

# FARMER'S ADVOCATE

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## On the Wing.

CLINTON STOCK MARKET.

The enterprising inhabitants of Clinton are endeavoring to establish a stock market in their town. The location is an excellent one to make it a success, as it is situated in one of the best farming sections of Canada, the land being first-class and the inhabitants being progressive. The London, Huron & Bruce Railroad crosses the Grand Trunk Railroad at this point. There is no fixed or established stock market within 50 miles.

They held their first on the sixth day of March. The day proved a very fine one; a larger number of farmers assembled in Clinton than were ever seen there before. The sales were effected by auction. The stock offered was for breeding purposes, consisting of stallions, Shorthorn cattle, Cotswold sheep and Berkshire swine. The sale was conducted on the fairest plan; every animal was brought to the sale ring and sold; no false bidders were allowed. Should the animal not bring the price required, the owner had the privilege of making one bid. There were a large number of stallions offered at this sale—more than have ever been offered at auction in Canada at any previous sale. Nearly all classes were there. The highest price we saw paid was \$850; this was for a Clydesdale stallion sold by Mr. Hugh Love and purchased by Mr. Dale. Several blood horses were there from Kentucky; Shorthorns from Middlesex, Elgin and Waterloo. There were but few animals sold, and what were sold only brought low prices. Shorthorns were sold at about one-third the price they would have brought two years ago. Mr. Jacob Hunter, of Brant, in the county of Bruce, purchased a good red Bates bull, 15 months old, for \$200. This was the highest price paid for any Shorthorn sold. Really good Cotswolds sold at \$30 per pair, and breeding sows for \$15. They were worth more money.

The sale being entirely a new affair in that locality, and money being very tight, those who took stock to the sale were rather disappointed, as they

had anticipated higher figures, and many were determined to sell. It is our impression that from the steps now taken Clinton will have a good stock market established. We believe it will be to the interest of the managers to have at their next sale common farm stock, horses, cows, sheep and fat stock. Perhaps they might establish two markets, one in the spring and one in the fall. If the farmers continue to turn out as they have done and bring out their stock, and offer it at as fair prices as stock was offered at this sale, they may have the best stock sales established in this place. Buy-

or grant aid to establish markets, as there are too many farmers who will not exert themselves for such improvement at first, when it is needed; but they will be glad to avail themselves of the markets in a few years, after the main labor and expense has been borne by the few energetic projectors of improvements.

After the business of the day was over, the Hullett Agricultural Society had their annual dinner. A much larger number attended the dinner this year than on any previous occasion. After dinner, toasts were drank, and agricultural and loyal addresses were given, the most important of which was a very able address delivered by Prof. Johnston, of the Agricultural College, Guelph. He laid the claims and plans of the institution before the audience in a very pleasing and favorable manner, showing the great good that such an institution ought to confer on the farmers.

Many farmers gave useful addresses, and a very enlightening and pleasant time was enjoyably passed. Such gatherings are worthy of imitation in other localities.

## GERMAN MILLS.

We have heard of the reputation of this enterprise of the Snyders, who own this settlement; it is the name given to a small village situated three miles from Berlin, in the county of Waterloo. The Berlin and Galt R. R. runs close by it. The property is owned principally by the Snyders. There is a saw mill, heading and barre factory there; but the most important building is the flour mill, which has gained a wide-spread reputation

one that should awaken an interest in every miller and every farmer in Canada. Ten years ago a German fitted up a new process of making flour in these mills. It consisted of totally different kinds of sifting, screening and grinding. The wheat is passed through a run of stone that takes the bran off and cracks the wheat into small pieces between the size of very coarse sand and fine gravel, or like coarse Indian meal. This is passed through the proper sieves, cooled and separated. It is next passed through another run of stones, and again screened and sifted.



PETUNIA FIMBRIATA, FL., PL., NEW.—(See description, page 17.)

ers will come as soon as they know that they can procure what they require. It may require some energy to induce farmers to bring out their stock for two or three years. If they persevere they can have stock markets as in England.

We believe it to be better for both buyer and seller if the former can purchase a car load in one place; he can pay more than by hiring middlemen to drive all over the country selecting stock. The step taken by the farmers around Clinton might be advantageously imitated in many other parts of the Dominion. Municipal bodies should assist

## THE HEXALL FLOUR.

The flour produced by this process is finer and whiter than the flour generally made by the gaist mills in the country. This flour commands \$7.50 per barrel in Montreal, and the best common flour \$5.80 to \$5.90. Some sharp Americans got a patent for this process, and many years after the Snyders had established a good market in the States for this superior flour, some Yankee served a notice on our German millers not to ship any of the flour made by this process into that country, unless they paid them a royalty or purchased a right from them. The Messrs. Snyder, wisely preferring not to waste their hard-earned cash in testing by a law-suit, shipped their flour to Montreal, and have now established a name there that gives them \$1.60 per barrel more than the best brands from other mills can command. There are only three other mills in Canada that are making the Hexall flour.

The German Mills are owned by T. B. & A. B. Snyder; they are enterprising young men, and have set another pattern deserving to be followed by progressive men in other localities.

## GERMAN MILLS SHORTHORNS.

Having a farm near the mills, they have established a fine herd of Shorthorns, known as the German Mills Herd. This herd has been selected and bred with the idea of having large, well-proportioned animals of a kindly nature, and such as produce a good flow of milk. The pedigrees of the animals have not been neglected, but no person need try to sell the Messrs. Snyder an animal for pedigree alone; they must and will have quality. First among the numerous fine animals in this herd is the 20th Duchess of Gloucester. Athelstane 6th, a very fine animal, will be the principal stock bull used with this herd this season. They have lately imported two Magie swine, and have a good lot of Berkshires; if there is one kind better than another they desire to have it. They have a few good cows that they would dispose of.

The Germans are all fond of good, useful horses. In this particular the Messrs. Snyder also intend to excel others this year. They have imported what we consider the best Percheron horse we have yet seen; at least, we are most pleased with him. At one time we thought Anglo-Saxon the most useful and most valuable horse for the improvement of stock in our country; now we give up the palm, and if we were to act as a judge on these two horses, to decide which would do the most good in the country, we would give our decision in favor of this Percheron.

We were so much pleased with this Percheron that we give an illustration of him in this paper. We consider this horse has the greatest width of bone, the best feet, the best action, the most compact form, the best temper and the cleanest legs of any heavy horse we have yet noticed. The Snyder Bros. paid \$1,900 for him last autumn; the carriage and keep to the present time cost \$300; this brings his total cost to \$2,200. We think him the cheapest horse in Canada at that price. He will improve the stock of Waterloo County, and is worth for stock purposes more than 1,000 of those weedy, used-up horses that are to be seen at too many of our cross roads.

## THE BOARD OF AGRICULTURE AND ARTS.

We had heard that a meeting of the Board was to take place at Toronto on Wednesday, the 20th of March, and we went to Toronto with the intention of making suggestions and propositions to the Board for revising the prize list on cereals, as we consider the prize list as it now stands rather an injury than a benefit. The highest prizes are awarded to wheats that are not as profitable to the farmers or to merchants as many varieties that are of real value to the country. For instance, the

Deihl wheat, which is the whitest fall wheat, is not hardy, is very liable to rust, and makes the weakest and least nutritious flour of any fall wheat. Still it carries off the Canada Company's prize, and a special class is also made for it. No prize is given or class made for the Treadwell wheat, which makes a better flour than any other fall wheat. Neither is there a prize for the Scott wheat, which has for many years superceded the Deihl or Mediterranean varieties. The Clawson and Silver Chaff wheats, both more valuable than the Deihl, are unnoticed.

In spring wheats, the Egyptian variety has a special list of prizes. This is the most dangerous wheat that a farmer can touch; it rusts worse than any other variety, and makes the poorest quality of flour. The Redfern wheat, which makes excellent flour, is hardy, stands against the attacks of rust and insects better than most varieties for which special prizes are awarded, is omitted.

There are many other varieties of wheat deserving prizes more than those to which prizes are given.

The President and some of the Directors were there. We suggested the alteration to the President, who said he would bring the subject before the Board. It might be well if the Board were to let the public know when and where the meetings are to be held, as this meeting, instead of being held in Toronto, was suddenly changed to be held in Ottawa.

## FERTILIZERS—LAMB'S FACTORY.

Many of you would like to know something about the manufacture of our fertilizers. We made an inspection of Mr. Peter R. Lamb's Factory, in Toronto. It is situated near the north-eastern extremity of the city, on the edge of a deep ravine that runs into the Don. The works are extensive, but the vile odors from decaying matter, the steaming of bones, grease, scraps of hides, &c., render the vicinity very disgusting. We consider it the most disagreeable district and most unsightly, filthy place we ever saw inside of about half an acre—covered with parings of skins, car loads of hoofs in various stages of preparation, perhaps hundreds of tons of bones and cuttings of meat from factories, combined with the steaming of bones and grease and the making of glue and blacking, squeaking of rats, &c. Well, well, don't go there unless you want an emetic!

But it is a very useful establishment, and shows how true it is that the dirty hands make the clean. To these works we are indebted for the whitest sugar that we consume in our coffee, tea and confectionery, and our wives, daughters and sweethearts are also indebted to them for their "bonnie blue ribbands."

Bones, cuttings and refuse meat and parings from hides are sent here from all parts of Ontario; teams are constantly going and coming. The stench did not appear to act injuriously on the health of Mr. Lamb, as he appears about as healthy as any man in Toronto.

The sinews and skins are made into glue; the hoofs are made into Prussian blue; the fat is used for soap grease, and the hardest bones are picked out, burned to a particular stage, and then in a black, lumpy state are sold to sugar refiners to cleanse the brown sugar and turn it out white. Some of the bones are burned and make lamp-black and blacking to polish our boots. The horns are cleaned and sold to comb and button manufacturers. Many of the fancy imitation tortoise shells and neck ornaments are made from the hoofs.

Now for our share of the products. The soft bones are crushed and ground by powerful machinery, and sold to farmers and gardeners to increase the fertility of the soil and produce our nicest fruits, vegetables and cereals of the best

quality. A farmer named Hill, living near Norway, about five miles from Toronto, has made a good sum by the use of Lamb's superphosphate and bone-dust. He raises large crops of potatoes and produces them of a good size, while other farmers have only small scrubs of things about the size of marbles. He purchases a large quantity of this manure every year, and is filling his pockets by its use. There are but few of our farmers who know the real value of it. It is found by many to be cheaper than hauling manure from the barn. It must come largely into use in Canada.

When we were leaving the grounds we counted twenty-three cats by the side of the ravine, the largest number we had ever seen together. They appeared as happy and contented as they could be. We expressed our surprise at such a sight and asked Mr. Lamb what he fed them on. He said: "We never feed them; we have about a hundred here; they live on rats and cannot kill them all."

It appears rather strange that superphosphates and farm manures should be shipped out of our country to foreign ports; but nevertheless this is a fact. We have heard of one American planter who expends \$10,000 annually in artificial manures. The superphosphate is made by dissolving the bones with sulphuric acid.

## THE BYRES.

This is the name under which the large cattle stables are known in which the refuse of the grain is fed from the distillery of Gooderham & Worts, Toronto. These sheds are situated near the Don bridge, on the edge of the large marsh on the borders of the Toronto Bay. The Byres contain over two thousand five hundred head of fattening cattle. The slop is conducted in pipes from the distillery, about a quarter of a mile from the stabling. The cattle are fed at regular intervals. A slide is raised, the slop runs along the troughs, and the cattle soon fill themselves and lay down again. A small quantity of hay is fed daily. Should any animal refuse its food through sickness, or not appear to be thriving, our informant said they gave it a feed of the Devonshire Cattle Food; sometimes they feed in one stable 100 lbs. of this food in a day, and find it amply repays them and that the cattle average 50 lbs. more a head by using this mixture than feeding without it.

They are put in the Byres or stables in October, and are turned out in April. The price paid to Gooderham & Worts is \$13 per head for the use of the stables and the slop; they have all the slop they require; sometimes there is too much, and then it is run into the lake or bay. The stock fed is principally three or four year old steers; there are some large oxen. In one stable there were two hundred bulls feeding, most of which were good looking animals. The cattle, when fat, will be shipped to England.

The questions that suggested themselves to us were these: Can this slop-fed beef be as good as beef fed by farmers? Can this beef be distinguished by butchers? Should this beef be sold so as to represent Canadian beef? If so, the feeders of good beef and farmers must be the losers. Surely one is worth more than the other. It would be better that all the slops were run into the lake than that a bad name be given our beef. Should not these cattle be branded and sold as slop-fed beasts?

## Land Drainage.

Draining is one of the farm works that is brought before the owners of the land every season of the year, though it is more especially suitable to the fall and autumn, and whenever the standing water indicates the places most in need of draining and the fall for carrying it off.

Heavy tenacious lands are more than any others

in need of being drained. Without draining they cannot be profitably tilled and cropped. They are cold, and hard to work; they are always late in condition for spring culture and late in maturing their crops. In the most favorable season the tiller of such a soil is seldom or never repaid for his labour till these adverse circumstances be removed, and this can only be done by thorough draining. In such soil drainage has been well said to be the foundation of farming. And when drained this heavy soil has its peculiar advantages. It yields a greater produce of wheat, and of a better quality, weighing more pounds to the bushel than lighter soils.

When water is stagnant on the land or in the soil, instead of percolating through it, plants will not extend their rootlets into the cold hard clay, and must obtain their food from a shallow surface soil beneath this is so impervious to air and heat, the necessary aids to germination and continued growth, that a light hungry crop is sure to be the result.

The cost of under draining is a very important consideration. It is impossible to state any definite amount, as the expense varies with various circumstances, as the quality of the ground through which the drains are to be cut, the depth that it may be necessary to cut them, and their distance apart. So much is the expense of draining dependent on these various circumstances, that they differ not less than one hundred per cent., the lowest from the highest scale of charges.

In no other country has the science of draining been more thoroughly studied and reduced to practice than in Great Britain. A very large sum was appropriated by the Imperial Legislature, as a fund for loans, to be lent to landed proprietors for the purpose of underdraining. The drainage under that act has been more thorough than any yet carried out in America, and at probably a greater cost, though the wages in England are lower. The cost there per acre has been from \$20 to nearly \$45, the labourers earning 75 cents per day at draining. It has been said that a fair figure for underdraining ordinary land in Canada would be about \$10 to \$12 per acre. It may in some cases be enough, at least for temporary purposes, to expend in draining \$10 to \$12 per acre over the whole farm, some fields needing comparatively little draining; so that a sum of \$1,000 or \$1,200 would pay for all the draining immediately necessary on a one hundred acre farm; but land needing it cannot be thoroughly underdrained under \$25 per acre, and some, for a much higher figure. We speak from experience, and our observations are confirmed by the experience of many practical men. In the *Country Gentleman*, of the 21st instant, W. L. Chamberlain, relating his experience in draining on his farm, states the cost to be \$25 per acre. Where circumstances are favorable this amount may suffice, but in such land as most needs draining, where soil is very stiff and heavy the drains must not be too far apart, and by this, and the greater depth of the drains where necessary, the expense of underdraining is greatly increased. A farmer cannot invest his money better than in draining, if his farm needs it. The increased produce of his crops, will, in a very few years, repay him what he has expended.

#### Parsnips as a Field Crop.

The uncertainty that attends the growth of any root crop makes it the more necessary that we do not limit ourselves to any one or two varieties. The improvement in agriculture in England within the last half century has been brought about in a great measure by the introduction of the turnip and turnip rotation into the farming of the country. But the turnip crop has become very uncertain. The turnip fly and the frequent failures of

the germination of seed have caused many great disappointments. The turnip is still sown for winter feeding, but not to such an extent as in times past. The mangold now disputes the place of pre-eminence with the turnip; kohlrabi is also extensively grown, and the carrot and parsnip are coming into more general use. It is good policy to grow more than one variety, to be prepared for a possible failure in that one. The value of parsnips for stock feeding has been underestimated, though its value as a garden vegetable has long been well known. The culture of it has for some time been extending in France and Belgium, and it has been coming more into favor with English farmers. There is no root superior to the parsnip for feeding milch cows; fed on it they give a very large yield of milk having a rich color, and affording butter of excellent quality. Steers and hogs are fattened on parsnips in a very short time, and there are no other roots that produce meat of superior flavor to that fed on parsnips.

The best soil for parsnips is a rich, strong loam. It should be well manured and plowed deep towards the end of autumn, and remain during the winter in the rough ridges to receive all the mellowing influences of the frost and snow. As early in spring as the ground is dry enough for working it should be rolled and then drilled in drills fifteen to eighteen inches apart. Five or six pounds of seed per acre is required. The hollow-crowned Jersey is the best variety grown. We have cultivated it for several years, and we have found no other variety equal to it in quality or approaching it in yield. The seed is slow of germination, taking about six weeks for the young plants to make a good appearance. Hoe and keep free from weeds, as any other crop; thin from six to eight inches; they require more space than carrots.

The yield of parsnips is seldom so heavy as that of the Belgian carrot, the turnip or mangold, about ten tons per acre being a fair crop; but its superior quality for feeding, especially for milch cows, should cause its culture to be more extensive than it is in this country. To this is to be added the diminution of the risk of a failure in other root crops.

The leaves, when the parsnips are fully grown and matured, may be fed to cattle, always taking care that they are sufficiently wilted by cutting them off the roots twenty-four hours before being used. The roots, when taken up, may be safely stored during the winter for spring use in pits, or, if convenient, in a root house; or they may be left in the ground throughout the winter, and dug out as required. Frost, so far from injuring them, seems to improve them for feeding. This too is a point in their favor.

Though the preparation of the land in the autumn, as above stated, is to be preferred, still large crops may be grown by culture in the spring only. Autumn or fall manuring for root crops in general has great advantages. The soil can be brought into better tilth, made more mellow and friable and with less labor than if the plowing be deferred till spring; and it is a forwarding of the spring work, which is a very important matter. However, when suitable soil is available and can be brought into good state of tilth in spring, we may have quite as good a yield as if the ground had been autumn fallowed.

We have a report from an English farmer of his profits from one acre of turnips fed to hogs and milch cows. He states that he realized a profit of over £21. This was but one instance. It shows what may be done, and we can have no judgment on a single instance. He says: "I must observe that giving my dairy cows the parsnips answered my purpose greatly by increasing their milk and making the butter much richer than turnips or carrots which I had given them long before. The manner in which I gave the parsnips was by cutting them in pieces."

