water, pays the agent well, and the business is protected by patents. We make every thing known and belonging to well sinking. Are the largest works in the business. If interested send 15 cents for mailing you our catalogue of 360 engravings. Advance Turbine Wind Mills, Steam Engines, Artesian pumps, &c. The American Well Works, Aurora, Ill., U. S. A.

Seed Potatoes.

NEW INVINCIBLE—Best late potato in this county; enormously productive; unequalled in quality and beauty. \$2.50 per bushel; \$6.50 per barrel.
ROCKY MOUNTAIN ROSE—Best early variety; extra early; very large; handsome and first-class quality. \$2.50 per bushel; \$6.50 per barrel.
 233 a **ROBERT BELL, Jr., Hensall, Ont.**

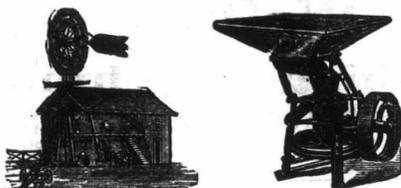


The best Hay Carrier in use. Sent to responsible farmers in Canada on trial at about cost price. For circulars, address **W. I. SCOTT, BRIDGEWATER, Oneida Co., New York.**

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 20 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 2,855 bbls.



PUMPING WINDMILLS from 8 to 30 feet diameter.



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

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



HAYING TOOLS. A full line of the Best

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

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 65, Paris, Ont.** 225-y

SELECTED SEED CORN.

PEARCE'S PROLIFIC

SILVER FLINT, LONGFELLOW,

AND OTHER VARIETIES, ALSO

FODDER AND SILO CORNS,

All carefully selected and tested before sending out. We have one of the best selections of SEED CORNS in Canada, and farmers will do well to get our prices and try our Seed Corns. Send for price list. **PEARCE, WELD & CO., Seed Merchants, LONDON, ONT.** 233-a

FENCING

Cheap and Durable.

E. C. JONES' Patent Iron Fence Post.

(Patented Oct. 29th, 1884.)

The attention of the public is called to E. C. Jones' Patent Iron Fence Post and Gates, they having met with universal approval wherever tried. Some of the advantages of this fence are its great durability and strength; it will not cause snow to drift; is much cheaper than wooden fences; fire and wind proof; proof takes less time to build, and gives thorough satisfaction when done.

SEE TESTIMONIALS:

JOHN GAGE, Esq., 200 rods of this fencing; has ordered 400 more for this spring. **THOMAS BARNES, Esq.,** 150 rods last season; 50 more ordered for this spring. **Mr. E. C. JONES:** Bartonville, Dec. 1, 1884. Dear Sir,—I am pleased to be able to state that I like your Patent Iron Fence Post very much, and think it just what we require, and much cheaper than wooden fence, or any other fence that I know anything about. Yours etc., (Signed) **JOHN GAGE.** Hamilton, Ont., Dec. 20, 1884. This is to certify that I have used Mr. Jones' Iron Post in about one hundred and fifty rods of fencing built this season, and am well pleased with the appearance; think it the post for time to come. (Signed) **THOS. BARNES.** Mr. E. C. Jones: Hamilton, February 4, 1885. Dear Sir,—In answer to your inquiry, I like the fence you built for me very much; it has a great many advantages, and is a very neat and durable fence. (Signed) **THOS. RAMSAY.** The Cost is from 50c. to \$1 per Rod, according to the number of Wires and Posts. For further particulars and testimonials apply to the patentee, **E. C. JONES, 79 Catharine Street, Hamilton.** Orders for fencing should be in as soon as possible to insure it being up in good time. Territory for sale at reasonable rates. 232-b

If you starve your land it will soon retaliate by starving you.

The Philadelphia Press epitomizes the part of the annual report of the Ohio Experiment Station relating to corn planting as follows: "Rows were made three and one half feet apart and the seeds were dropped singly at distances ranging from six to twenty-four inches in the row. The kernels together were dropped at distances varying from twelve to thirty inches, and three kernels were dropped at from eighteen to thirty-six inches apart. The heaviest yield was obtained when single kernels were dropped eighteen inches apart in the row. There was considerable variation in the yield when the same amount of seed was planted. That is, single kernels at six inches gave a different product from that of two kernels twelve inches apart and three kernels eighteen inches apart. And generally the tests made at the station show that a slight change in the distribution of seed from the method often practiced would alone increase the yield from ten to thirty bushels per acre. Such being the case, the value of these practical experiments can hardly be over-rated."