#### A Subject for the Consideration of Canadian Stock-Feeders.

Can Canadian farmers realize a profit from feeding cattle for the British markets? This is a very important query, and worthy our serious consideration. Beef, to bring in England prices remunerative to the feeder and shipper, must be of first quality, and when it is so it commands high prices; but feeders must bear in mind that good prices are only to be had for really prime beef. American store cattle are now being shipped to the continent of Europe, to be fed there for the English market. A company of German farmers have sent agents to America to inspect cattle and inquire into the particulars of the trade in American live stock. Believing the state of the trade to be favorable to buyers, they have sent a dispatch to Europe advising that one of the steamers of the Tanning and London S. S. Company be fitted up and sent to New York, to await there the arrival of a cargo of young steers.

The company are extensively engaged in the supplying of fat-cattle to the English market. They are wealthy farmers of Schleswig-Holstein, and they own a number of steamers which have been used for carrying live stock to England; and they now are about importing from America store cattle, such as they expect will repay them the expenses attending the importation, besides a profit for their feeding. The stock they require are well bred young steers, averaging 1,100 to 1,200 lbs., and such as will readily take on flesh, so as to reimburse the feeders for expenses and risks incurred. The pioneer steamship of the trade is to be fitted up especially for the easy transportation of the cattle, and its capacity is such as to enable it to carry from four hundred to four hundred and fifty each trip, together with the necessary provender.

Now, if the buying store cattle in America, the transporting them to Germany, and the feeding them there for the English market, will bring a profit sufficient to remunerate those engaged in the enterprise, we may reasonably expect a profit to the feeders for fattening cattle in Canada for the same market. The food for fattening can be grown at as little cost here as in the European continent, and the same market is as free to us as it is to them. The objection of the distance of transportation holds equally strong against German as against Canadian feeders. We have to ship our fat cattle across the Atlantic to market. They are about shipping store cattle across the Atlantic to be fed in Germany and then shipped to England.

The great demand in England for imported meat may be conceived from the fact that not less than sixty steamers owned in Germany find employment in the carrying of live stock to British ports. This is but one item, though a very important one, of this ever increasing trade. The Americans are expecting that this demand for store cattle is but the beginning of a large trade; and look forward to an active demand for their live stock. We would not advise our farmers to dispose of store cattle, but rather to aid in the supply of British markets with prime beef and mutton; and we would again impress upon them the necessity of feeding high-bred stock and feeding well, if they are to compete for the high prices paid for choice meat in the markets of Great Britain.

#### Work for the Professors of Agricultural Colleges.

In an article on the Clawson Wheat, the examination of wheats by Dr. Kedzie, of the Michigan Agricultural College urges the Board of Agriculture to undertake and carry out such investigations as that of Dr. Kedzie, and no longer confine their labours to paltry trials and experiments already made known by the labours of English,

French and German investigators—to compare a variety of wheat, its climatic adaptation, its powers of productions, its fitness for development as a variety that may produce a larger head, more grains to the head, more heads from the seed.

He says:—"Then let it be tried to what extent the varieties of wheat we now have may be improved after chance new varieties that are to be so rich in every quality that no attention need be paid to the soil or its adaptation to the growth of large crops of wheat. Improvement in breeding, in producing food, in developing the quantity of the amount, has doubled the production of meats of all kinds. Does not the success in this department point out to us that by the same rules applied to vegetable life we may double the product of bread. If we would continue to breed the wheats we have already on hand, to develop them in each generation to higher standard by selection, by cultivation, by feeding and fitting the soil to feed them, we have not the least doubt but that a

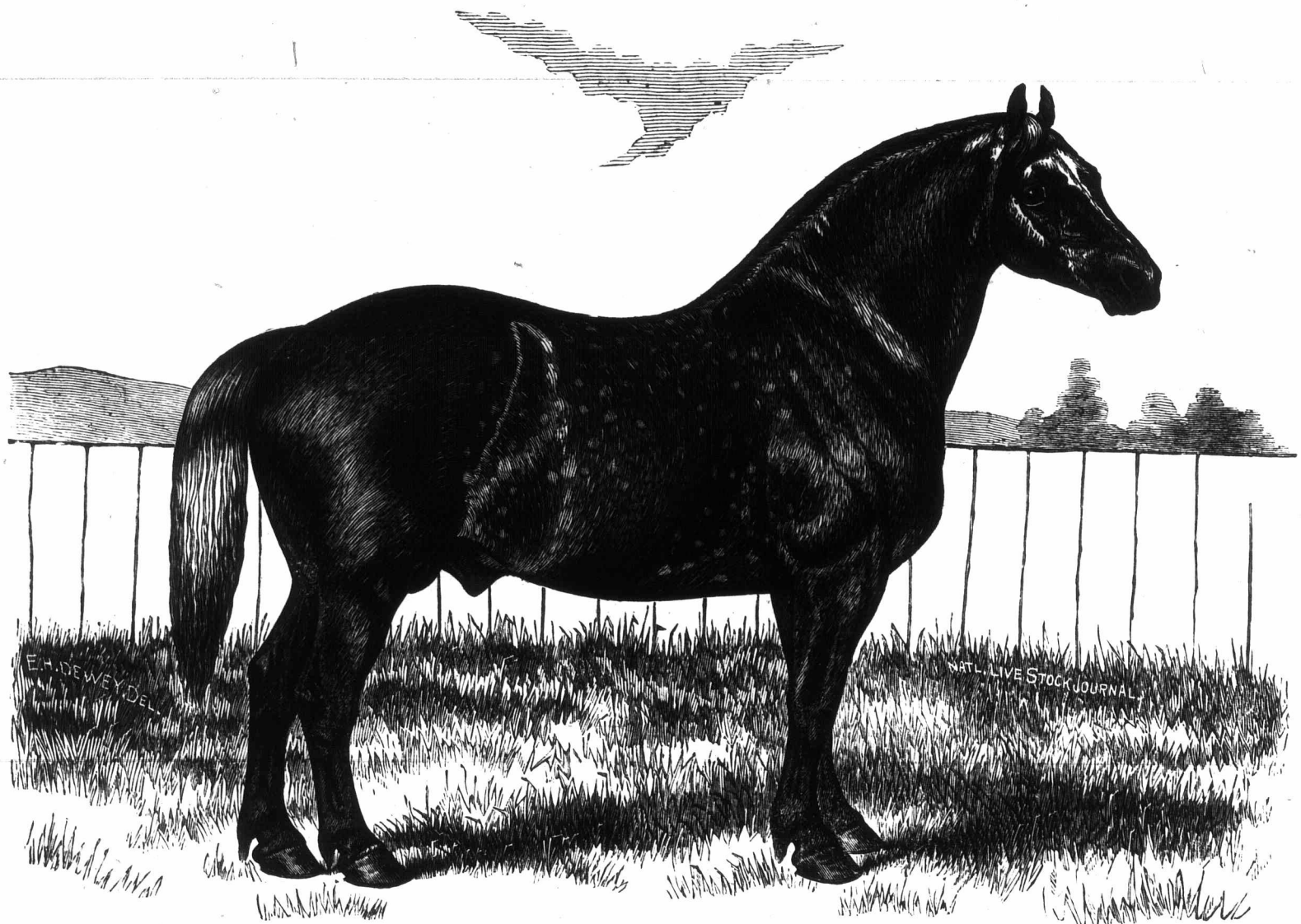
in a pumpkin—vine are played out with us. Give us work from the College such as Dr. Kedzie has done. Give us an acre of wheat producing 75 or 80 bushels per acre. Begin and develop the seed that will grow the heads, that will hold the grains that will weigh in the scale, that will grind in the mill into flour that will stand all tests. While developing the seed it will be easy to learn that the soil must have to possess to process to produce such a crop, and how it must be prepared. Lay the foundation of an improvement in the seed of the wheat plant that will be based on the experience of scientific treatment already on record.

#### The Percheron Horse.

This class of horses derive their name from Perche, the name of a village or county in Normandy, in France. Lord Dufferin, with his usual generosity and good judgment, has given a special prize to this class of horses. This shows his real

particularly valuable for its astonishing precocity, producing more by its work at two years old than the cost of its feed and keep.

The division of the sexes in Perche is different from most countries where horses are raised. One section contains the mares and produces the colts, while another section buys and raises them. No matter what may be the class to which she belongs, light or heavy, or partaking of both, the mare is expected to breed every year. If barren, she is sold. This fault continuing, she passes into public use. During her gestation she works constantly. A few days' rest before and after foaling is the only time lost. The remainder of her work pays abundantly for keeping and the interest on her cost. At the age of five or six months the colt is abruptly weaned and sold. Led into the interior, upon the fertile meadows, it remains one year unproductive. In winter it is fed on hay in the stable, and during the fine season turned into the field to graze. To sum up, it is rather poorly nourished on bran, grass and hay. The reason is, it is yet unproductive to its master, and it feels the effect. Wait a



PERCHERON HORSE, GREY HAWK—THE PROPERTY OF SNYDER BROS., GERMAN MILLS, NEAR BERLIN, ONT.

bushel of seed properly sown on an acre of land fitted for it, would produce eighty bushels to the acre just as easy as forty bushels are produced now from a bushel and a half. This is work for the Board to take hold of and provide for. Such work belongs to the department of botany as well as to that of agriculture; it needs skill, it needs patience and minute powers of observation, it needs also the foresight to determine in which direction to move, and that ability to fit our means to the requirements we seek, which is only to be obtained from those who are intimate with the whole subject. To develop the wheat plant to its utmost capacity is a task that will pay better than all the collections and all the experiments on fruit trees and vegetable varieties that have been carried on at the College, since its initiation. We have already laid down on the books all that is required to be known of the effects of manure, of fertilizers, of manipulations. Watching over *petite* plats of this or that kind of produce with a dusting of plaster in one corner and a shake-down of salt in another, and a repetition of such affairs as testing how much lifting power there is

interest in our country. We presume he has deemed this class of horses the most useful for our country. Many of our stockmen have as yet paid no attention to the breeding of this valuable class. This will give an impetus to turn their attention to the subject, and, no doubt, in a few years we shall have breeding from this class extended over our country, and that they will prove more profitable than the breeding of those horses has been.

It is generally fifteen to sixteen, and occasionally seventeen, hands high; is of a sanguine temperament, mixed in variable proportions with the muscolymphatic; his color is almost always gray, and is among the characteristic features that first strike the eye. According to their predominance these temperaments constitute several varieties.

Its movements are quick, spirited and light; it exhibits great endurance, both when hard worked and when forced for a long time to maintain any of its natural gaits, and it possesses the inestimable quality of moving fast with heavy loads, and it is

little. Its hardest time has gone by, and work will soften its lot. It reaches, in this manner, the age of fifteen to eighteen months. At this age it is put to work. Naturally docile, and in the hands of a man always patient and kind, its training is generally easy. Assigned to farm labor, it plows or draws a wagon. Harnessed with four or five colts of its own age; together they pull what would be an easy load for two good horses. Put before oxen, or joined to three of its companions, it plows, and is never overworked. Now it is better fed, and taken a great deal better care of. Its *moral* improves, and its master seems to delight in contemplating the progress and development of its qualities. Thus, in travelling through Perche, one involuntarily stops in the middle of the fields to see it work, never tired of admiring the vigor it displays, and the gentleness with which it is treated. At the age of three, the Beauce farmer buys it to work his soft light soil. For him it must be preserved intact, its development uninjured, nay, encouraged.

It has thus been worked one year, abundantly fed, but fed little or no grain. Doing enough light

work to pay its keeping, the master has received enough besides its manure to pay a heavy interest on its cost, as we will presently see. This primitive work, which would have been injurious under a careless management, is, on the contrary, beneficial when it is in the hands of a good master. This is so much the general case that the contrary is the exception. The animal grows and becomes better developed in size and strength.

Now, as before observed, the Beauce farmer comes to buy. He lives in the country of proverbial richness. The work there is abundant, but the nature of the soil renders it extremely easy. The fields, very much divided and distant from one another, make a rapid gait indispensable.

At three years old the Percheron dealer sells his horse, but only to replace him by the purchase of other colts, and the profit has been, in fact, sufficiently large to warrant him in this. He has had against him only the chances of mortality. This is small, the race being tough and hardy. Accidents sometimes occur, and are more to be dreaded. Living in the open air, in the company of other animals, the young colt is a little exposed to the influences of chance. But the fields are enclosed, the master's eye upon it, and, to sum up all, the large profits cover everything. Reaching Beauce at three years old, he is subject to hard work. The work is easy enough, but there is much of it. He must be quick. The breadth of land is very extensive, and the work must be done. Sowing and harvesting. These two words sum up the agricultural work of the country; or, in other words, plowing and hauling. As regards the horse, all must be done quickly and promptly. But if he be hard worked, on the other hand, nothing is denied him. He eats as much grain and hay as he pleases. What difference does this make to the farmer? Do not his labor and his manure pay for his nourishment? And, moreover, how act otherwise? As we have seen, nothing can supply his place. Necessity has no law. He lives in this way a year, with abundant food. Sometimes he succumbs. The mortality is quite large in this region, but the stock which remains after such training offers many guarantees to the dealer who buys it to transfer, if they suit, to the express and omnibus companies, or to the contractors, wagoners, or builders of Paris.

At five he is bought by the horse dealer at the annual horse fairs. There he is delivered, the farmer leading his horse upon the ground. Before being dedicated to his final use, he has passed through four hands, and all of these have shared the risk of his rearing. The most serious has been for the last owner, but he was also the wealthiest, and to him, also, he has been the most useful.

Thus we see a breed of the highest economical and practical utility, the colts of which are raised at a moderate cost, and their work pays for their keeping. Well fed, exercised from his earliest age, the Percheron has always been the best rapid draft horse in the world, and will continue to improve unless the admirable qualities he possesses lead to his future degeneration. The success of the Percheron race has been very great. All departments and all nations wish to acclimate it. The prices of these stallions have increased so rapidly in the past few years that they have doubled and trebled, and accordingly the possessors sell them. The administrative authorities attempted to hinder the emigration. They formed a stud stable at Bonval and attempted a regular and continuous improvement. Prizes were offered at Mortagne, Nogent Le Rotrou, Illiers and Vendome. But an end was arrived at contrary from what was expected or desired. The prizes served as signs to the foreign buyers. Perche was visited to buy first-class horses. What surer guarantee than the prize? And how can the breeders resist the almost fabulous prices offered for their stallions? They can not, and thus disappear the flower of their stallions and brood mares.

**The Month.**

The past month, we may add the past winter, has been unprecedentedly mild. We do not remember of our having so little snow or cold weather in March or during the past winter. Our exchange papers have been teeming with notices of foolhardy persons that have sown grain in February or the first of March. If such persons would report results of grain sown in season and out of season, they might do some good in the world; but the mere reporting of shearing sheep in February, planting potatoes, or having premature growth, or double-headed lambs is of no value, profitable re-

sults, or what this journal wishes to record. We believe in sowing early, but not out of season. Onions, carrots and lettuce cannot be sown too early, to fact they may be sown in the autumn for early crops. A late spring is generally the surest for a profitable harvest. Premature growth is apt to get a check from which it will never recover, or late frost may destroy a crop. The present season will tempt many to sow too early. Do not be led astray because Mr. S. has sown a month ago. Sow and plant at a proper time of the year. More profitable results will be had by holding your corn, beans, &c., until the Queen's Birthday, than having such plants growing finely in the beginning of April; in fact, some farmers whom we know make a point of sowing some of their flower seeds from the first to the fifth of June. They say they have no complaints to make of bad seeds, and have flowers in the autumn when others that attempted to get ahead of them have none.

The winter wheat is looking unusually well. Spring work is far advanced, as farmers could plow later and earlier than usual. We hope all our readers that have orchards have cut all the twigs out of them that have tent caterpillars' eggs deposited in them. If not, do so at once before they all spread. Perhaps this hint may be too late for some localities.

While advising caution in sowing prematurely, early sown crops are generally better than those sown late.

War prospects have excited the markets. Should war be declared it will increase the price of stock and products.

**Petunia Fimbriata, fl. pl.**

On page 73 will be found a cut of this beautiful annual, which has been improved wonderfully since its first introductions, so that now we have many varieties both double and single. A well-filled circular bed, six feet in diameter, will display, without a day's intermission, thousands of flowers. The double varieties bear no seed; therefore, to produce double flowers single ones must be fertilized with the pollen of double ones, which is a slow and expensive process, and the seed is consequently high in proportion.

The seed being very fine, care should be taken not to cover it too deep in sowing, or the plants may never appear.

The above variety is described by the raiser in the following terms:—

"Among the seedlings might have been seen flowers rivalling in doubleness those of the double garden poppies, and emulating in color the richness and delicacy of tints of the finest carnations."

The seed sown in spring will produce flowering plants in June that will continue to bloom abundantly till frost. Seed may be sown in a cold frame or hot-bed, or in the open ground, set about 18 inches apart.

While admitting the double Petunia to be a splendid novelty, we must say a few words for a few more choice varieties which, if once given a trial, would doubly repay the amateur for his expense and labor. We often see advertised what we call common annuals at a low price, and which look very pretty to the amateur florist, but as the love, knowledge and practical experience increase, so does the love for the more choice varieties increase. Our gardeners and florists invariably purchase the choicest of seeds. Why do not our amateurs likewise? By so doing, in a few years the so-called common annual flower seeds will be out of existence.

For the benefit of those who are unacquainted with the selections of flower seeds we give space below for a few of the more choice varieties of flowers:—

Abronia umbellata, Amaranthus candatus, Amar-

anthussalicifolius, Aster truffants—peony flowered; Balsam—Camelia flowered; Candytuft—carnation; Diantuus—several varieties; Mignonette—new prize; Nasturtium—dwarf; Pansy—choicest mixed; Petunia—single and double sorts; Phlox Drummondii, Portulacca—double and single; Sanvitalia procumbens, Ten Week Stocks, Verbena and Zinnia.

**A Rival for Wheat.**

In a circular recently issued by a firm in Massachusetts the cultivation of broom corn as a profitable crop and a good substitute for wheat as a material for bread is spoken of in very high terms. If all be true that is said in its favor, it must come into general use as one in a series of a rotation of field crops. As the State of Massachusetts differs so little in soil from Canada, its cultivation here might be found as certain and profitable as there. It might, at any rate, get a trial in different parts of the country, though on a small scale, as an experiment. It has as yet been raised only for the brush; and it is said to pay, for the brush, about \$30 per acre, viz.: weight per acre of brush, 500 to 800 pounds—the price averaging \$100 to \$200 per ton.

It is said that "the yield of flour is about half in place of two-thirds from wheat. The process of manufacture is to first crack the seed, then scour and fan, and then grind half and half with wheat, bolting the same as wheat flour. The bread, cake, &c., made from the flour is delicate, inviting and delicious, and very easily digested. The flour cannot be told from wheat flour, and, with proper bolting, yields a clear, beautiful, white wheat."

It may be all that it is claimed, or it may be worth very little more than the value of the husks. This can only be known from experiments.

The Board of Agriculture and Arts held its first meeting this year in Ottawa on the 21st of March. Thos. Stock, Esq., of Walkerton, was elected as President. The Treasurer read the following report, which was adopted:—

Receipts.	Amount.
Balance, 1st Jan'y, 1877.	\$ 3,642 29
Received on acct. of rents.	1,576 55
Prize account.	2,085 85
Herd book.	130 50
Interest.	285 22
Prince of Wales' donation.	800 00
Registration fees.	111 00
Legislative grant.	10,000 00
Exhibition receipts.	19,757 55
<b>Total.</b>	<b>\$38,425 96</b>
Expenditure.	Amount.
Paid in prizes.	\$14,943 50
Miscellaneous.	1,498 14
Salaries.	3,020 73
Postage.	235 50
Council expenses.	1,349 80
Plowing matches.	1,110 80
Exhibition expenses.	8,438 17
Printing.	1,247 42
Veterinary, library and museum.	785 20
Veterinary College.	605 00
Stationery.	107 50
<b>Total.</b>	<b>\$38,371 81</b>
By Balance.	5,054 15
<b>Total.</b>	<b>\$38,425 96</b>

More than five million cans of corn are now packed in Maine annually and sold in every part of the world, yielding a business to the State of about \$1,150,000, and giving a profitable employment to from 8,000 to 10,000 people during the packing season. This corn is grown, not in the Southern or Middle States, but in a State having a climate less favorable for its cultivation than a large part of Canada.

**A STRONG COMPETITION.**—A contract was let the past month to construct an iron bridge over the River Thames, between the counties of Middlesex and Elgin. Ten companies tendered for it, nearly all from across the lines. The Hamilton Tool Company were the successful contractors.

A writer in *Moore's Rural* has never known buttermilk, "poured on during warm days, to fail to cure a pig of 'black scurf,' even when the disease was of so long duration that the animal's back was raw with sores."

## Dairy.

## Salt for the Dairy.

BY L. B. ARNOLD, SECRETARY OF THE AMERICAN DAIRYMEN'S ASSOCIATION.

The very sensitive nature of dairy products renders them peculiarly susceptible to the influence of foreign matter.

Milk and its products—butter and cheese—are such complex and highly organized bodies that the feeblest chemical agencies are sufficient to change the relations of its constituent particles and alter their condition and qualities, and hence their flavor and preservation, and hence, also, their market value. The fats in milk are, in particular, so sensitive in regard to foreign impressions as to feel the most delicate influences. Every change in humidity, temperature and purity of the air, a whiff from a pipe or cigar, or the burning of a kerosene lamp in the milk room, the earthy smell of a cellar, the exhalations from aromatic or decaying vegetables, the slightest contamination of filth of any kind, the gentle jar of distant thunder or the induced electricity of a storm-laden cloud—each makes its impression upon the milk, which shows in the butter made from it.

Cheese is scarcely less susceptible than butter. Every variation in the food, drink or air used by the milk-giving cow, every varying condition, physical or mental, such as health or disease, exercise or repose, grief, fear and solicitude, or undisturbed quiet, is felt by the cheese made from the milk. So with every little change in temperature and manipulation in manufacturing. It is almost impossible for two cheese-makers to make exactly the same product, though they have milk alike to start with, so much do the little differences in working effect the resulting cheese.

It is not strange, then, in view of the extreme sensitiveness of dairy products, that the salt with which they are seasoned and preserved should be expected to modify them by its variations in condition and purity. The degree of fineness should be suited to the purpose for which it is to be used. For butter a fine grain is essential. It is important that butter which is in any degree defectively made (there is very little which is not) should have salt strike through it at once. Delay in this respect means change, and change means injury to the butter. Salt strikes through butter slowly, being only taken up by its affinity for the water in the composition of the butter. Its more even distribution and rapid solution and absorption are promoted by its being finely pulverized.

For cheese great fineness is not essential. Cheese curd takes up salt very readily, owing to the large amount of water in its composition. Green cheese as it comes from the press is generally fully one-third water, and often more. Salt, therefore, so easily penetrates a green cheese that, if it is not very thick, it will soon be thoroughly seasoned by rubbing salt on the outside only. There is even an advantage in having salt rather coarse for salting curd. More less whey is always mingled with the curd at the time of applying salt, and if the salt is very fine more of it will be dissolved and carried off with the whey, which escapes when it is put to press.

The most important question in regard to salt for the dairy is its purity. All the salt of commerce contains more or less foreign matter, and according to the quantity and quality of that foreign matter are butter and cheese affected by its use.

The largest impurity in Canadian salt (and in most others) is sulphate of lime (land plaster), of which it contains about one and a half pounds in a hundred. In butter this does little injury. It is a neutral salt and so sparingly soluble as to require about four hundred times its own weight of water

to effect its solution. The small amount in butter—about ten per cent.—is chiefly taken up by the salt, and there is nothing left for the solution of the plaster, and it remains in the form of a fine solid powder, incapable of imparting flavor or other effect. In cheese it is different. Curd contains water enough to dissolve it, and having become a liquid it is believed to do injury to the flavor and curing of the cheese.

Another common foreign element in salt is chloride of lime or bleaching powder. It has a sharpe acrid taste, and is notably destructive to color.

It is a more powerful antiseptic than common salt, and hence is supposed by some chemists to be a better preservative of butter than salt. Its effect upon butter is not very great, but it is believed, on the whole, to be deleterious. Its action upon cheese is very objectionable. Now that it has become known that the action of the runnet used to coagulate the milk is an essential agent in the conversion of curd into cheese (curing), it is important to avoid everything that injures that agent. Chloride of calcium is very destructive to runnet and the small amount taken into a cheese with the salt is sufficient to so injure it as to retard the curing and make the cheese hard and insipid. In a test made last summer, under Mr. Ballantyne, in seasoning curd from the same vat, a part of it with Goderich and a part with Liverpool salt, the part salted with the Goderich salt was decidedly inferior, the legitimate result of the chloride of calcium in the Goderich salt.

Chloride of calcium is a powerful deliquescent, and absorbs water from the air so vigorously as to soon become moist, or even wet, by exposure to the atmosphere. It is chiefly to the pressure of this substance that some salt will be alternately wet and dry in rainy and fair weather. No salt which drops, or becomes moist and dry with the changes of the weather, is fit to use in the dairy.

Another leading impurity in salt is chloride of magnesium. When separated it is a dry white powder, soluble in water and having a bitter taste, which it imparts to the butter and cheese when present even in very small quantities. It alters the quality as well as the flavor of the butter, and is to be avoided if possible. Though less injurious to cheese than to butter, it is decidedly objectionable, injuring the curing as well as the flavor, and making it every way undesirable.

Two other substances, sulphate of magnesium, or Epsom salts, and sulphate of soda, or Glauber's salt, are often found in common salt. Each of these cathartic medicines imparts its peculiar flavor to butter or cheese, but in so feeble a degree as to be hardly considered objectionable.

It is very desirable for every country to patronize and encourage home industry in preference to foreign, and it would be a pleasure to advise Canadian dairymen to use Canadian salt if it were consistent to do so. But it is not discreet to prop up one industry to inflict a greater injury on another, and Canadian dairymen are therefore advised to get the purest salt they can find, even if they have to go abroad for it.

Of the salt in common use seen last winter in Ingersoll and London, and said to be Goderich, all was damp, and some was dripping, and distinctly flavored with the bitter taste of the chloride of magnesium. No such salt is fit to use in dairy products. Whether all the Goderich salt is thus faulty I do not know. I only speak of what I saw, which appeared more like the Saginaw or Ohio salt than the fine product which the Goderich brine is capable of producing. That as good salt may be made from the brines on the Maitland as the best foreign article the following analysis of Goderich, Liverpool and Syracuse salt, made at the dates given, assure us:—

	1868.	1875.	1875.
	Goderich.	Ashton.	Onondaga
Water.....	1.5000	0.7880	0.6280
Insoluble Matter.....		0.6565	0.0264
Sulphate of Lime.....	1.4306	1.2272	0.7217
Sulphate of Magnesia.....		0.0769	
Chloride of Calcium.....	0.0872		0.0473
Chloride of Magnesium.....	0.0313	0.0591	0.0473
Sulphate of Soda.....	97.0300	97.7508	98.5242
Chloride of Sodium.....			
	100.000	99.9674	99.9822

With the same degree of firmness these three samples are all sufficiently pure and equally valuable for dairy use. If the Goderich salt is not now as good as the foreign brands, or as good as the above analysis indicates, it is because the manufacturers have grown careless in their work. It is true that the brine contains considerable quantities of the objectionable deliquescent chlorides, but they are so easily wiped out by the use of bicarbonate of soda that there is no excuse for the appearance of anything more than a mere trace in the finished product.

## Grade Cows for the Dairy.

Feed on a large scale if you would improve and maintain the fertility of the farm. Feed good stock if you would be paid for your feeding. Feed grade cows for the dairy, that your dairying may be profitable, and that when you sell your cows that have dried up you may feed them with profit as beehives. The *Factory and Farm* on this subject says:—

The introduction of thoroughbred stock of all kinds has been conducive of incalculable benefit to the farmer and stock breeder. There are still, however, many farmers who do not realize the great benefit to be derived from the introduction of fresh and high-class blood into their flocks and herds, and who are ready and willing to speak against thoroughbreds, as a class, as being fit only for the more wealthy of the farming community. Yet, how strangely they will act against their own assertions, for when their favorite cows are in season they hunt up the very best animal to breed to, and make use of him in preference to a common one, showing that they practice the opposite of that which they advocate. All of our herds and flocks of thoroughbred animals have been formed or made by the selection of those animals which have most readily responded to the best of care and food, and by following this principle for many years, and by breeding steady to one type, have established breeds which will uniformly produce offspring with the desirable characteristics of the parents.

While thoroughbred cows have, in many cases, proved themselves profitable dairy animals, and, in the hands of good and well known breeders, the calves selling at paying prices, grade cows, produced by coupling a thoroughbred bull with a good native dairy cow, have almost invariably proved themselves superior animals. Some may think it does not pay to buy and keep a thoroughbred bull, but we contend, from an extended experience, that it does. We breed, and have bred, both pure bred and grades, and know whereof we affirm; but it is especially in regard to grade cows—half-bloods—we would now write.

We have repeatedly sold half-blood cows, (Guernseys as well as Jerseys, (both of them butter breeds,) for \$100 each, with their first calves away from them only a month or two. One we sold a little over two years ago cannot be bought for \$200. She has made, by actual measurement, 14 pounds of butter in one week. One fine half-blood Guernsey heifer, which calved Feb. 1st, 1877, made, last month, July, 5½ lbs. of butter in one week, on grass alone, with cream left out to give two persons enough, at each meal, in their coffee and tea. There is a standing offer of \$100 for this heifer, but she is not for sale. We could mention many other instances, but these should be enough.

And now, readers, don't tell me it does not pay, to keep or use a thoroughbred bull, for figures are against you. It does not cost any more to raise a calf from a fine bull than from a poor one, and you are sure of an animal which is worth at least twice as much as a calf raised from a scrub bull. If you have but a few cows, either get one or two neighbors to join in with you in procuring a fine full-blood bull, or else buy one yourself and charge your neighbors from \$3 to \$5 for the use of him,

which will at least pay for the keep; and when your neighbors see what fine calves you are having by your thoroughbred bull they will soon make it a paying investment to have and keep such a bull, aside from the use you have for him in your own herd. A good bull calf, or young bull, can be bought at from \$25 to \$200, according to qualities and age.

#### Notes from the Annual Meeting of the North Iowa Butter and Cheese Association.

The President—During the past few years much attention has been paid to the improvement of pure bred, and in that direction our agriculture has received much benefit. But now the branch of industry which has brought together includes the most profitable common and grade stock in the interest of the dairy, the cows that can be used to the most advantage in the manufacture of dairy products.

Sale reports of Eastern markets are very much changed. A few years ago our produce (if any reached there) had to be sold at low prices. One year ago our winter creamery butter sold at a price more than equal to that of the best Eastern butter, and now we are five cents ahead in New York and Boston. So the products are sent forward, new markets and fresh demands are presented, nor need there be any fear about over-production. Our improvements have put us ahead, and having gained that position, we propose to keep it. We cannot make dairying a success if we make an inferior article. We can only succeed by making the best.

Mr. Tolson—The question of skim milk cheese is of great importance. Could not encourage them with their present creditable reputation in the product of the dairy, to enter upon the manufacture of skim cheese. In the estimate of a large crop the same rule will govern us, as in butter and other products, the best sells most rapidly, and consequently the manufacturers of the full cream cheese will be most likely to win. Ohio dairymen used to manufacture full cream cheese and obtain a good reputation, till they were persuaded that more money and still a good cheese could be made that would find sale. It is true that much of such cheese had been sold, and it was also true that very much had rotted down in the warehouse. If the quality of our cheese be what it ought to be, our home consumption will not only be greatly increased, but our cheese in competition with others would be more than doubled.

Mr. Woods—The importance of cheap feed is of no small importance. One hundred pounds of feed worth fifty cents fed to a good cow will produce one hundred pound of milk, worth, at present, from \$1.40 to \$1.50. Would say to those about to commence in the business: begin on a small scale, study the surest plan to secure the best returns from even a small number of cows. Go a little slow at first, keep out of debt, make good butter or cheese, and you will come out all right.

Mr. Childs—The past has shown us that the demand for the good article has increased in greater proportion than our supplies can furnish, though our little additions had a mounted to almost 12,000 lbs. per day.

Mr. Sherman—Unless we can make a superior article we can not compete with the manufacture of oleomargarine, which is now taking the rank of middle butter. Very much butter is now in Eastern cellars not good enough for competition. In value it is fast approaching cheap grease, which, as has been stated, sells in Chicago at two cents per pound.

Cheese as an animal food may with advantage be substituted for butchers' meat, at the current prices. There are good and substantial reasons for regarding cheese as a wholesome and valuable food, and is worthy of even a more liberal consumption than it now receives. English people probably consume more cheese than any other nation on the globe, or in the proportion of about ten pounds yearly to each inhabitant. In the United States the consumption is only about half that quantity.

A good well and wind pump with the automatic reservoir and water tanks are just the thing, and give to the prairie States better water than can be found in mountain streams.

A stack of good straw in the yard, and on pleasant days a run to the corn field, fill the measure of fair treatment.

#### Improvement of Grade Stock.

BY PROF. MANLEY MILES, OF LANSING, MICH.

The systematic improvement of the grade animals, which for many years must constitute the principal stock of our farms, is too generally neglected.

If the same judicious care and skillful development of useful qualities in our improved breeds had been exercised in the improvement of grades, the advantages arising from the feeding of live stock would be better appreciated.

The laws of inheritance apply alike to animals of all kinds, and the rules and experience has shown to be the only safe guide in the breeding of animals belonging to what are recognized as distinct breeds, are of equal importance in the breeding of grades.

As the male, in all cases, should be of better quality than the females with which he is coupled, and capable of impressing upon his offspring his own peculiar excellence, the selection of a pure bred male, will be acknowledged by breeders, as the first essential step in the improvement of grades.

When a cross bred, or grade male is bred to the best females of mixed blood, the offspring will not be likely to resemble either parent in their best qualities; the improved characters being obscured by the predominance of the original peculiarities of the native element of the constitution of the parents.

The most desirable characters of the improved breeds have been produced by artificial treatment, and it is impossible to retain them, without strictly limiting our selections of breeding to the best developed type of the breed, and continuing the same system of management that originally led to their development.

The tendency, under improper management, including careless selections of breeding stock, is to diminish the intensity of the desirable artificial characters, and to develop or bring into prominence the original unimproved characters of remote ancestors that have been transmitted through many generations in the latent form.

In the grade male the improved characters are necessarily unstable, and we cannot reasonably expect them to be transmitted to his offspring, in which the peculiarities of the original unimproved type will prevail.

The greatest improvement will be effected by the first cross of a pure and well-bred male upon native stock, and as the characters of the grades thus produced gradually approximate to those of the pure breed by successive crosses, the rate of improvement will constantly diminish with every successive step in the improvement of the form and feeding qualities of grade females, it therefore becomes necessary to exercise the greater care in the selection of males to secure a predominance of their characters in their offspring.

The males that are selected, from time to time, for the improvement of the flock or herd, should be of the same general type, so that progress may be made in a definite direction.

When they present wide variations in form and qualities the improved characters of the offspring by one male will be lost in the offspring of the same animals by another male, and a lack of uniformity in the flock or herd, which is decidedly objectionable, will be the result.

The highest improvement in paying qualities can only be obtained by constant and systematic efforts in the same definite direction, and any change in the standard of excellence adopted by the breeder will necessarily retard the progress of improvement.

If, in connection with the judicious selection of a

pure bred male, a careful, vigorous, weeding out of undesirable variations in the offspring is practiced, our grades will soon be unsurpassed in the high development of valuable qualities.

#### Agriculture.

##### Hessian Fly.

BY P. FISHER, BURLINGTON ONT.

In looking over some back numbers of the ADVOCATE I see an article in the Jan. number on "our insect enemies—The Hessian Fly," in which you recommend starving out "bugs" and "flies" by the farmers ceasing, for a time, to raise the productions on which they feed.