USEFUL BOOKS

FARM, GARDEN AND HOUSEHOLD

Allen's (R. L. & L.F.) New American Farm Book	\$2 50
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Randall's Sheep Husbandry	1 50
Rarey's and Knowlson's Complete Horse Tamer	50
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Stoddard's An Egg Farm: paper, 50c.; cloth	70
Talks on Manures: Joseph Harris	1 55
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Wheeler's Homes for the People	2 00
Willard's Practical Butter Book	1 00
Williams' Window Gardening	1 50
Waring's Draining for Profit and Health	1 50
Waring's Elements of Agriculture	1 00
Wright's Practical Poultry Keeper	2 00

Any of the above useful books will be mailed from the FARMER'S ADVOCATE Office, on receipt of price named, and 5c. extra for postage on books valued \$1, and 10c. for books over \$1.

Notices.

All fast horsemen are scarce that the sons of Rysdyk's Hambletonian are very scarce. It has been at a great expense that "Middlesex" has been procured for Canada. Mr. T. D. Hodgins, the proprietor of this valuable animal, has a very high reputation for veracity and honor. You may depend on his word.

Manual of Agriculture—A new work just published by Orange Judd Company, New York. The authors are Messrs. G. B. Emerson and C. L. Flint, revised by Dr. C. A. Goessmann. The work contains a variety of valuable information for farmers (284 pages.)

We have received an excellent work on horse-breeding, containing instructions for the management of stallions, brood mares, young foals, and the selection of breeding stock, edited by J. H. Sanders, and published by J. H. Sanders & Co., Chicago, Ill.

The Herald, published by Lum Smith, Esq., of Philadelphia, is undoubtedly doing a great deal of good by exposing many of the frauds who are constantly advertising. We are sorry to see so many of our Canadian papers allow these advertisements to appear in their columns. Our subscribers should be cautious about sending money to those who advertise extraordinary inducements or cures.

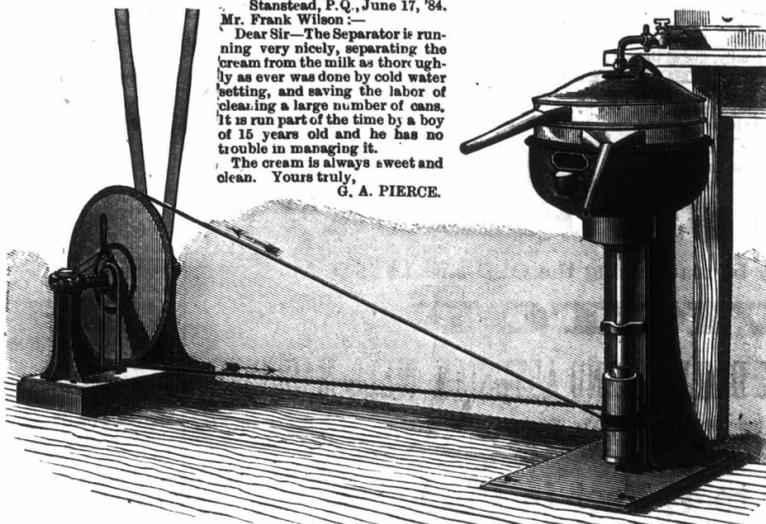
(See Stock Notes, page 156.)

CREAM BY MACHINERY.

DeLaval's Cream Separator

3,000 IN USE IN EUROPE AND AMERICA.

Ameliasburg, O.,
May 29th, 1884.
Mr. Frank Wilson :-
Dear Sir—We got the Laval Separator ready on Saturday, and used it that evening. We have run it every morning this week. We run thro' ten to twelve hundred pounds of milk in about one hour and twenty minutes to one hour and thirty minutes.
We are pleased with it; it more than meets our expectations. We can discount any record you have given in any of your descriptive catalogues or circulars—do more milk per hour and get more butter from same quantity of cream. We are sure that we are taking over 25 per cent. more butter from the milk than we ever got by setting Cooley process. There is no use talking about the old slow and uncertain process, this is a sure thing and it is only a matter of short time when setting milk for cream will be looked upon as out of the question.
Will send you actual record of this week's work as soon as possible. Yours truly,
JOHN SPRAGUE.