As to the "potato bug" it is comparatively a new enemy, and, perhaps *experience*, that great teacher, may find a remedy for it; but no doubt a general cessation from raising the potato would, for a time, have an effect in reducing them, but unless the ceasing to raise it, became *universal*, we might expect a return of them again in time. And so with reference to the pea bug; I have in my long experience in farming known the farmers of a location, at several different times, unitedly to cease raising peas on account of their becoming so extremely buggy, and the result in each was—the extinguishing of the bug for a time.

And now, permit me to state some of my experience in reference to the Hessian fly, and I feel the more anxious to testify what I know on this matter as I noticed that even the *Globe* last fall advised the farmers to plow up the wheat in fields effected by the "fly," and by all means, and in every way endeavour to prevent the propagation of these destructive insects, and I know one farmer in this neighborhood who acted on its advice. You state "the starving-out of the fly was carried out successfully in the Genessee Valley, some years since, by ceasing to grow the feed for them." "And that fifty years ago this pest was so destructive that no wheat could be grown within thirty miles of Philadelphia, and the only remedy seemed to be, to discontinue early fall sowing." Now, Mr. Editor, I have recollections of the failure of the wheat crop, both in the Genessee Country and in Pennsylvania State, for quite a time, but my impression is they in those localities had other pests to contend with as well. But it is in reference to the Hessian pest in Canada I wish to make a few statements by your permission. It is more than fifty years since this pest first came in this country, and its coming and leaving have been frequent, all owing, as far as I know, to early frosts. If any of these came before fall seeding, we old farmers did not dread the fly injuring the crop for the next season, and generally not for a number of seasons. But when there were a number of seasons without early frosts, we had reason to fear the coming of the Hessian Fly, but I have never known it in wheat sown even before the fall frosts, providing it did not come above ground until after the frost came. My practice has been, especially when there were signs of the fly the previous year, (for this pest like other pests usually is several years ere it becomes very destructive,) to prepare the ground and be ready for seeding the second week in September, and in seasons like the next will be, especially, let it lie until a light frost kills the very tender fly, and then I consider danger from the fly over and past. But the Hessian Fly pest is not the worst of pests, it generally leaves a half crop, true what is left is hard to gather, as it falls to the ground in every direction, but the heads generally are filled with plump wheat, whilst the midge and some other pests, sometimes take all.

**The Toronto Reaper and Mower Works.**

Our readers will remember an article that appeared in this journal last June, referring to a Canadian enterprise known as the Toronto Reaper and Mower Company.

As disinterested parties we have watched the progress of this concern for the past year, and having satisfied ourselves that it is a fixed and reliable fact, we have taken the pains to examine into their ways of manufacturing and the implements they produce. The agricultural interests of Canada are so great, particularly in Ontario, that any new and practical invention that will assist the farmer in obtaining the best results from his land and labor are worthy of consideration.

Establishing concerns of this character in Canada is sufficient proof of the future prosperity of our country, and such enterprises cannot be too highly estimated. They furnish employment to the mechanic and laborer and put in circulation the ready money that brings about an era of prosperous times.

This new company has purchased the entire property known as the Soho Foundry and Engine Works, comprising over seven acres of ground, covered with factories, foundries, lumber and coal yards and offices, devoted exclusively to the manufacture of the new Toronto Reapers and Mowers. These shops have been abundantly furnished during the past twelve months with a large number of tools, many of which are quite expensive: Bolt heading machines, trip hammers, thread cutters, shearing machines (that will cut into a piece of cold iron two inches thick with the ease of a knife passing through butter), innumerable lathes, planers, drills and milling tools, together with a new line of wood-working machinery, making altogether a factory of the highest standard, and one with but few equals on this continent.

These works are connected by private railway and telegraph lines with the various companies of the city, and already extensive preparations have been commenced to extend and enlarge their present factories and build new ones, which, when completed next year, will be the largest agricultural implement works in Canada.

The Toronto Mower, several of which we have carefully examined, is a novel piece of mechanism, and a grand achievement in mechanical science. The idea of constructing a mowing machine with only one rotating cog-wheel! Yet this has been accomplished. A one-wheeled locomotive would not have been a greater curiosity a year ago than to see this simple and effective grass cutter noiselessly, but powerfully, working its way into public favor.

Simplicity is a crown jewel, and never more so than when applied to farm machinery. "The simpler the better" is what any farmer will say who has lost much of his grass crop by spending

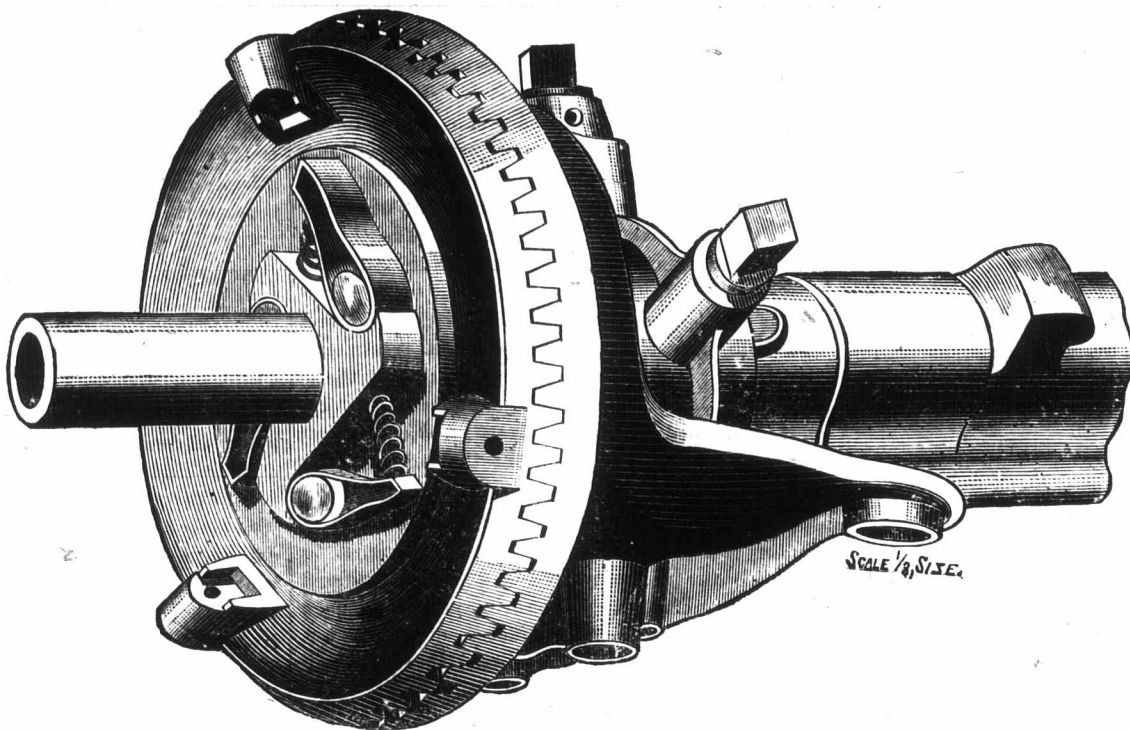
the most valuable part of his time tinkering up some old machine whose greatest claim was its complication and general unfitness for the use intended.

The picture on this page plainly illustrates this new mechanical gear (which the *American Agriculturist*, the leading farmers' magazine of the United States, so highly endorses.) There are always eleven cogs in contact, instead of three, as with other machines, thus distributing the wear over a much larger surface, and proportionately reducing the pressure, friction and wear upon each. Machines which have run five seasons show no indication of wear whatever on the cogs, and, as far as we can judge, a pair of wheels could not be worn out in a life time.

There are practically but two pieces between the axle and the knife, one being a small bevel cog-wheel secured to the axle, and the other a similar wheel made to gear into the first. This second wheel—or disc—does not rotate, however, but be-

heavy hill-sides, through gullies, over ridges, in swampy marsh, and over bog; in the shortest and down grass, whether lying to or from the machine, and in the tallest crop to be cut. The machine can be instantly adjusted while in operation to cut low, to take up lodged and very short grass, or to cut over rough ground and where it is desirable to cut the crop high; and both ends of the cutting apparatus may be carried entirely above the ground, at any distance, from an inch to one foot. Either end of the cutting apparatus may be lifted at pleasure, at any angle or position when cutting, to pass over cut grass or obstructions. The bar may be lifted to an upright position to pass a tree, remove any lodgement, or to free the guards. The machine can be instantly thrown out of gear, and the bar quickly folded for transportation, without stopping. The machine can be put into working order in a moment's time, and without the operator leaving his seat or stopping the team.

There is no pitman to come in contact with stumps and stones. The wheels are wide apart, to stride the swath and leave the grass unmolested.— The steady, uniform and powerful movement of the knife is the crowning feature of success, and the admiration of all who have ever seen this machine in operation. There are but two small cog-wheels in the machine, and they are each about the size of a dinner plate. There is no gearing in the drive-wheels. The gearing is enclosed by one small disc or rim, perfectly protecting it from dirt. All quick running gearing heretofore used on mowing machines



**New Mechanical Gear.**

(Showing 11 cogs in mesh at one time.)

ing hung on what is called a gimbol joint, like a ship's compass, it begins, on starting the machine, a succession of rapid serpentine vibrations around the face of the other wheel, much as a dinner plate or coin will act when rung down upon a table; and an arm extended from this vibrating disc down to the knife, gives it the required reciprocating motion.

There is only one rotating bearing besides the axle on the machine, and that is not a part of the movement proper, but belongs to a small fly-wheel, which only assists in giving the required perfect regularity and steadiness of motion; hence there are no boxes or bearings to wear out, or bolts—for securing them—to get loose or lost; there being none of the usual bearings and cog-wheels to cause friction, almost the entire power exerted by the horses is applied directly to actuating the knife; hence, while it is the lightest draft, it is the strongest cutting machine in use, as has been repeatedly proven in the mowing of swamp lands which had never before been mowed.

The draft is light; the machinery in operation is noiseless, and its adaptation to various kinds of work most extraordinary. The operator has the most perfect control of the machine when at work. The knife will run at any angle and in any position in which it is placed. The machine will work with equal facility over stones, stumps, among trees, on

is entirely dispensed with. One of the great features of this machine is discarding the old style of quick running gearing, and consequently dispensing with any frame work, such as was heretofore employed to carry the gearing.

Several hundred of these machines were built by this Company last season, and scattered throughout Canada, from Lake Huron to the Atlantic Coast. Their success was an emphatic one from their first introduction. The machines operated are guaranteed, and judging from the numerous letters shown us by the manufacturers from parties who had used them, they give satisfaction.

The manufacturers also assure us that their new Toronto Single Reaper, which will be brought out for the harvest of 1878, will prove as remarkable an invention as their mower, and besides, they will build a combined machine of the same pattern. We request our readers to give this new machine their careful attention, and examine its peculiar construction. A visit to these works will amply repay any farmer or mechanic.

There are numerous kinds of mowers made in Canada. Of course every agent of every kind made claims to have the best. See the Toronto Mower and compare it with others, if you have an opportunity. If not, send to Toronto and get a catalogue.



**Plaster—Some Facts About its Use.**

The value of plaster as a fertilizer is very often asked. What service will it be to the crop, if any? To what crops should it be applied? What quantity per acre should be used?—are questions of frequent occurrence.

In some instances an application of plaster has been given and no benefit to the crops have been perceived. The consequence has been those who used it have doubted if it were at any time advantageous. But any fertilizer may sometimes be inoperative. In order to be really beneficial two conditions are requisite, first, that the soil needs that fertilizer, and second that the plaster be in due time dissolved in the soil, and so made available for plant-food. Plaster is of great benefit to several crops when applied as a top-dressing. It has been found of essential service to clover, corn and wheat and others. If applied at the commencement the crop cannot, however, reap any benefit from it. It remains undissolved in the ground. It should therefore be applied early in the spring in time for the spring rains—say early in April—earlier if convenient—to growing crops. To some it must of course be applied much later. The quantity of plaster applied, varies greatly. An English writer, a high authority in agricultural matters, gives the quantity at from ten to twenty cwt., while an American writer states that one tenth that quantity is as much as the plant can absorb. If this be correct still the application of the larger so far from being a waste, may serve to improve the soil, if not permanently, at least for some succeeding crops. Canadian farmers might, we are convinced, make more liberal use of our Canadian fertilizers—plaster, phosphate and salt, and do so with profit to themselves.

We give the following about its use:—

An Indiana farmer states that he had "one hundred acres of stiff clay, which was in an exhausted state from continued cropping of wheat, exhaustive power of weeds, and by being plowed when wet during a period of twenty years. He kept it in grass, clover and wheat, adding a little manure and applying gypsum annually until a crop of thirty-five bushels of wheat to the acre was the result." He also says:—"Plastered clover, plowed under, as a green crop, is the best and cheapest preparation for wheat; and the clover roots, where plaster was used, penetrated the subsoil to a depth of three feet or more."

Another farmer writes from southern Illinois as follows:—"I find gypsum a profitable investment, and regard it as one of the best aids, in conjunction with growing clover, to restore old and worn out lands that we have. I sow a barrel of it, about three hundred pounds to the acre, as early in the spring as possible. The cost, delivered here, is about \$3 a barrel. Before beginning to use gypsum, the yield of corn was twenty-five bushels to the acre. It is now over sixty. I let my land lie in clover three years. I cut the first crop of the second year's growth for hay when in blossom, and the second crop later in the season for clover seed. The third season I pasture the field,

and break it up after harvest and sow in wheat. Each season the field receives its regular amount of gypsum in the spring."

A Wisconsin farmer states that he sowed one and a half bushels of gypsum per acre on a field as late as the 20th of May, and increased the yield fully three times what it was on an adjoining field, the circumstances being similar. Where he applied a heaping tablespoonful of gypsum to corn in the hill, the spot where it was applied could be seen in a crop of wheat which followed.

**Review and Prospect of Canadian Agriculture.**

The state of exhaustion to which large territories throughout North America have been reduced by the scourging culture of a few years has been the subject of general observation. The land of New England especially has been exhausted of those elements of fertility that had amply rewarded the labours of those who tilled the virgin soil, and parts of our own fair Dominion have been for some time falling into the same impoverished condition. There are, however, means to restore

farm from the wilderness and ample returns of corn pay him yearly for his simple labours; from the seemingly exhaustless bosom the earth gives back abundant harvests, but at length a change appears creeping slowly and gradually over the smiling landscape, the corn is first less beautiful, then less abundant at last it appears to die altogether, he forsakes therefore his long cultivated farm and hews out another from the native forests, but the same early plenty is followed by the same vexatious disasters, the axe levels its yearly prey and generation after generation proceeds in the same direction a wall of green forests before them a half desert and naked region behind. Such is the history of Colonial culture in our own speech such is the vegetable history of the march of European cultivation over the continent of America. No matter what the geological origin of the soil may be, or what is the chemical composition, the same inevitable fate overtakes it." It is interesting to look at those parts of America which lie further towards the north, the flat lands which skirt the lower St. Lawrence and which near Montreal stretches into wide plains, these were celebrated as the granary of America in the time of the French Dominion. Fertile in wheat for many years, they yielded a large surplus for exportation

now they grow less of this grain than is required for their own consumption, the oat and the potatoe have taken the place of wheat as the staples of lower Canadian culture. The wheat producing zone is yearly shifting itself more completely towards the West. The correctness of these views is afforded by the returns of the United States census of 1850, the produce of wheat in the New England States in 1840 amounted to 2,014,000 bushels and in 1850 was reduced to 1,078,000 bushels. Now mark what the increase knowledge of the chemical science has done, the improver takes the place of the exhauster and follows his footsteps on the same altered land, over forsaken tracks he spreads large application of shelly marl or strews on it thinner sowings of gypsum and as if by magic the yield of previous years is doubled or quadrupled, the wheat comes up luxuriantly again and midge, the rust, etc., all disappears from his wheat and his peaches. Though long mismanagement has in a minor sense desolated large portions of North East-

ern America a new fringe of verdant fields has already begun to follow towards the West, the fast retiring green belt of the virgin forest. Treat the soil more skilfully, give due weight to its geological origin the condition of climate by which it is affected and its chemical history with a full appreciation of the late wonderful discoveries of the phosphate mines and the whole region will in time be brought back to more than its original productivity.

**The Apiary.**

Bees require special attention at the present time, see that they have plenty of food; do not depend on the first blossoms that appear. If the weather is cold and wet, very little honey can be found, sometimes none. Continue feeding the bees until you are quite sure they can get honey. At this season you should be particular to kill all bugs and worms, that you may find about your hives.



**TORONTO MOWER**

PASSING A TREE WITHOUT STOPPING THE KNIVES OR TEAM.

the fertility of our farms. The stores of fertilizers beneath the surface of the soil are now being rapidly brought from their hiding places in the earth and applied to our lands. The following remarks on this subject, by the Hon. L. R. Church, presented to agriculturists very forcibly the past and possible future of our agricultures:—

After referring to the successful efforts attending the exportation of meat, butter &c., to England, he goes on to remark that such continuous stretches of phosphate bearing rocks and such vast and apparently inexhaustible deposits of mineral phosphate of lime will in no far distant time restore those lands in Canada, now in a measure, exhausted by unwise and unsystematic farming, and he would in confirmation give extracts from a work published in England by a well-known scientific gentleman Mr. J. F. W. Johnston, which will merit the attention of all interested in agricultural pursuits. "Man," he states, lands in a new country and fertility surrounds him, the herbage waves thick and high, and massive trees raise their proud stems off to the sky, he clears a

## Garden, Orchard and Forest.

## Seasonable Hints—April.

BY HORTUS.

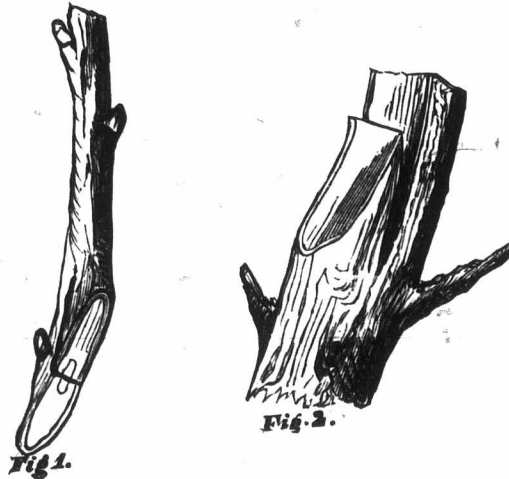
The extraordinary mildness of the weather during March will have greatly forwarded operations in the garden and orchard, and we trust it has been taken advantage of by the examining of your trees—giving them a careful pruning, cutting out all dead limbs, black knot, nests of insects, borers, &c. Scrape off the loose bark and any lice that may infest the branches.