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 clearing 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.

Stockwell, 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

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."

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.

—FOR—
Fruit Packages
—AND—
BASKETS

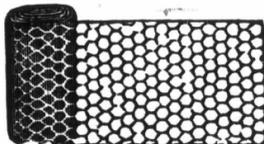
Of every description and of the best quality, send to THE

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.

50 Perfumed, Embossed, Hidden Name, &c., Cards 51 Scrap Pictures and Agent's Sample Book, 10c. 15 packs cards and agent's large Album of samples, \$1 Best inducements ever offered to agents. Send 5c. for pocket sample book and special terms, Stevens Bros. & Co., Northford, Ct. 231-a

POULTRY NETTING



Galvanized Wire Poultry Netting, meshes from half inch to two inch, widths 30 inch to 72 inch, in stock. Ask your hardware dealer for Greening's Poultry Netting.

B. GREENING & CO.,
Hamilton, Ont.

232-c
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 \$300 to \$2,000 per year. Write for particulars. JAMES LAUT, importer and jobber in pure teas. Head office 281 Yonge St., Toronto. 231 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.

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 \$1,100, or will take lumber. 232-c C. NORSWORTHY & CO., St. Thomas, Ont.

BELLS

For Farmers' Use
—ALSO—
FACTORY & SCHOOL HOUSE BELLS.

Ask your hardware dealer for our bells, now so well known for their clearness of tone and durability. Catalogue furnished free on application.

J. B. ARMSTRONG Mfg. Co.,
Guelph, Canada.

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.,
Builders, ST. THOMAS.

216 Scrap Pictures, 10c. or 60 Picture Cards, name on 10c. Scrap Sample Book, 6c. J. B. HUSTED, Nassau, N.Y. 232-a

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 12,888 lbs. 9 oz.
April 1, 1884, ten cows in this herd had made records from 10,000 to 18,000
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 1-6 oz. per week.

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

When writing always mention FARMER'S ADVOCATE.

233-c

\$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 4½ 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,

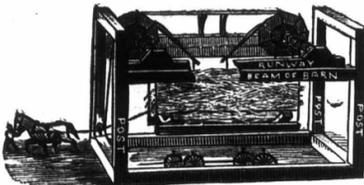
VICTOR WELL AUGER AND MACHINE CO.,

904 Olive Street,

State in what paper you saw this.

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

232-c



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 wish-
ing to buy a "right," will apply to the patentee,

WM. SARGENT,
Berkeley P. O., Ont.

232-b

NEW SEEDS, 1885!

Purest and Best at Moderate Prices.

Agricultural Seeds a Specialty.

A fine strain of **ONION** Seed, Greenhouse and Bed-
ding Plants in great variety. Orders for cut flowers and
floral designs promptly attended to. Catalogues free.
Seed store and conservatories Colborne St. opposite the
market, Brantford.

231-c

JAMES B. HAY, Proprietor.

EGGS From all varieties of Poultry. Send 10c. for
POULTRY GUIDE. Circulars free. **SMITH &
CO.,** Stony Brook, N. Y.

231-y

Stock Notes.

The Jersey heifer, Violet, owned by Mr. Samuel Smoke, Maple Lane Farm, Canning, Ont., dropped a fine heifer calf on the 14th inst.

Mr. A. B. Cushing, of Coaticook, Province of Quebec, has purchased from Mr. R. J. Mackie, of Oshawa, Ont., three Hereford heifers with young calves at their side, for \$2,100. Also from Mr. L. G. Drew, of same place, eight heifers and a young bull, four of the heifers having young calves, for \$4,375. A number of the heifers were of Messrs. Mackie & Drew's last season's importation. The same parties also shipped to Kansas City 14 young bulls, nine of which are pure Herefords and five grades.

Recent stock sales by Messrs. Thos. Nelson & Sons, Bow Park, Brantford, Ont. —Butterfly Duke 5th, to S. S. Brown's Sons, Galena, Ill.; Orpheus 19th, to the Earnest Town Agricultural Society; Duke of Oxford 54th, to Luther Adams, Storm Lake, Iowa; Prince Victor 6th, to P. A. Coen, Washburn, Ill.; Earl of Goodness 15, and Duchess of Aylmer 9th, to Gavin Henderson, Welland Port, Ont. The price of Duke of Oxford 54th was \$3,000. He is a magnificent young bull, and his stock are very promising.