Young trees planted last fall require two-thirds of the previous season's growth cut off if not already done. Staking is necessary to their successful growing. Crooked trees may be easily straightened by judiciously bending and tying to stakes. Raspberries and blackberries require all dead canes cut out, and those to bear this season's crop, shortened back to breast high; dig out the suckers between rows and plants and fork in a good coat of manure, which will ensure good growth and good fruit. Cut back the plants thinned out from amongst others, preparing them for sale or by adding to your plantation. Although raspberries and blackberries multiply naturally very rapidly by throwing up suckers or offshoots from the roots, new and scarce kinds can be propagated easily by taking off all roots that can be spared from plants, cutting these into pieces two inches long, and sowing in a drill in open ground, covering lightly. This should be done early. Raspberries may be planted for fruiting in shady places where nothing else would grow, under old trees, &c. Grape vines require uncovering to air and sunshine, laying them on top of soil or tying horizontally to trellises to ensure buds breaking evenly the whole length of cane.

When tying up for fruiting and to grow leave some canes on the ground for layering. Advice and directions for a simple and successful method of layering will be given in next month's issue. The most successful cultivators of the vine recommend plenty of bones or bone dust, and where the soil is deficient in lime add this in liberal quantities. The best varieties of plant for profit, combining hardiness, earliness and productiveness, are Concord, Delaware, Wiedler, Salem, Burnet and Hartford Prolific, with Clinton, for wine making. Old bushes of currants and gooseberries require thinning out and young growth shortening; also remove, with the aid of knife and spade, any suckers from below the soil. These may be trimmed and planted. Dig in plenty of manure through your rhubarb patch—divide some of the largest roots and set afresh. Asparagus beds will yield larger stalks by having a good dressing of salt and a forking in of any fertilizing material, taking care not to injure the roots while so doing. To set out a new bed prepare your soil by trenching deeply and manuring at the same time. Make beds four feet wide, and procure strong two-year-old roots, setting them six inches apart in a row, having rows about fifteen inches apart. A good system is to sow seed, thinning out afterwards, depending on manuring and good cultivation to have a good bed. Now is the time to commence grafting, which operation every orchardist should know how to do himself. Old orchards may have their vitality and fruitfulness restored by grafting judiciously. For grafting small stalks and branches tongue grafting is the most suitable. For old limbs the rind and wedge grafting is to be preferred.

In cut No. 1 we show cion prepared, and in No. 2 the stock. The union of these two parts completes the graft. Cover all with grafting wax or cloth, or any substance that will exclude the air and keep

the cion firm in position. Grafts put in last spring and found to be living, to be assisted into taking the main growth, require all or nearly all of the branches not grafted removed. Examine buds put in last summer; if alive, cut stalks back to three or four inches above bud. Tie up bud to spar left when grown sufficient, so as to prevent bud being broken or blown off by wind. Hedges, both de-



ciduous and evergreen, should be clipped into main form before growth commences. Cuttings of willows, poplars, currants, &c., should be planted as early as possible, but not till the soil is dry enough. Plant in rows a few inches apart, sinking cutting well down, leaving only a bud exposed. Also grafts of apple, pear or plum can be dibbled in like cabbages, firming the soil well around them—be sure and put them in deep. It is to be presumed that those who know how to make a graft



Fig. 3.—Arbor.

or cutting know how they should be planted, but very often their want of success depends on ignorant planting. For vegetables of all kinds the enriching of the soil with good manure is of the first importance, and added to this is the use of lime and ashes. We cannot say too much in favor of these two fertilizers, as they return to the soil in the most direct manner, whether that soil be sand or clay, the main constituents entering into the

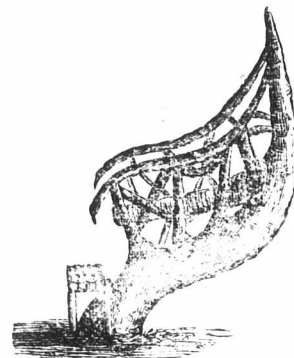


Fig. 4.—Rustic Seat.

growth of all that is grown thereon or in. Last summer was a hard season for insects, or rather for the cultivator. Everything grown in the garden and orchard seemed to have some pest praying on it, so be prepared in time. Purchase your hellebore early and at wholesale rates. The best preventative of insects is good cultivation. Around your homes make some improvement by planting ornamental trees. Old fences, stumps, &c., may be objects of great beauty by planting some climbing vine to run over same.

Noticing in an exchange how an old tree may be turned into a fine arbor, we have copied the same—Fig. 3. The pots may be sown with morning glories or a like running annual. Or an unsightly tree of no use or beauty, like Fig. 4, may be made to serve as a nice rustic chair with very little trouble and no expense. We give these examples of rustic ornamentation with the hope of inducing others to make a start. One step will lead to many others.

## Honey Locust Hedges—No. 2.

BY E. MORDEN, DRUMMONDVILLE, ONT.

The ordinary practice of many would-be hedge owners is something like this. A few furrows (very often soddy ones) are turned over, and upon this foundation the hedge plants are set and there left to make the acquaintance of such weeds as choose to accept the situation. In after years they are sometimes cut at least once or twice a year, but often not at all. That something like a hedge sometimes results is one of the remarkable facts in nature. As an unsuccessful hedge if not only a failure as a fence, but a nuisance. Some attention to details is imperative. The site of the future hedge should receive attention the summer previous to planting. A strip at least 8 feet wide should be ploughed repeatedly, and very deeply. In one of the earlier ploughings the furrows should be so harrowed as to leave a very deep dead furrow exactly where the proposed hedge is to be planted. If the soil is poor some manure would now be in order. Subsequent ploughings should fill this dead furrow and substitute a ridge in its place. If the soil is not well drained, either naturally or artificially, a pretty high ridge should be formed. In this and all other cases a strip considerably wider than 8 feet is desirable. Very often a crop of potatoes or turnips may be taken from this ground. When spring time arrives let the ground be ploughed, harrowed and rolled or otherwise smoothed.

Now set a row of stakes, to correspond with the proposed line of fence, and guided by the stakes make a straight mark on the ground. A hand marker is best for this purpose. Next plough a furrow carefully, so that the land side of the plough coincides with the straight mark aforesaid. This furrow should be pretty deep, especially so, if two-year-old plants are used.

With some one to drop planting can now be done very rapidly.

The plants are held against the perpendicular side of the furrow trench with one hand, while a portion of the loose earth is hauled in and pressed against the roots with the other hand. The feet may also be used to press down the soil more firmly. Plants should be set from 6 to 9 inches asunder.

After passing along a row in the way indicated, some one should follow with a hoe or garden rake, to pull in the remainder of the loose soil, so as to leave the whole surface level and neat. Where necessary, plants may be brought into a straight line, by pressing the foot firmly against either sides of each plants according to its requirements.

Before much growth takes place grape or hedge shears should be used to shorten down each plant pretty close to the ground. During the first sum-

mer a corn cultivator should be run along each side of the row at least six times. This, with the occasional use of a hoe to destroy the weeds which escape the cultivator, is the programme of the first season. Where the site of a proposed hedge is free from sods, the land may be prepared in the spring before planting time. Very early planting is not desirable, as locusts do not come into leaf until pretty late in the season.

Honey Locusts one year old may be purchased for \$4 or \$5 per thousand. Two year old plants cost from \$6 to \$8 per thousand. One year old plants are for several reasons to be preferred. These have a small top, but a long carrot shaped root which means business.

Two year old plants have too much root, even and tops that appeal to the feelings of the horny handed sons of toil. If the reader understands from this, that the tops are thorny, decidedly thorny; he has taken in our meaning. In the planting process these thorns are very apt to manifest themselves in the flesh.

The method of preparing the ground for a Honey Locust Hedge, as above given, is equally applicable to small fruit plantations. The method of planting is the same in both cases. The distance asunder, at which plants are set, varies according to the different kinds of plants to be set.

### Desirable Blackberries.

NEW AND HARDY VARIETIES.

It is sometimes surprising to notice the want of knowledge that is frequently displayed in regard to this fruit. The famous large berries that are sometimes seen in our markets, lead the untutored grower to suppose that all that is necessary for him to do is to enrich and cultivate the ground to the utmost limit, and then after that to wait for the fruit to make its appearance. And it usually is a waiting indeed, until the discouraged grower gives up in despair, and says that there must be some mystery in growing them aright. The thorns with which the plants are usually so fully provided, furnish us with a very good clue as to the way that they want to be treated and that is "to be let almost entirely alone." The blackberry indeed seems to rejoice over any neglect with which it may be treated, and when thus humored will sometimes astonish the grower with the luscious and beautiful crops that it so fully understands how to bestow. A very little cultivation during each spring, and an almost total absence of fertilizers after the first year of growth, will soon show what rich treats and delights the blackberry can afford. Among the numerous varieties that have at different times been introduced, I have selected the following for describing at this time:

**WACHUSETT THORNLESS.**—Though this is not one of the largest varieties, yet its almost total freedom from thorns will commend it to those who have been seeking a blackberry of this habit of growth. The fruit is of oblong shape, usually very sweet and of good quality, and in some of the markets of the country sells readily at quite profitable figures. Up to this time the plants have proved perfectly hardy, so that some of my correspondents in the upper Northern States, think that there is no variety to equal it for their localities.

**WILSON'S EARLY.**—Where the winters are not very severe, then there is scarcely a blackberry grown that will give such satisfaction as will this. Even further north many find that it well repays them for covering or bending the canes to the ground during the winter. Some of the berries are of colossal size—measuring nearly two inches in length. None of the other varieties have as yet, been able to excel or even equal this measurement, that I am aware of. Its very early ripening will be well appreciated, and those having the Lawtons or other later varieties, will find the WILSON'S EARLY a decided help in prolonging the blackberry season. South of New York city, and in many localities further north or east, no winter protection is given it.

**SNYDER.**—This is a new berry whose perfect hardiness has made for it a favorable name throughout the land. At the west particularly has it proved particularly desirable, as no amount of cold has as yet been able to kill the plants. It is excelled in size by quite a number of the other varieties, but the hardiness and productiveness of

the plants, and the fine quality of the fruit, have gained for it a place that size alone would not entitle it to.

**MISSOURI MAMMOTH** is a large variety combining the desirable qualities of size, hardiness and productiveness. Kittatiny is one of the very largest, and has the desirable quality of being ripe and sweet as soon as the fruit becomes black. Lawton is another very large variety, whose chief habit, I think, consists in its habit of continuing to ripen until late in the season. Dorchester is a large and sweet berry, but for some reason fails to awaken the enthusiasm that the others do.

In making a plantation a moderately poor soil will answer, leaving the richer plots for other fruits. Plant in March, April or early in May—placing the plants 6 feet apart each way; or in rows 8 feet apart, with plants 3 or 4 feet distant from each other. A selection of from fifty to two hundred plants is usually sufficient for the largest family. The little care that the blackberry requires, and the peculiarly acceptable time of the year in which it ripens, cannot fail to make this fruit a favorite with all who will undertake its cultivation.

R. H. H.  
Langerties-on-Hudson, N. Y.

### Strawberry Discussion.

BY E. M., DRUMMONDVILLE, ONT.

The meetings of the Drummondville Fruit Company are sometimes made more interesting by the discussion of practical questions relating to the growing of small fruits. These discussions are sometimes modelled after what, in school teaching parlance is known as the simultaneous methods—where all talk at once. Strawberries, in a figurative sense, were before the last meeting. The members generally seemed to be of the opinion that if we were to get the full advantage of our exceptionally good position we must grow larger berries and eradicate the mixture of varieties which has been so common in our plantations. We expect to produce ripe berries here a week in advance of most sections of Ontario.

President Carwin said that the best Oakville growers now set their plants about two feet asunder in the rows, and aim to prevent crowding among the new plants. Plants, with sufficient room and good cultivation, attain a large size and produce much finer berries.

The members generally set their rows three feet apart—some three and a half and even four feet.

Some would set plants twelve inches asunder in the rows. Others would put them twenty-four inches apart, and, with a good soil and good care, the latter distance answers better.

Every member considers that the Wilson still leads as the market berry. Several members would also grow Kentucky—a later berry. W. S. Carwin recommended the Nicaoui for canning but not for profit. R. Garner had never seen any variety equal to the New Dominion for size and beauty. So say we all. In the matter of cultivation some of the members had not much to say. Others confessed to growing weeds without showing that degree of repentance which the enormity of their transgressions demanded. One or two of the more hardened claimed to have picked enormous crops of berries amid forests of weeds. C. H. Biggar proposed that the weeds be grown in one field and the berries in another. The plan is a practical, prudential, potential and profitable one. E. Morden recommended the use of the cultivator and of the hoe or fingers for destroying weeds, at least a dozen times during the growing season. By these means the weeds are never allowed to interfere with the plants, and each weeding is done with ease and rapidity. It was contended that by this method the sum total of the labor was less than what would be required to clean a neglected plantation once. The crop of berries, with clean tillage, would, of course, be much better. Under these circumstances it would seem as well to drop the cultivation of weeds.

The D. F. Co. parted, to meet again March 16, 1878.

### Treating Young Vines.

Early in the spring a friend who likes to spend his leisure hours in horticultural art at his suburban home, says the *Prairie Farmer*, came into the office and asked—What shall I do with my grapes? They had been planted four years, and had not yet fruited. They were set eight feet apart, and about four feet south of an east and west fence, the intention being to train to a trellis. The variety is Concord. We advised him to let them alone until they came into full leaf, proposing then to take them in hand for him; and this for the reason that after new growth commences the vines will not bleed.

Recently we visited his place, and found, as we expected, that the vines had been allowed to grow pretty much as they pleased. Nevertheless, there was a good show of bloom. Upon looking over the vines we proposed that they be allowed to bear a crop this season, and that new canes be started from below to fruit next year. Taking out such wood as interfered, we left two to three bunches on each spur, dividing the whole, so the bloom would be equalized as much as possible.

Selecting two shoots to each vine of the current year's growth, we tied these to stakes, with the advice to stop the growth when the canes had reached about six feet in height. One vine, that for some reason had been badly killed, but which had thrown up stray shoots from the ground, we cut back to the ground, selecting from the new growth two of the strongest shoots. These are to be trained as before described. If the season be favorable these canes should be the size of one's finger by fall, and furnished with spurs along the whole length. As the eyes along the canes start, they should be pinched just beyond the first leaf. From the bud at the leaf a shoot will again start. When it has made sufficient growth this should be pinched beyond its first leaf; and again when it has thrown out its shoot, this should be repeated, leaving at last a spur of three strong eyes and such extensions as they may thereafter make. So proceed with every shoot along the two canes, and you will have strong bearing canes for the next season, well furnished with spurs, from which the new growth will start. These should be filled with bloom at the proper season, and each of these should be pinched, leaving one leaf beyond the third cluster of berries.

This season our friend will pinch the fruit shoots beyond the first leaf from the second or third cluster of his bearing vines, as may seem best. If the season be favorable for raising new canes, the wood that has borne fruit this season will be cut away next fall, the new canes will be laid along the ground and covered for winter, and taken up and tied to a trellis or stakes next spring for fruiting.

### The Jasmine.

The jasmine is celebrated more for the delicacy and odor of its flowers than for the pretty love legend connected with its European history. The custom which prevailed in some countries of brides wearing jasmine flowers in their hair, is said to have arisen from the following circumstances:—A Grand Duke of Tuscany had, in 1699, a plant of the deliciously-scented jasmine of Goa, which he was so careful of that he would not suffer it to be propagated. His gardener, however, being in love with a peasant girl in the neighborhood, gave her a sprig of this choice plant on her birthday; and he having taught her how to make cuttings, she planted the sprig as a memorial of his affection. It grew rapidly, and every one who saw it, admiring its beauty and sweetness, wished to have a plant of it. The girl supplied from cuttings, and sold them so well as to obtain enough money to enable her to marry her lover. The young girls of Tuscany, in remembrance of this adventure, always deck themselves on their wedding day with a nosegay of jasmine; and they have a proverb, that "She who is worthy to wear a nosegay of jasmine is as good as a fortune to her husband."—*Massachusetts Ploughman*.

On a wagon with broad-rimmed wheels the old horse will draw a ton of coal or stone with the same force, to appearance, as he would take to draw 1,000 or 1,200 pounds on the other wagon, the wheels of which have narrow rims. When hauling muck from the bog-meadow he will take more and larger loads than he can draw in the other wagon. When passing over soft ground, where his feet sink in the depth of the hoofs, the broad rims roll along over the surface as if there were no load on the wagon. There is a great advantage in having the rims of farm wagons broad, say four inches for two-horse wagons.—*Correspondence Farmer*

### How Long Will the Forests Last?

Under such a heavy yearly drain, the question naturally comes up, how long will our forests hold out at the present rate of manufacture? It is really an important question, upon which follows the inquiry as to what we are to do for building material when this magnificent wood-pine—is exhausted. One authority after another has entered formally upon its solution, with satisfactory results in local instances, but very vague ones as to the field at large. At the rate we are cutting it today, from thirty to fifty years seem to be agreed upon as the limit. Twenty years ago there was apparently no limit, for the consumption was not only less, but the means for its manufacture were primitive, and accomplished much smaller results than now. It seems as if it were impossible to further improve the machinery of saw mills, but the near future may, for all that, see sawing machinery, in comparison to which, that of the present will be contemptible. So, although twenty years ago there was no seeing the end of the timber, now, with the modern mills and myriads of them, we are beginning to calculate with dire certainty as to the time when "the wooden age" will be a thing of the past.—*C. D. R., in Scribner for December.*

### Re-potting Plants.

The amateur who intends to re-pot such plants for the summer as are to be turned out into the open air in June, or for summering in pots, will find decayed and dry cattle droppings of value. They should be thoroughly heated before being used. Boiling water may be poured over them to kill insects or noxious germs contained therein. Thus you will have a most excellent fertilizer, and one natural to most plants. As materials for compost, well rotted sods from an old pasture or fence row, two parts to one of sharp sand, and one of the pulverized cow manure will be well adapted to the growth of most house plants.