Mr. Arthur Johnston, of Greenwood, Ont., reports the demand for good and well bred Shorthorns better than at any former time since 1875. Prices are not high, but range so as to allow a fair living profit. Mr. Johnston reports the following sales since the New Year: To Mr. Wm. Shier, of Sunderland, one red imported Shorthorn bull; Mr. Wm. Humphrey, of the same place, Shorthorn bull-calf, bred by himself; Mr. Joseph Watson, of Greenbank, Ont., one imported Shorthorn bull-calf; Mr. S. Barclay & Son, Lindsay, Ont., a red imported Shorthorn bull-calf; Mr. James Gardhouse, of Malton, Ont., 4 Shorthorn heifers and 1 heifer-calf; John D. Howden, of Columbus, Ont., 2 imported heifers and one imported bull; W. G. Pettit, of Burlington, home-bred bull-calf, sire and dam imported; W. B. Graham, of Lindsay, one Shorthorn cow; J. B. Graham, one cow and calf; Messrs. Pardo & Welwood, for a society, 3 home-bred bulls; John Wilson, of Brampton, Ont., home-bred bull-calf; Seth Heacock, of Kettleby, one very good bull-calf; D. McLaren, of Oaceola, Ont., two-year-old Shorthorn heifer; John Currie & Son, Everton, one imported bull-calf; Isaac Fisher, of Goderich, Ont., one imported bull-calf; T. C. McArvy, one cow; Hugh Thomson, of St. Mary's, one imported Clydesdale stallion; the Howick Stock Co., one imported bull-calf; Geo. Stewart, Maple Valley, one young bull, home-bred; J. B. McKay, of Stellarton, Nova Scotia, one cow and calf.

The National Stockman and Farmer states long-wooled sheep are attracting a good deal of attention at the present time, and their merits are considerably lauded as furnishing a relief to the flockmasters by turning from wool to mutton production. Whether it will or not is a matter for each one to decide for himself, according to his location and surroundings; but the introduction of mutton sheep into the different sections of the country will have the advantage of giving the sheep men a wider range of investment. This will have a beneficial effect, if it is not carried too far, and if people do not rush into the excessive growing of mutton to the neglect of wool-growing, and over stock the mutton market. The way we look at this is that these different classes of sheep are adapted to different sections of the country, and to the individual shepherd's conveniences for their rearing. The larger the sheep the more feed and attention it requires, and the coat must always remain an important consideration in its keeping. There need be no fear that one breed of sheep will roam the pastures to the exclusion of the numerous others; but it is certain that whatever breed of sheep is kept it must be the best of its kind, and give either a large fleece, a large carcass, or a good average of both.

(Continued on page 155.)

LAST CHANCE

To obtain Government Lands free—that are suitable for general farming and stock raising purposes—before change of laws as per bills now pending in Congress.

320 IN THE DEVILS LAKE,
TURTLE MOUNTAIN,
And Mouse River Country,

NORTH DAKOTA ACRES Tributary to
U. S. Land
Office at Devils
Lake, Dakota.

Over 2,000,000 Acres of R. R. Lands in Minne-
sota at the low price of \$3.00 per acre and upwards.
Sectional Map and full particulars mailed
free to any address by C. H. WARREN,
Gen'l Pass. Agent, St. Paul, Minn. and
Manitoba R. R., St. PAUL, MINN.

FREE

231-c

LANGSHANS in Tr's a \$5.00.

Also **LANGSHAN** and **BROWN
LEGHORN EGGS** at \$1.00 per sitting.

MRS. WM. MASSON, Cherry Grove, Ont.

HENRY SLIGHT NURSERYMAN,

407 Yonge Street (near Gerrard), TORONTO, ONT

MY SPECIALTIES—Select Stock of Fruit Trees, Grape-
vines, Spruce, Hedge Plants, Ornamental Trees, Choicest
New Roses, Bulbs and Seeds, Decorative Plants.

Cut Flowers, Wedding Bouquets in superior quality on
shortest notice.

231-c

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 Tedders.

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

BROWN'S PATENT HAY LOADER.