In re-potting use a pot one size larger than that containing the plant. Put in some pieces of broken pots, bits of brick or coarse gravel for drainage. Over this place soil until the sized pot containing the plant will just be even with the rim. Fill with soil between the two pots; lift out the smaller one and turn the plant out of the pot with the earth entire; break the ball somewhat to loosen the earth, put it in the larger pot, and pack the soil from the sides pretty firmly about the ball of roots. Now fill up with earth even with or a little above the ball of earth, always being careful that there is half an inch of space from the top of the earth to the rim of the pot. Water, and the thing is done.

It is, nevertheless, advisable to watch the plants after re-potting, especially those liable to wilt. Such should be kept from the sun until somewhat established. Most plants, however, if care is taken, will go right along as though nothing had happened.

### Sowing Onions.

In the selection of a field for the cultivation of this crop the soil should be a light, sandy one, so situated as to be thoroughly drained, and capable of becoming dry at the earliest possible time after the frost leaves the ground. When a new piece of ground is selected, the result not unfrequently proves a partial failure, notwithstanding great care and pains have been taken in the cultivation.

The failure usually consists in an excessive stock at the expense of bottoming, so that a beginner need not be discouraged, even though the first one or two efforts do not prove successful or remunerative. In no case should a field be taken for the growth of this crop that has not previously been under thorough cultivation and become well pulverized, and also in a high state of fertility. It is also very desirable, though not absolutely necessary, that the manuring and principal plowing be done in the autumn, just previous to the freezing of the ground, since thereby the manure becomes more evenly distributed in the soil, and not only that, but being so loosened and more exposed to the action of the frost, is more easily communicated in the early spring. The manure used is not so essential, if it is well pulverized; some prefer horse manure, others that from the hog yard, and still others any that is well decomposed. The plowing in the spring need not necessarily be very deep if the same was thoroughly done in the fall, since the onion is a root that grows and flourishes best on the surface. As soon as the frost leaves the ground, if previously manured, it should be lightly plowed, say from three to four inches deep,

and then thoroughly scarified, so that it should be evenly and thoroughly pulverized; a great auxiliary to manure, of whatever kind, and which appears to assist in the bottoming, is a good supply of ashes; in fact, good crops have been grown from soil in good condition, fertilized by ashes alone. If ashes are used, they should be strewn upon the surface after being smoothed, and then thoroughly raked in, at which time the surface should be raked smoothly. If ashes are not used after the surface is scarified, guano, superphosphate or some other commercial fertilizer should be evenly distributed upon the surface and raked in as before. When thus prepared, the field is ready for the seed. Formerly, this was sown by hand, which was a slow and wearisome process; but since the advent of seed planters, of which there are various kinds, the labor is comparatively easy.—*Fruit Recorder.*

### Flax Culture.

In a rotation of farm crops flax might very profitably, in many instances, be introduced as one of the series. Our agriculture requires to be more systematic and diversified than it has generally been. Were wheat to suffer from the fly or the rust, flax or barley might be free from damage, and we would not be wholly dependant on the prices we expected from our breadstuffs.

The cultivation of flax in this Province has of late years assumed more importance, and in some parts of the country it has become quite an item in the farmer's accounts, and it now engages their attention more than heretofore. About twenty years ago the cultivation may be said to have commenced in Ontario, when a small flax mill was erected by the Perine Brothers. Before that the only flax grown in the country was some small plots sown by the colonists for home use.

The seed crop of the past season has been estimated by the *Monetary Times*, a good authority on all financial matters, at an average yield of, say ten to twelve bushels to the acre, which, as there were, as near as could be estimated, twelve thousand acres, would give a yield of one hundred and twenty thousand bushels of seed. Of this, twenty thousand are required for sowing, leaving one hundred thousand bushels for sale. Nearly all this is manufactured into linseed oil and oil-cake, producing say one hundred and twenty-five thousand gallons of oil and two thousand tons of oil-cake. The yield of fibre has been estimated at eleven hundred tons.

For the oil there is a home market; more oil than is manufactured being required to meet the demands of the country. The fibre has been exported to the United States; and the oil cake to Great Britain.

The importance of the cultivation of flax, as shown by the above figures, is considerable, not only to the farmers who grow it, but also as an item in the productive wealth of the country. The sum total falls far short of what it would be were oil-cake used at home in feeding cattle for the English market; and the fibre manufactured in Canada instead of its being a means of giving employment to the operatives of the neighboring country. There are in Canada sufficient capital and manufacturing skill to manufacture all the flax and wool of the Dominion. When will we rely on our own resources, and not purchase from another people the clothes and tweeds, the fine linens, towellings, table linens, threads, &c., manufactured by Americans from Canadian wool and flax.

**PROFITS.**—The profit, as is the case with every crop, varies. We may estimate an average crop of seed at twelve bushels per acre, price \$1.35 per bush. Fibre, three tons at \$10 per ton. Amount, \$36.20. The above prices are low, and would allow a good margin for dressing, pressing, &c. Experienced growers generally realize from \$25 to \$35 after paying all expenses.

### Poultry Yard.

#### Seasonable Hints on Poultry.

At this season of the year the poultry should have great attention to make it profitable. Never put many eggs under each hen early in the season, it is better to set a hen on nine eggs than thirteen when the weather is cold, as some of the eggs will be sure to get chilled, and their vitality will be immediately spoilt. It is a good plan to set two hens at the same time, and when they hatch put all the chickens with one of the hens, and the other will soon commence laying again. Early chickens are a great consideration, as they invariably make the largest fowls and the best layers, and when they are hatched in April they grow much faster and are healthier than any other month; as the weather is neither too hot or cold, and when hatched in this month they will lay in the fall, and again early in the winter when eggs are very dear, whereas, if they were not hatched until late in the season, they would not commence to lay until the spring. Never keep hens over three years old as they do not lay near as many eggs after that age.

#### Poultry Keeping by Boys.

It is one of the most promising indications of character when a boy shows a disposition to earn something. This desire to hold something in fee-simple is the very opposite of *trampism*. Among boys, the enjoyment of owning, buying and selling, is very keen, and is often gratified in the getting of knives, old watches and trinkets, and making exchanges with each other. Who does not remember the wonderful dicker and trade of his boyhood? It was only the beginning of a development, or, rather, a self-education. This matter should not be permitted to go without some guidance. Parents and guardians should take an interest in it, not exercising a meddling interference, but inspiring confidence, so as to be able to co-operate, plan and watch the results.

Now comes a scheme that is just right. How can we teach a boy business habits better than by giving him an opportunity to "run" a henery? The accounts must be accurately kept; there must be buying and selling; there must be bantering; there ought to be profit! A miniature business springs up; and, inasmuch as it is real, why is it not as good as a business-college? It may be better; for it may prevent spending time in the streets, or away from home, perhaps among questionable companions. A love of home is fostered by the ownership of flowers, small fruits and poultry. A fondness for the finest things produced in our climate—to cultivate them, if belonging to the vegetable kingdom; to breed, foster and pet them, if belonging to the animal—is not only a source of keen enjoyment, but indicates good traits and a certain elevation of character above that which is brutish. Young people should be deftly guided, step by step, through pleasant paths, with here and there a little job of earnest work, made easy by social frolic and recreation, which come after in their proper place. With a little encouragement, boys may become quite familiar with the points of excellence in high-class poultry, pigeons and other pets and learn the best methods of breeding and management.

They may learn when and where to purchase supplies to the best advantage, and how to sell the surplus products so as to give the most profit with the least expense. A pleasant self-reliance and good business habits may be growing, and, at the same time, a love for nature, for refinement and humanity.

SIR,—Would you, through the *Advocate*, give me some information about young turkeys. I have lost a number for the last two or three years from a disease which attacks them when three or four weeks old, until which they seem to be healthy. The symptoms are:—They refuse to eat, are feverish, as they seem very thirsty, and will drink a great deal; sometimes the crop seems puffed; they stand about drooping for one or two days, and die. It seems to be contagious, for when it begins three or four will die every day for about a week. I fed them small wheat, soaked bread, and also sour milk, and gave them clean water to drink. I tried all the common remedies, such as pepper, sulphur, and everything I heard of. I always mix green onions with their food. If some of your numerous readers would give the result of their experience they would much oblige a constant reader. Mrs. H. P., Loydton P. O.

[We think you must have allowed your turkeys

to run in the grass before the dew was off, or they were infested with vermin. We know of nothing so injurious to young turkeys or chickens as the morning dew.]

**Notes on the Garden and Farm.**

**How to Save the Plums and Gooseberries.**

SIR,—Some three years since Mr. William Holman, of this town, saw an advertisement in a Provincial paper of a prevention for the ravages of the Curculio on plums. He was induced to try it, and his success has been so marked that he wishes to make it known through the medium of your widely-circulated and valuable paper.

Mr. Holman has eight plum trees in his garden. In the spring of 1876, all the trees being in full blossom, he smoked one tree with smoke from gas-house tar; in the autumn this tree was loaded with fruit, while the seven trees had not a single plum on them. In the spring of 1877 he reversed his operations, and smoked the seven trees, leaving the one tree smoked in 1876 without smoke. All the trees were alike covered with blossoms, but the result showed that while the seven trees were so loaded with fruit as to require supporting, the one tree bore not a particle of fruit. His method of operating is as follows:—

Mix in an old tin pan coal tar with shavings, chips, pieces of shingle, old rags, or anything that will ignite; place the pan under the tree, keeping it moving so that the smoke will come in contact with the whole tree.

It takes him about half an hour to smoke the eight trees. The evening he thinks the best time—about sun-down, when there is no wind and the dew is falling. The smoke then adheres better to the leaf and forming fruit.

The first application of smoke must be made just as the blossom begins to fall, and must be repeated immediately after a storm of rain. Mr. Holman repeated the application at intervals of about four days in 1877, until the fruit was formed, say for three weeks. He is not sure of the necessity of doing so, although he recommends it. He is a master bricklayer, mason, &c., by trade, and in 1876, after smoking the one tree, he was obliged to leave home to perform a building contract, so that his tree had but one smoking, with the result aforesaid—no rain having fallen to wash the smoky deposit off.

Mr. Holman has been successful in endeavoring to prevent the mildew on the gooseberry. He purchased from the St. Catharines Nursery a bush of a large English variety, against the advice of the nurseryman, as it was so subject to mildew. His method is in early spring carefully to remove the surface soil from under and around the bush; then to pour the composition under and around the bush, and immediately cover the composition with the removed soil. The composition is prepared as follows:—

Mix in a pail two quarts of water, two large tablespoonfuls of salt and sufficient fresh cow dung to make thick grout.

By this method the bush has regularly borne fine large fruit, entirely free from mildew. Why it acts in this manner he leaves to scientific men to discover.

If you think the foregoing statements, which I believe are facts, worthy of your columns, please insert them; if not, consign to the waste basket.

S. ECCLES, St. Thomas.

SIR,—I see by the last ADVOCATE that "W. S.," Richwood, Ont., wants me to inform him where I procured the superphosphate of lime that I used. It was from Buffalo, price \$45 per ton. I did not use any salt with it, but I have used salt on spring wheat with good results.

I have had a letter from Peter R. Lamb, Esq., of Toronto, about his manures. I wish some of my fellow farmers would give us accounts of these manures, and inform us whether they are any good or not. I have come to the conclusion that if we want our calling to pay us we must use artificial manures, as we cannot make farm-yard manure enough to render our farms profitable.

P. S.—"T. E.," of London Township, does not say whether his grain drill sows artificial manures or not.

F. A., Caradoc.

SIR,—I want to know through the columns of the ADVOCATE if the superphosphate mines at Ottawa are worked, or if any of it can be got to use this spring; also, if any of it has been used by farmers, and if so, the quantity used per acre and the result; and what quantity would be required per acre on clay land, and if it is good for all kinds of grain, such as wheat, oats, peas and barley, and root crops.

I also want to know about salt—the quantity required per acre for clay land, and if it is good for all kinds of grain.

W. H., Watford.

[The Ottawa superphosphate mines are now worked energetically. The superphosphate is shipped to England and the United States. We do not know if any is offered for sale for home use, but if not yet, we believe it will be sold to farmers. It can be obtained from the superphosphate works at Brockville. It can be obtained from the agents at the Agricultural Emporium in this city. Salt is applied at from one to two cwt. per acre.]

SIR,—Please let me know in your April number how many pounds of millet to the acre are sown.

W. M., Wakefield.

[Millet seed is sown from one-half peck to three pecks of seed to the acre.]

SIR,—It is with pleasure I sit down to write to you for information. I want to know which is the best time to plant maple, pine, hemlock and cedar trees.

W. R., Otterville.

[Plant maples any time from the falling of the leaves till the putting on of the new ones. We have found the first days of June a good time to plant evergreens. Others have been successful in planting in the autumn and fall.]

J. M. Kimball, of Silver Hill P. O., asks what will cure or prevent a running from the nose in sheep.

Pour tar on the nose and forehead and along the trough edge, and once or twice a week put sulphur in the trough.

SIR,—Seeing in the last number of the ADVOCATE an enquiry by J. W. McF., for Hulled Barley, wishing to get some seed of it; I can spare one bushel of it. I got about half a peck of it last winter from a friend in Minden, but it was very dirty. I cleaned it thoroughly; it weighs about sixty pounds to the bushel. I will send you the bushel, which you can send to J. W. McF., or any part of it. As he has not sent his address you can let him know I have it. I don't know of anyone else having it. The price of it will be three dollars.

P. S., Cold Springs.

[Mr. Andrew, Tombury, P. O., Box 6, writes also saying that he can supply J. W. McF., with a small quantity of Hulled Barley, if it be not too late. It has, he says, been raised for 27 years in Collingwood Township. It weighs 60 pounds to the bushel.]

SIR,—I would like to hear some remarks as to the time of sowing peas as to what time of the moon or season is best to sow them, and what time of the moon or season is best to cut green spruce and bar poles for fencing.

J. R. R.

Black Point, Little Harbour.

[When on the farm we sowed peas as soon as the ground was ready. They who waited for the guidance of the moon had often no crop.]

SIR,—Can you through your paper inform your readers with reference to the Cheviot sheep, are they a profitable sheep to raise, and where can they be got. This is a sheep I never saw anything mentioned about since I have read the ADVOCATE, and what kind of cross, would they make with the Southdown. J. P., Beamsville, March 18th, 1878. [We had a flock of Cheviots purchased from Mr. Snell. They can run and jump better, and hold their own better, against dogs than any other sheep. They are good handsome animals, and make excellent mutton.]

The Baltimore Sun says:—"The increased demand for our meat productions in Europe applies to our bacon and pork, as well as to our beef, and there is a very greatly increased demand of late for the improved breeds for dairy purposes. The Berkshires undoubtedly take the lead in this direction, and may perhaps be considered the favorites over all others; but there are two or three other breeds which also have the preference with many, these being the Essex the Poland-China, and the Chester."

**How Far Apart Shall We Plant Apple Trees.**

There is a great difference of opinion on this subject. When the land is poor and thin the roots will be less numerous, and must be spread for long distances in every direction to get the nourishment needed. On poor soil it is very necessary to give the trees plenty of room. Our densest forests and thickest turf grow on soil which is very rich.

In planting an apple orchard, as in most other operations, it generally pays to do the work well. When properly taken care of, after twenty years, many varieties of apple trees will spread twenty feet in each direction, and some spread further, as noticed in the orchard of Mr. Bailey a few weeks ago. The rapidity of growth and the longevity of the trees depend much on the soil and climate as well as on the variety of fruit.

In ordinary good loamy soil, or in poor light soil the roots of an apple tree, when fifteen years old, extend at least twenty-five or twenty-eight feet in all directions. This is not a theory, but a fact, as I have repeatedly seen the roots as described while putting in tile or while digging for the purpose of examining the roots. The feeders of the roots—root-hairs—are renewed every few weeks during the growing season. The small roots from which the root-hairs grow are also often renewed. I mean these die and others take their places, or other places not far away. In this manner roots are all the time feeding on new ground. Doubtless, after a time, much ground is fed over again and again. Roots do not search for food as animals search for it, but they grow where they find the best soil, and they will there multiply in the greatest abundance.

For long lived trees, and the best results, I am satisfied that large varieties of apple trees should not be planted nearer than forty feet if they are set in squares. This gives not a whit too much air and light for the tops, and, as has been shown, the roots will soon occupy all the ground and make good use of it. While the apple trees are young, if desired, other crops may occupy the intervening spaces. I prefer to set trees in squares, because it is the simplest plan, and because it is easier for the cultivation. As mentioned, the roots will run all through the soil, even crossing one another at long distances between two trees.

If the trees are of various sizes which do not grow fast or become large, they may be planted nearer together than forty feet. If, like the Wagner, they begin to bear young, and are allowed to bear and get ready to die by the time they are fifteen years old, they may be planted only twenty or twenty-five feet apart. Trees are often injured by planting too closely; seldom by having too much room. One tree does not protect another by growing very near it. On the contrary, one robs the other. Our strongest, finest ornamental and forest trees grow in open spaces where there is plenty of room, and where the soil and climate are suited to their natures.—PROF. W. J. BEAL, in *Rural New Yorker*.

A BUNCH OF GRAPES.—The *London Gardener's Chronicle* says that a bunch of grapes, from Lady Chareville's, Kings County, Ireland, 2 feet long and 23 pounds 5 ounces in weight, is the heaviest ever grown.

Rich manure can only be made from rich food. Animals add nothing to the manure. If we feed straw, we get back as manure something less than the straw we feed, and straw alone is very poor manure. If we feed oil cake meal, corn meal, bran, and similar rich food, to mature animals, they consume the starchy and fatty portions, while much of the nitrogen and phosphates go into the manure heap along with the straw or hay eaten, which give the needed bulk to the manure. It is thus that the statement made by the chemists, that the manure made by feeding a ton of bran, or linseed, or cotton seed oil cake, is for some worth more than the seed itself, can be satisfactorily explained.

FERTILIZERS FOR FRUIT TREES.—There is nothing better than stable manure, but not enough can be had. Muck is good if we get the right kind, fibrous and not too much decomposed. It may be profitably composted with stable manure, six or seven loads to one of the latter, with ashes and with salt. The coarse grass which grows on muck swamps, if piled up with it, helps decomposition. Salt is recommended as a good fertilizer for all kinds of fruit trees. It helps to decompose plant food. Ashes are good, and leached ashes, 300 bushels per acre, are excellent on sandy soils, helping mechanical texture and furnishing needed manurial elements.—*Rural New Yorker*.

## Veterinary.

## Parturient Paralysis in Cows.

BY JAMES LAW, F.R.C.V.S., OF CORNELL COLLEGE, ITHACA, N. Y.

On the return of spring the dangers attendant on parturition increase with the numbers of animals that now come to their turn. The act of bringing forth the young is a comparatively easy one in the quadruped, and yet invariably calls for an unusual expenditure of nervous energy, and is attended with such sudden and extreme changes in the circulation that it is exceedingly liable to induce profound constitutional disorders. The cow especially, which has had all its vital powers concentrated on the one object of rapid production of meat or milk, is subject to such constitutional disturbances, and it is only by careful management that these can be certainly obviated. Most serious disorders occurring in dairy cows immediately after parturition are attended by great muscular weakness and an indisposition or inability to rise; but two complaints in particular induce a complete paralysis and absolute incapacity to get up. As these two complaints are, to a great extent, characteristic of two extremes of management, a few remarks on the general subject may be profitable.

The "parturient fever" and the "parturient paralysis" of cows may be pronounced the respective products of *plethora* and *paupering* on the one hand, and of *poverty* and *exposure* on the other.

PARTURENT OR MILK FEVER is a disease which is only found when stock has been advanced to a high state of excellence as beef or milk producers, and when they are fed with a liberal hand before and after parturition. We never see it in the poor milkers, in the emaciated cow which has been wintered mainly on straw, in the young and undeveloped cow at its first or second calving, nor in one that has had a laborious parturition with much expenditure of effort and loss of blood. The victims are, above all, the heavy milking Ayrshires, Jerseys and Holsteins, or the plethoric Shorthorns. It is those that have been fed for show or have been kept up to the highest condition so as to have the earliest and fullest flow of milk possible. It is those that have been grained up to the time of calving, and have had a full supply of sloppy and nutritious food after that act has been accomplished. It may be later in the season for those that are luxuriating in our magnificent fields of red clover, and may test to the full their enormous powers of digestion and assimilation. It cannot be denied that other influences largely contribute to its development. Chills occurring after the violent efforts of calving, large drinks of cold water at the same time, the oppressive heats of midsummer, the close, impure air of sour cowsheds, costiveness, undue excitement as by railroad travelling. All of these and many other conditions may and often do favor its onset, but beneath all these, and more essential than any or all of them, is the one grand condition of an over-abundance and undue richness of the circulating blood. This character of the blood is always manifested by the deep red color of the fluid, by the excess of red globules, and, in my experience, by the inability of the clot to squeeze out the serum or liquid portion of the blood without a great quantity of the corpuscles as well. Hence the liquid that appears around the clot, instead of being clear and straw colored, is of as dark a red as the clot itself. Another peculiarity I have noticed is the small size of the red globules supplying the great quantity of the fluid portion of the blood; or, in other words, the excess of solids in its composition.

PREVENTION.—This being the fundamental cause of the disease, its prevention will obviously depend on whatever conditions will obviate the occurrence

of such excessive richness of blood. All mature cows in good flesh, or unusually heavy milkers, should have their supply of food reduced to its minimum for a week before and as long after calving. Grain should be withheld; roots even are dangerous. A little hay, with a simple handful of bran in warm water daily, is all that can be safely allowed. In summer such cows must be taken up from the rich pastures and housed upon a restricted supply of dry food, and in all cases any costiveness of the bowels must be promptly corrected. The practice of giving the first milk to such cows, or allowing them to eat the afterbirth, is to be deprecated, as the nutrition elements in such natures increase the danger of plethora. Better far than either of these to contract the condition of costiveness is the administration of 1 lb. of Epsom salts, 1 lb. molasses and 1 oz. ground ginger. This is a safe dose to be given before or immediately after calving to all plethoric cows in which the bowels are not already absolutely loose. The obvious precautions of avoiding cold, exposure, wet, excitement, impure air, burning suns, &c., need only be made as necessary precautions.

PARTURENT PARALYSIS differs essentially from the above in its fundamental cause. This is the disease of the poor, starved, neglected, exposed and emaciated cow. The other is the disease of the cows of the progressive farmer, this of those of the backward one. The puro paralysis attacks the cow that has been wintered on straw, that has lain damp out of doors, or in a damp, lousy shed, that is weak and emaciated and the blood of which is deficient in quantity and still poorer in quality. In such an animal a sudden exposure to cold or wet before or immediately after calving, are unusually difficult and exhausting parturition, a drink of cold water, or a feed of cold roots just after the excitement of the parturient act may precipitate a paralysis of several weeks duration, resulting in death; or it may be in a comparative loss of the season's milk.

PREVENTION.—As the heavy milkers of the pampered herds are not so subject to this complaint, the prime requisites in the way of prevention is abundant feeding and comfortable housing. While the excess of blood and flesh is to be guarded against in animals approaching parturition, no less so is absolute poverty and emaciation. The cow that has been starved in winter will bring but a poor, unpromising calf, and will suffer in her own system and in her milking qualities throughout the season if not for life. In poor milkers, young cows having their first or second calves, and in those whose powers of digestion are not excessive, there need be no fear of evil effects from a substantial diet up to the time of calving. In heavy milkers bearing their third or fourth, or later calf, and in the cow that lays on flesh with great rapidity, the object must be to strike the golden mean so as to avoid plethora on the one hand and poverty on the other. The danger to them lies mainly in the week before and that after calving, and if the restricted dietary required is adopted for this length of time, the feeding may be liberal both before and after. Then, in the case of very poor and emaciated cows approaching the bud of gestation, a rich and warm diet should be provided, as well as a dry, comfortable building to ward off the possible occurrence of palsy.

## Thrush in Horse's Foot.

If there is much swelling and tenderness of the heel, poultice for a day or two with wheat bran, having a fair sprinkling of charcoal and sulphate of zinc on its surface. Give ½ oz. nitrate of potass daily in the food. If there is little heat or tenderness, pare away all the ragged horn from the cleft of the frog, clean it out thoroughly, and press into it a pledget of tow, smeared on its upper surface with tar and sprinkled with a mixture, in equal proportions, of finely powdered sulphate of copper and calomel. Keep the whole hoof, but especially the sole and frog, smeared with a mixture, in equal proportions, of wood tar and lard.

## CORRESPONDENCE



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SIR,—In the March number of the *ADVOCATE*, I notice in your editorial remarks on Prof. Arnold's address at the late Dairymen's Convention held in Ingersoll, that you were quite surprised to learn that dairy made cheese was superior to factory made. This is nothing new nor strange, as that opinion has always been held by many dairymen, and as you very justly remark, Prof. Arnold is a very high authority on cheese matters, and any remarks made by him will have their influence on the cheese interests of this country. Having some experience in cheese making myself, both in dairy and factory, I will, with your permission, give my views on the matter, and some reasons why the dairy cheese is considered by some superior to the factory cheese, but it must be borne in mind that all do not agree with the Professor's remarks on that point. There is no doubt but there is some very poor cheese made under both systems, but there are many reasons why the dairy system should produce the best quality of cheese, providing the same attention is paid in the manufacturing and curing process, as in the case of factories. In the first place, in order to produce a good article of cheese or butter, the utmost cleanliness should be observed in every thing connected with the milk production. The first requisite is good healthy cows, then furnish them with plenty of good wholesome food and water. Great care should always be observed in driving to and from pastures, avoid wearying or fast driving the cows so as to overheat them and cause injury to the milk. Next in order is the milking process. The stable, if properly constructed, is undoubtedly the best place to milk for the following reasons:—It is much cleaner and more convenient for the milker, there is no danger of being knocked over milk and all, by other cows coming in contact with the one you are milking; the cows will stand much quieter in the shade than out in the burning sun, the flies do not bother them nearly so bad in the shade; then if it rains you are all in the dry, and no danger of dirty drippings running off the cow's backs into the milk pail, which you can scarcely avoid if you milk out doors in the rain; when your cows are in the stable the first thing to be done is to remove any dirt or dust adhering to the cows bag or teats, this is best done with a dry cloth which every milker should be provided with, then the cow should be milked as quietly and quickly as possible; no talking or conversation of any kind should be permitted while the milking is going on, every thing should be done quietly and orderly. The first advantage the dairy has over the factory is in handling the milk. The milk intended for the factory, as soon as milked, is turned out of the milk-pail into the can, in many instances without the least semblance of a strainer, dirt and all, if there is any in the pail, and that milk sometimes stands in the can on the milk stand perhaps one hour or more in the hot sun with perhaps the cover of the can closed down so as to prevent the animal heat from escaping; it then goes on the milk waggon and then undergoes a churning process all the way to the factory. Add to this often dirty, half-washed, milk cans and pails, and it is not to be wondered at that the poor cheesemaker fails to make a good article of cheese. That there are noble exceptions, to the above, I am well aware of, but, they are exceptions, and not the rule. It is an undisputed fact that one bad patrons milk will spoil a whole vat of otherwise good milk; and it frequently occurs in factories where they run, say, three or four vats a day, that perhaps one or more will turn out poor cheese, for the reason above stated; and then the cheesemaker is blamed for not making good cheese; and he certainly ought to be blamed for not sending the bad milk home again. Now sir, the only remedy for this is to educate the patrons of cheese factories to take more pains in handling their milk. I know this will be a slow process. But it must

eventually come to that, before a really fine article of cheese can be made. It is a very hard thing to make some people believe such little things can produce such great results. The prevalent idea is that, if they can only succeed in getting the milk off their hands, it is all right, although it may injure others, and ruin the reputation of the factory. The man who runs the private dairy has not these difficulties to contend with, at least, not to the same extent, as he has the manipulating of the milk under his own care and supervision. And as soon as the cows are milked he can commence to cool his milk, which is very little trouble if he has the proper appliances for it, which are very simple and easy procured. A day or two in winter will put away ice sufficient for the summer use; and then a wooden tub to set the milk-can in with ice and cold water, and your milk is quickly cooled in hot weather. It should remain there all night, and in the morning pour into the vat; and cool the mornings milk the same way. And with a good cheese-maker you can scarcely fail to make a good article of cheese. But the dairyman has other difficulties to contend with, and a powerful influence to overcome in the marketing of his cheese, although he may have as good, or even a better article of cheese; the buyers are averse to handling small lots of cheese, as they generally get a commission of so much per pound for buying. It is to their interest to buy large quantities at one place. And if they do consent to look at private dairies, they generally want it for about one cent per pound less than they have paid, perhaps, for a factory cheese close by. The home market would probably use all and more than the private dairies can produce. But here again they have to contend against culled factory cheese, that the shippers have refused as not being fit to ship, and are generally offered at a very low rate. As an instance of this, I know a grocery man who purchased a number of cheeses at 10½ cents per pound, when the market price of good cheese was twelve to thirteen cents per pound. And when questioned how he purchased them so cheap? the answer was: the cheeses were shipped to Montreal, and, on examination, they were found too full of skippers and were returned, and consequently had to be sold at a reduced rate. The difficulty of finding ready market for dairy cheese has caused many dairymen to close their dairies and send their milk to the factories. There are other reasons against the private dairies. There are but few farmers, comparatively speaking, that can keep a sufficient number of cows to make one cheese per day of shipping size, and here the factories confer a boon on small Patrons. The man who keeps only two or three cows can send his milk in and get his proportionate return equal to the man who keeps forty or sixty cows has. He gets his milk hauled and made up at the same rate per pound. The next thing to be considered is which produces the best financial results, and in order to draw a comparison we will assume A keeps forty cows and B keeps the same number. Each cow is computed to produce during the season 300 lbs. cheese. A sends his milk to the factory, for which he pays \$2.25 per 100 lbs. for hauling the milk and manufacturing it into cheese. 1,200 lbs. at \$2.25 amounts to \$270. B makes his milk at home, and we will suppose he has already a building in which to make his cheese, as most farmers have; he can get his furnishings, everything complete to start with, for \$200; cloth, rennet, salt, wood and coloring for \$40.00; boxes, scale boards and teck \$36; cheese maker for six months, at \$12 per month, \$72; then add eight per cent. on the \$200 for interest, \$16; and ten per cent. for wear and tear of furnishings \$30; now you have a total cost of \$164, leaving a balance in favor of the dairy of \$160. If a building has to be erected \$300 would be sufficient; in that case the profits of three years would clear the building.

The above calculations have been made from my own actual experience. I have, of course, assumed that the cheese in both cases has been sold at the same price; but in case the dairy does not sell quite as high there are other advantages that will more than counterbalance that which I might give were it not for trespassing too much on your valuable space.

DAIRYMAN, Dorchester.

#### Water Power.

SIR,—I would like to get some information about water power. What is the weight of perpendicular column thirty feet high and one inch square? How many horse-power would six inches square and thirty feet high of water be? How many pounds in one horse-power. Please give necessary

information, or such information you might have at your command, as I have a creek that I wish to turn to some purpose. It has a fall of sixty feet in a few rods.

P. C., Colpoys Bay.

SIR,—Hundreds of families are moving into Muskoka. The roads are very muddy. Commenced plowing on Saturday last, 9th inst.

G. S. Y.

SIR,—Could you inform me whether it would be profitable to raise the Jerusalem antichoke for feeding in the spring. Is so, what cultivation would you give them?

[Yes, in waste corners, where they would not interfere with other crops. Plant as you do potatoes; manure is unnecessary. When grown, turn hogs into the plot, and let them turn them up for themselves.]

#### How to Make a Cellar Rat Proof.

For all farm buildings it is quite important to guard against the depredations of rats, and by noting their habits we find that they make their entrance to the cellar under the walls, and if the foundation of the cellar walls are such that they can't penetrate them, the cellar will not be infested by them. To have the walls so made will require the farmers own care and aforesaid, and the looking after the masons when commencing the walls, for if they even have the solid rock to start their wall on they are most sure to leave spaces between the bottom stones to let the rats pass out and in easily, but in that case if the bottom stones were laid, and space between them well filled with cement or water lime mortar it would keep them out. But we commonly have an earth or gravel cellar bottom, they will require a different management, when the cellar is dug and squared up, then sink a trench one and a half or two feet deep under where the wall will be, and fill it half full of loose flint stone, if they can be got handy, then, after pounding and breaking them up some, finish filling the trench and break up the stones a little more than before, and it will make one of the best foundations to start a wall on, besides being one that the rats cannot get through if the wall is commenced as it should be on it.

Such flint cobble stones is the best when the farmers has them handy, but if not he could use other small stones or the chips from a stone yard either answering the purpose very well. And if the cellar should need a drain it should start from the bottom of this trench, thus insuring a dry cellar bottom.

I have been quite successful in using a similar remedy to keep rats out of an old cellar that was quite overrun with them. I made a trench, one foot in width and depth, just inside the cellar wall, filled it with broken stones, and put into them enough cement mortar to smooth over them on a level with the bottom, and well up unto the bottom of the cellar wall.

This will effectually close up their passage ways, and as they can't enter through this body of small stones, or if they go to dig under them the broken stones will so fill in and obstruct their passage that they have to abandon it and keep out of the cellar.

Batavia, N. Y.

H. I.

SIR,—How much lime is it necessary to put on lime stone soil per acre.

J. L., Garafraza.

[We have known lime to be applied profitably to lime-stone soil, as the lime in it is not available for the purposes for which lime is applied. Food for plants as well as for man should not only exist, but be in a prepared state, in order to confer the required useful purposes. Sixty bushels of lime per acre would be a good dressing, as lime is used in America.]

#### Butter.

SIR,—As the season for the manufacture, handling, sale and shipping of this article will soon be on hand again, a few remarks on this subject may not be out of place in your columns. No doubt the experience of last year is still fresh in the memory of nearly all, and in fact, those who are clear of this article may consider themselves fortunate, and if they got out with a small loss they have only shifted the loss from their shoulders to those of some one else. The question is asked me every day what is the cause of this state of affairs? There has been a combination of causes, and this combination of causes might not occur again in many years. Yet in my opinion we should try and get at the causes and apply a remedy. In the

first place the season was unusually favourable to a large make of butter all over the whole of the butter producing countries of the world. The make of Irish, English and continental butter was unusually large. To which has to be added Canadian and American, which were also unusually large. Whenever there is a heavy make there is always a larger proportion of poor butter, and this seems to have been the case especially in Canada. In my experience I never saw as much poor butter nor so large a proportion of white. Another thing too, which has affected the price of our butter, especially the medium is the large amount of butterine which is being manufactured in the States, and shipped to the English markets. This article is taking, to a large extent, the place of our medium and fair butter. I have seen letters from English dealers, who say that they prefer handling it to our butter; that it is better value and more money in it. One dealer who has been in the habit of handling a good deal of Canadian butter did not touch a package last year. The reason he assigned was that he preferred to handle the butterine, and that there was more satisfaction and paid him better. Another thing, too, is that whenever anything is very abundant and cheap, dealers and importers are always very much harder to please, and will find fault, and, in many instances, refuse goods that, were they a little scarce and an upward instead of a downward tendency of the market, they would pass as all right without a word of complaint.

In my opinion, there is a remedy, at least to a great extent, for all this loss, annoyance and trouble. That remedy lies chiefly with the manufacturer and country dealer or store keeper. Let the manufacturer set herself to work to make nothing but a first-class article, and if she is not thoroughly master of her business she had better get posted in some way or other, either by reading and study, or by going to some farmer or dairyman that she knows does make good butter, and learn.

One simple ingredient that is used in the manufacture of butter is sadly abused and misused. I refer to salt. I have seen scores of packages that, it seemed to me, as though the packer of that butter was anything but honest, for, at least, there was four times too much salt. I have drawn scores of packages that I could feel the salt with the tryer, and hundreds that I could grit it between my teeth. Now, to my mind, the packer of that butter could not help but know that he or she was using entirely too much salt, and that of the coarsest and the commonest kind. There is not sufficient importance attached to the quality or kind of salt used. Quantities of butter being packed with our common barrel salt, and often with the common coarse Liverpool. Nothing but the purest and finest salt it is possible to get should be used, and even then that should be thoroughly ground down and pulverized.