Since the first introduction of the Hay Loader, each succeeding year has added every evidence of its practicability, and it is now considered one of the greatest labor-saving machines of the age. It requires no extra men or horses, being attached to the rear of the wagon and operated by the same team that draws the load, adding to the draft the power of one man. It will load a ton of hay in five minutes, taking it up as clean as can be done with a fork. Although originally intended to run on hay raked in wind-rows, it may be used in heavy unranked hay, and will work equally as well in all kinds of loose grain, especially barley.

Also manufacturers of Hay Tedders, Reapers and Mowers Pitt's Horse Powers, Field and Corn Cultivators, Straw Cutters, Grain Crushers, Sawing Machines, &c.

For price, testimonials, and all particulars, address
JOHN RUSSELL & CO.,

231-d INGERSOLL, ONT. |

ROCK SALT!

Lump Rock Salt—For Horses and Cattle.
A natural salt far superior to common rock salt. Can be placed in manger or in the pasture. It will not waste, is an excellent tonic, and animals having access to it will relish it and keep in good condition.

Price—In bulk, \$10 per ton; in barrels or sacks 75c per lb.

J. R. WALKER,
231-c 30 Foundling St., Montreal.

PATENTS! Thomas P. Simpson, Washington, D. C. No pay asked for patent until obtained. Write for inventor's guide. 231-c

YOUNG MEN—Learn Telegraphy or Short Hand. Situations furnished. Send for terms. Com. and R. R. Tel. College, Ann Arbor, Mich. 231-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.



THE GREAT
ACME PENETRATIX!

Positively Burns
Stumps.

No Crude, Petroleum, Sulphur or Saltpetre used, but is simply a compound which if put into the Stump and set fire to, will burn the largest Stump in existence, roots and all. Send \$1.00 for enough Penetratix to burn 14 large or 20 medium sized Stumps.

AGENTS WANTED.
Address—

231-c F. E. FROSS, Lock Box 100, Springfield, O., U.S.A.

NEW Raspberry Warhore, Circulars giving full description and prices together with a colored plate of the Gooseberry free.
ELLWANGER & BARRY,
Mt. Hope Nurseries, Rochester, N. Y.

Warning to the Public

The public are hereby warned against purchasing any imitation or copy of the machine made by the
ROSS NOVELTY RUG EMBROIDERING MACHINE MANUFACTURING COMPANY,
covered by their patent No. 14334, and dated March 6th, 1882. The Company are following up and prosecuting infringers as rapidly as they can be found.



E. W. ROSS, of Guelph, Ont.,
is the sole manufacturer for the Dominion.
232-y

STOCK NOTES.

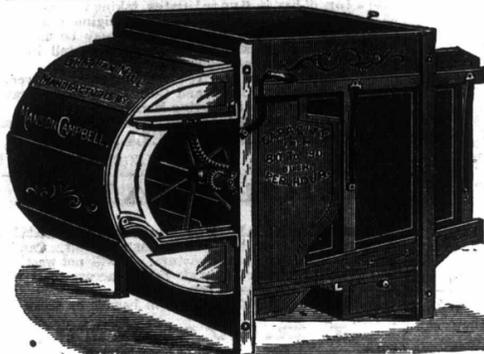
Messrs. Lord, Cook & Sons, Aultsville, Ont., write that they have recently sold the Holstein bull De Hooda, to R. S. Warner, Onabruck Centre, Ont. The calves got by Lord Byron are turning out splendidly. The stock has come through the winter well.

James I. Davidson, Balsam P. O. Ont., reports the following sales:—The bull Saratoga, to James R. Anderson, Ogle Co., Ill.; Lord Cardinal, to Joseph Duncan, Osburn P. O. Missouri; Baron Barmpton, to Wm. Moffatt & Bro., Paw Paw, Ill.; Prince Platina, to D. W. Britton, Wayne Co., Nebraska; Knight Templar, to Messrs. J. H. Potts & Son, Jacksonville, Ill.; two-year-old heifer Songstress, to C. C. Norton, Corning, Adams Co., Iowa; yearling heifer, Barmpton Primrose, to A. S. Butler, Corning, Iowa. I sold two superior heifers, home bred, sire and dam imp., to Mr. McHugh, banker, Cresu, Iowa.

The prices obtained for the Shorthorn cattle sold by Mr. Jas. S. Smith, Maple Lodge, Ont., on 25th March last; very few of the sheep were sold, being the wrong time of the year. The attendance was large, the stock good and in fine condition, and the bidding spirited:—Rose 10th of Maple Lodge, Geo. S. Robison, Clinton, \$96; Rose 6th of Maple Lodge, John Kennedy, Ilderton, \$105; Clara de Viedena 2nd, Thos. Crawford, Widder, \$150; San Silverado, Jas. McMurtry, Ailsa Craig, \$100; Rose 9th of Maple Lodge, A. Turnbull, Winchelsea, \$162; Duchess Jane 5th, C. H. Wilson, Greenway, \$110; Marse Clean, D. G. Smith, Lieury, \$150; Princess Ninetzin, T. C. Patte-son, Toronto, \$140; Duchess Jane 4th, A. Brown, Avonton, \$130; Fourth Princess of Thule, N. Grieve, Moray, \$176; Fifth Princess of Thule, Wm. Lee, Maple Lodge, \$121; Rose 7th of Maple Lodge, Jno. Brand, Forest, \$170.

The loss of cattle the past winter from ill-feeding and want of shelter has been much larger than usual. One hundred thousand head, valued at \$40 each, would be equal to \$4,000,000. How much rough but sufficient shelter could be provided for this sum? Moreover, the investment of the money in shelters is a permanent one and needs not to be repeated yearly, while the loss is annual and continually repeated. Nevertheless stock owners neglect to provide shelter and a small quantity of feed for their herds, on the old-fashioned principle—it is to be presumed—that in the summer these are not required, and in the winter it cannot be done. And so it goes on year after year; the loss and waste being paid for by the public, who are charged exorbitant prices for meat, to enable the herdsmen to divide large profits and to stand the enormous yearly losses.—[N. Y. Times.

Mr. J. Macdonald, editor of the Eng. Live Stock Journal, commenting on Mr. Fewen's scheme of exporting Wyoming store cattle to England via Canada, says: "We are willing to believe that all the efforts made to improve these rancho cattle have had their full measure of success, and that the rate of improvement has been as great as could possibly have been in the time and under the circumstances which surround the roaming herds of the Western prairies. We can hardly think that our contemporary's estimate of the Wyoming cattle is higher than our own. The difference of opinion, we suspect, arises rather in regard to the class of stock suited to our wants here. In this country we are exceptionally fastidious in our taste for butcher meat; and to provide profitably the class of meat calculated to satisfy these tastes, we require a refined, and what the Americans would call a very highly graded variety of cattle. With all the advance they could possibly have made in seven years, we are bound still to regard the Wyoming cattle as far below our standard—as too coarse and muscular, and altogether unfitted to yield a carcass which would pay for the heavy costs of fattening in this country. We, therefore, for these and other reasons, to which we may afterwards refer, consider it undesirable that for any portion of their supply of store cattle, British farmers should place reliance upon the rancho cattle of the Western States."



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 90 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.

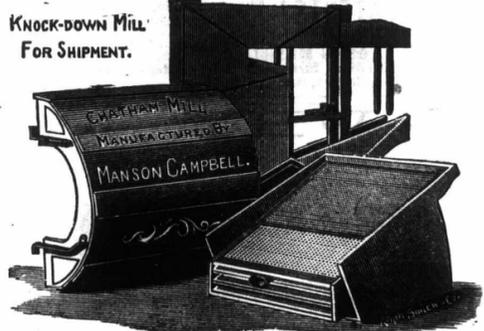
A first-class Gang Riddle and Grader goes with each mill for separating oats from wheat, which does a thorough y first-class job that any farmer or grain dealer will be pleased with.

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.

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MANUFACTURERS OF

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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.

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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.

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YR, ONT., CANADA.

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CORN PLANTERS!

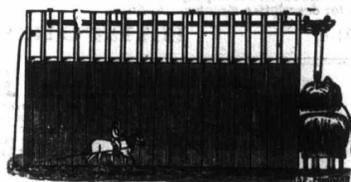


THE BEST HAND CORN PLANTER MADE.

Agents wanted in every Township.

Otterville Manufacturing Co., Otterville, Ont 232

BUCHANAN'S Improved, Double-Acting



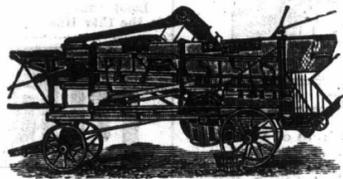
PITCHING MACHINE

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, Manufacturer, Ingersoll. 231-d

HAMILTON AGRICULTURAL WORKS



Established 1836.

Established 1836.

The Pioneer Threshing Machine Works of Canada

Our Celebrated GRAIN SAVER is the Best and Most Perfect THRESHER and SEPARATOR made in the Dominion, being first over all others for

Durability, Workmanship, Fast and Clean Work, Perfection of Parts, Ease of Management, Simplicity of Construction, Lightness of Draft, Capacity for Work.

We have Machines working in all parts of Canada, giving the very best satisfaction, when driven by either Steam or Horse Power.

It is a General Favorite with the Farmers, who prefer it for Fast and Clean Work.

Special Size Made for Steam Power.

Address us for Circular and Price List of THRESHERS, CLOVER MILLS, HORSE POWERS, REAPERS and MOWERS. A personal inspection is solicited. 233-leom

L. D. SAWYER & Co., Hamilton, Ont., Can.

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

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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, d-dry 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 rates, 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.

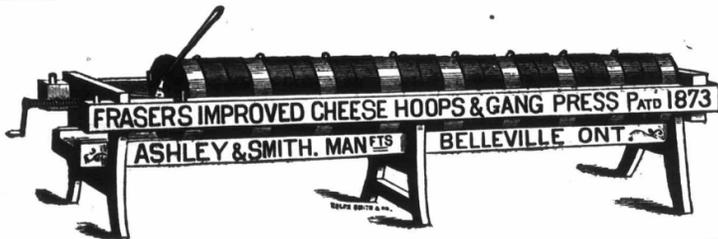
TERMS OF PAYMENT:

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.



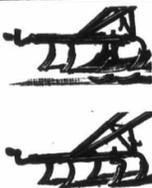
Warranted Capacity of Resisting from 40 to 60 Tons Pressure. Highly Recommended by all Cheese Makers. Prices Reduced for 1885.

Price of Hoops, exclusive of Press—14 or 15 inches diameter, to press cheese 8 to 10 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

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As lately introduced, has no equal in the world. Its excellent work in the field has distanced that of all competitors. It is, in some sections, doing in one passage, the work of four or five old-style implements, and in others surpassing the cumbersome and expensive two-horse tools. The "PLANET JR" HAND SEED-DRILLS AND WHEEL HOES are the newest and best, lightest and strongest known. There are 7 distinct tools, each with special merits, no two alike or the same price; all practical and labor-saving. Let no Farmer or Gardener fail to study up during the winter evenings our 1885 CATALOGUE, which gives reduced prices, careful and exact engravings of these different machines, and such descriptions as will enable the reader to judge correctly of their merits. Thirty pages and forty engravings. Free to all. Correspondence solicited. S. L. Allen & Co., Mfrs., 127 & 129 Catharine St., Phila., Pa.

229-f

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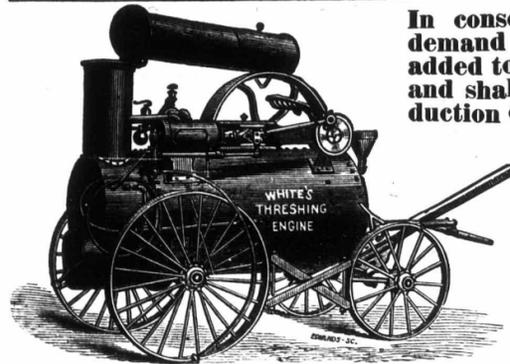
It weighs Accurately from half pound to 4,000 pounds

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Quality, Accuracy and Beauty of Workmanship Unsurpassed.

BURROW, STEWART & MILNE HAMILTON, ONT.

232-y



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

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

H. B. WHITE, Supt. of Machinist Dept. A. W. WHITE, Supt. of Erecting Dept. HUB. J. WHITE, Secretary-Treasurer. F. J. WHITE, Assistant-Secretary. The engines may be seen at Van Tassal's foot bridge warehouse, Belleville.

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



230-41

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TEMPERANCE STREET, TORONTO.

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.

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229-y

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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.

Executors and Trustees are authorized by law to invest in debentures of this Company.

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