Country dealers and store keepers would find it to their advantage to keep the proper article and see that their customers used it, even if they had to give it away. Another trouble with our country dealers is that they do not discriminate in the quality of the butter they buy, nor in the price they pay. This should not be. Butter must and will have to be bought on its merits sooner or later, and the sooner we get down to this basis the better it will be for all parties. Another thing a large proportion of our country dealers are wanting in is a proper place for the handling and storing of their butter.

Let every manufacturer or dealer commence this season with the full determination to improve the quality and appearance of the butter he handles. There has been so much written on how, when and where to make good butter that every one should be familiar with the process.

I have thrown out these few remarks in the hope that they may elicit others from some one else, and perhaps set the ball rolling towards a reformation in this very important branch of Canadian product for I cannot but think that every candid man will admit the necessity of such.

J. SEABURY.

#### Good for Nova Scotia.

SIR,—I find in the March No. that 'W. P.' of East Zorra, boasts of a pig he killed—ten months old—weighing 390 lbs., and wishes to know if any of your subscribers can beat that. I think I can. I had two pigs of the same litter killed; one at the age of six months weighed, after dressed, 322 lbs.; the other I kept till she was one and a half years old; then killed and dressed her, and she weighed 507 lbs. She had a litter of eleven pigs when she was twelve months old.

S. A., Truro, N. S.

SIR,—Do you know the Lepeer wheat? There is a party in this neighborhood selling it for \$10 per bushel, and although farmers here have been taken in before several times, still they buy. The Norway oats was a fraud which a number of the farmers felt in this locality. If farmers would all take your valuable ADVOCATE and ask for information through it, it would save some of them ten times their subscription in one year. Yours truly, P. C., Holywood P. O.  
[We know nothing of the wheat you speak of.]

#### Seed Grain Report.

The Redfern and Odessa wheat yielded about 26 bushels per acre of first-class wheat. Millers recommend the Odessa as the best variety of spring wheat in cultivation. The Egyptian, or Eldorado, was killed with rust; the grain was miserable. The Mainstay wheat never came to anything; never shot out; it is a fall wheat. The Australian Oats turned out remarkably well; had about 80 bushels from a bushel and a half of seed; the quality was much better than the seed sown; am well pleased with the ADVOCATE.  
W. S., Belgrave P. O.

#### Canadian Beet Sugar.

SIR,—In the ADVOCATE of January two articles appeared on the beet sugar industry, and in referring to the bonus offered by the Quebec Government to aid that industry, a discrepancy occurs, one statement making in \$70,000, the other \$7,000. Having no knowledge of the business, and being desirous to obtain it, and also the probable cost of such a factory on a moderate scale, I take this liberty to address you hoping to obtain such information on the subject as you are able to give.  
L. C., Bloomsburgh.

To L. C.—The discrepancy you refer to was a mistake from dropping out a cypher. The bonus was \$70,000. Judging from the successful operations of beet sugars for so many years in other countries, the experiment, if judiciously carried out, will be successful in Canada. No other country can grow the sugar beet for the purpose in greater perfection. We may expect that there will be difficulties in the way, obstacles to be overcome, but they are not insurpassable.

#### To Exterminate Wild Oats.

Wild oats in the land are like diseases in the body, the longer they remain unchecked the more difficult they will be to exterminate, and the more care, time and expense it will require to do so. In the first place it is well to consider the nature of this ruinous plant. Very many farmers imagine that it grows for many years from the same root, but this from considerable experience, I believe to be erroneous. Two years I consider to be the utmost extent of its existence. It may be said in contradiction to this, that if the plant only lived two years it would not be so hard to destroy. But when you come to consider the fur-jacket thick skin, and small fur-covered kernel, it will be easily understood that they may lie for a great length of time, especially in dry seasons on or in the ground without either germinating or decomposing.

I will now give a rotation of crops, which, if properly cultivated, and otherwise attended to, will bring into subjection, if not totally exterminate the worst and most neglected field of wild oats.

One word of caution first; never sow what you do not want to reap; see that your manure, which in all probability has plenty of wild oats in it, is thoroughly heated before it is applied to the land, and then do not be afraid to put it on.

First crop, roots—The land to be shallow poughed early the fall before, and harrowed down fine, also deep ploughed before winter. See that the root crop is kept clean.

Second crop,—Peas and grass seeds—a short early kind of pea is preferable as it will give the grass the best chance, and the oats the worst. If any oats should be likely to ripen among the peas, they can be hand-pulled, which would be almost impossible in any other crop.

I may here remark that a good mixture of grass seed per acre is, Timothy seven pounds, Red Clover five pounds, Alsike ditto three pounds.

Third crop,—Hay mow early—if any oats go to seed now, you are as far off as ever.

Fourth crop,—Same as third. It would now be well to leave it down for a year, or even two—longer if you have a good bottom—and either mow or pasture. When broken up sow with peas, and if any oats have lain dormant they will come up now, and must be hand-pulled out of the peas.

If you have still a doubt or fear, plant roots again as before, and if they are not totally exterminated, adopt the farmers' motto, and try again.  
G. D., jr., Grove Farm, Marden, P. O.

#### Farm Yard Manure.

Three years ago the writer began experimenting with farm yard manure on heavy clay loam in order to ascertain the relative profits to be derived from manure applied just before seeding in the spring, and the old theory of plowing it under in the fall. The field chosen contained fifteen acres, and had been plowed twice in the fall, and one half of the field received fifteen loads of well-rotted manure per acre. Previous to the last plowing in the fall remaining half of the field received the same quantity of manure from the same pile, which had been left over in order that the test might be as complete as possible. The field was gang plowed two and a half inches deep, and sown to barley (two bushels per acre) at the end of two weeks there was a slight difference in favor of the spring manuring, which continued to increase, vegetation becoming more rapid. The leaf of the plants were larger and of a darker color, and matured seven days earlier than the other half of the field. The yield was, on spring manuring, 45 bushels per acre, and in the fall manured part 37 bushels per acre.

The plan adopted by many in this section is to haul every load of manure from the stables of both horses and cattle in the spring, the delay in so doing being more than made up by the rapid growth after seeding, and the increased time in which to more thoroughly cultivate the land in the fall.

The balance of the manure from the straw yards, sheep yards and hog pens is drawn to a compost heap and piled close, about five feet deep, and left for use the following spring.  
T. H.

SIR,—Will you please answer the following questions in the next No. of the ADVOCATE:—

1. Will mixing superphosphate, salt and land plaster together, say a month before using, have any injurious effect on the mixture?

2. If the second crop of clover is plowed under after some or all of the seeds are ripe, and sown with a crop of grain the following spring, will there be clover seed enough in the ground to raise a crop of clover the next year, and so on, alternately, a crop of clover one year with the second crop plowed under, and a crop of grain the next year, and so on year after year without seeding with clover every other spring?

YOUNG FARMER, Inverary.

[No injurious result can arise from the mixture of salt and plaster with superphosphate, no matter how long they may have been mixed. It is much better, however, to get a good, well-prepared superphosphate of lime, and use it without any mixtures whatever.]

SIR,—Having read your article on willow culture, and being the owner of some which cover an area of about fifty acres; the water being but four feet deep, you will see the point of my questions:—

Are shallow lakes worth draining?

What should the character of the bottom be to warrant the outlay?

When should they be drained, and how prepared for seeding?

What crop would pay best? If hay, what kind of hay, and how long after draining before sown. If cranberries, how should they be planted, and when? Should the vine be used on the berry? If the basket willow, where can the slips be obtained, and when should they be planted, and how are they prepared for market, and what would the probable cost be per ton for such a preparation?

Are the roots sold with the bark on? Or do they have to be peeled?

Allowing six hundred cuttings to plant an acre—what would the probable cost of planting be?

S. H., Nova Scotia.

[We have never raised cranberries. The cost of draining swamp must depend on so many circumstances that it is impossible to answer. You had better consult White's work on cranberry culture.]

SIR,—I would like to know if a top-dressing for barley of the following would be of any benefit, viz., salt, ashes and plaster. If any of your numerous subscribers would inform me, through the ADVOCATE, I would be much obliged. Please let me know the amount of each necessary, and the best time to apply.

The field I intend to sow the barley in, was sown plowed last spring; part was planted to corn and potatoes; the balance sowed to oats and peas—ploughed last fall—soil gravel loam.

R. S., South Mountain.

[To R. S.—From the testimony of many who have applied gypsum (plaster) to their land, as well as from our own experience, we have no doubt that it is valuable as a fertilizer, to some land, and in some seasons especially so, but in soils that are not dry, either naturally or by draining, it is no use. A farmer says he has used it for many years, about seventy-five pounds to the acre, and raises at least one-third more clover to the acre than can be got without the plaster. It is serviceable also to his grain crop. Salt has also been applied to land with very profitable results, though in some instances without any perceptible advantage. From fifty to one hundred pounds are generally applied, though a heavier dressing has sometimes been given. Of the value of ashes there is no doubt. For clover grasses, grain crops and root crops it is very valuable and produces very good results.

A top-dressing, such as you write of, would, under any circumstances, be of great service to the crop unless the land be, as we have already said, wet. The sooner it is applied now the better, so that it may be dissolved early and made available for food for the growing crop.

#### Sheep and Sheep-Ticks.

SIR,—I send enclosed, an article from that veteran farmer John Johnson, that I have had for some time, and may be thought useful and interesting to the readers of the FARMERS' ADVOCATE.

For some thirty years, I have been using a preventive worth a thousand cures, because neither sheep nor anything else of animal kind can be kept profitable without the use of my preventive for ticks, which is simply to feed sheep and all other animals so as to keep them improving and growing all the year round; and if a farmer is paid for keeping stock in any other manner, it is only by chance. If farmers will feed from eight to twelve ounces of grain a day, to each sheep, through the winter and spring, with good straw for fodder until about the 1st of March, and then give them shelter in the yard during winter, I will guarantee that they will be free from ticks in the spring, or nearly so, unless there are some so very old that they can not be kept in condition, or some diseased ones. But sheep with lung or liver disease seldom or I think never propagate ticks; it is healthy sheep, suddenly reduced in flesh by poor feed or other privations—such as exposure to great cold, or wet dirty yards, where they become exhausted by standing and leaning against the fence,—for neither sheep nor cattle will lie down in wet dirt so long as they are able to stand up—that are infested with ticks.

I know there are farmers who say that feeding such lots of corn and oil-cake as I do may pay me, but would not pay them. But their reasoning is absurd; and they would be convinced if they could only be persuaded to try, if it were only ten or twenty good sheep, or even lambs in good condition. As soon as pasture fails, commence giving them a little grain—oats are best to learn them to eat—and gradually increase their feed until you give them each eight to sixteen ounces of grain or oil-cake meal per day (I prefer the latter); and I will warrant that they will pay amply for their feed; and the longer they are kept, the better they will pay. They will almost if not quite pay in excess of wool; they will again almost pay in excess of mutton; and if they are ewes with lamb, they will nearly pay in excess of lambs raised; and if the lambs are for the butcher, their extra quality will again pay for the mother's grain or oil-meal during the preceding winter and spring; and if they are young sheep for feeding another winter, with fair pasture they will be very fat in the fall, and a half-bushel of grain will do more in putting on fat than a bushel would the first winter.

No man knows what advantage it is to feed both cattle and sheep even a little grain or oil-cake but he who has tried it. The winter before they are intended for the butcher, they fat a half better than the first winter. For instance: I bought a lot of lean lambs and yearlings in the last of No-



vember, 1856—the lambs averaging 55 lbs., the yearlings 76 lbs. They were all thin in flesh, but of a pretty large breed. I commence feeding them oil-meal at once, with good oat and barley straw, and increased their oil-meal to 12 ounces each per day, at which rate I continued until grass came. I fed no hay. (Lambs do not require so much as old sheep; I usually feed a pound each with straw to older sheep, or half a pound with good hay.) They were then turned to grass; and in two weeks after, I began retailing the best of the two-year-olds to the butchers in the neighboring villages, at from \$7.25 to \$8 each; and in that way I sold all the two-year-olds but four, which, with the yearlings, I have still. I weighed them some three months ago, after shutting them up fourteen hours without food or water, and they averaged over 132½ lbs. I have no doubt but they now average over 140 lbs. I am feeding nearly half a pound of oil-cake meal and nearly half a pound of oats each per day.

Now, any man of common capacity can see at once that the better they are fed the better they pay. I paid only \$2 each for them, and thought them a hard bargain at that, as there were one-third more lambs than yearlings. They sheared nearly five pounds of wool each; and had they been in good condition in the fall, I have no doubt they would have shorn one or two pounds more each. I offered to pay the shearers by the number of ticks they might find—that is, to give six cents for each tick, as compensation for shearing; but there were no ticks found.

Now, Messrs. Editors, if farmers will keep sheep to propagate ticks, I am not to blame, for, several times I have given just such advice through the agricultural papers.

In conclusion, I would add, that high feeding, high manuring, and reasonably deep tillage, are the only means of improving the wretchedly-abused soil of Western New York; and sooner or later it must be done, or the result will be disastrous; and it must begin with high feeding. I have all my farm drained, of course. I had nearly lost sight of that very important part, which, if not already begun, should commence at the same time as high feeding. I can not believe that any farmer can begin either and look back until he has done all he can do. I write what I know I have fully proved, and I know it is the only true course for the farmer's own good as well as that of his country.

J. J.

SIR,—Now, although I entertain the greatest respect for the opinions of the writer, as I am aware that he was always considered very high authority on agricultural matters, and whose numerous articles in the *Genesee Farmer* I never failed to find both interesting and instructive, yet I cannot say that my experience agrees with his in regard to ticks on sheep, my sheep are always well fed and well housed in winter, fed under cover, yet I find it necessary to use something in the shape of tick destroyer. Last fall I went over them all with Millers', and used nearly double the quantity stated in the directions, and still I find that they are not entirely free from ticks. I always commence feeding grain in the fall as soon as the grass begins to fail, and continue to all through the winter, or in other words, I always calculate to keep my sheep in good condition. As I find from experience, like Mr. Johnson, that they pay well for the grain that they consume, far better than taking the grain to market and selling it. In fact in my experience keeping sheep is the most profitable branch of farming. It may be that there was something in the oil-cake fed by Mr. J. that kept the ticks off his sheep. I have had no experience with oil-cake, but would like to hear what the experience of others has been in regard to feeding it to sheep. I generally feed peas in the straw through the winter, and towards spring clover hay. This winter I fed nearly ½ lb of oats to each per day in addition, as the peas were a poor crop last year, and, although they are in good condition, yet at shearing time I am afraid it would not be advisable for me to make a similar offer to that made by Mr. Johnston to the shearers. Namely, to them as their hire six cents for each tick they would find.

The soil and climate of Ontario seems to be well adapted to the raising of long woolled sheep. They are almost entirely free from the many troublesome complaints to which they are so liable in the old country, requiring the constant care of the shepherd, and I think that we Canadians possess advantages in this line that brother Jonathan can scarcely boast of either, and were we alive to our own interests we would go more fully into sheep, and raise more of such crops as roots, peas and

clover, and by so doing keep up, and in many instances restore the fertility of thousand of acres of land that is fast becoming run out. J. L. Aughrim P. O.

SPRING SHOW AND STOCK FAIR.—The Directors of the East Riding of Elgin Agricultural Society intend holding a Spring Show in St. Thomas on the 18th of April. A Stock Fair is also to be held at the same time. We hear that reduced rates are to be allowed by railroad companies. This is another step in the right direction.

The cattle dealers of Guelph and vicinity have formed a society and subscribed a capital of \$100,000 for the purpose of buying cattle for the European markets. Some 2,760 head are already spoken in Wellington county, and they purpose securing in all 5,000 heavy animals by the middle of May.



How to Sing a Song.

BY WILLIAM M. CUMMINGS.

"Since singing is so good a thing, I wish all men would learn to sing."

These doggerel lines, affixed by William Byrde to some songs published 300 years ago, are applicable to our times. The author gives the following brief reasons for persuading every one to learn to sing:—

- "1. It is a knowledge easily taught and quickly learnt, where there is a good master and an apt scholar.
- "2. The exercise of singing is delightful to nature, and good to preserve the health of man.
- "3. It doth strengthen all parts of the breast, and doth open the pipes.
- "4. It is a singular good remedy for a stuttering and stammering in the speech.
- "5. It is the best means to procure a perfect pronunciation, and to make a good orator.
- "6. It is the only way to know where nature hath bestowed the benefit of a good voice; which gift is so rare, as there is not one among a thousand that hath it; and in many that excellent gift is lost, because they want art to express nature.
- "7. There is not any music of instruments whatsoever comparable to that which is made of the voices of men, where the voices are good, and the same well-sorted and ordered.
- "8. The better the voice is, the meeter it is to honour and serve God therewith; and the voice of man is chiefly to be employed to that end."

Quaintly as this is put by Master Byrde, one cannot help thinking of Shakespeare's dictum, "Much virtue in it." Of course, if an apt scholar with the rare voice of one in a thousand study with diligence under a good master, the result is a foregone conclusion; but believing as I do that 999 out of 1,000 people may have passably fair voices, and sufficient natural musical capacity to be able to experience a never-fading delight and solace in the exercise of singing, if properly directed, I propose to say a few words on the subject of "How to sing a song." I choose the word song as an inclusive term, which may be very readily understood to embrace sacred or secular song or ballad, the one condition being that the composition is some ditty for a single voice, which can be sung with accompaniment, and in some instances without; for it must not be forgotten that a great number of our old-fashioned songs, including those of Dibdin, were originally intended to be sung without the extraneous aid of an instrumental accompaniment of any kind.

It may serve to encourage those who are not gifted with silver voices and nightingale throats, to be reminded that many of our best exponents of song have possessed but insignificant physical powers, and have therefore acquired their fame and celebrity by dint of persevering vocal study and mental cultivation; and it is also equally true that many singers in every age, endowed with the most exquisite voices, have wholly failed to command attention or to ravish the ears and hearts of the listening throng, simply because they lacked refinement and cultivation. Rossini was once asked what were the requisite qualifications to make a singer, and it is said that he answered, "Three—a voice, and a voice, and a voice." This was of course true so far as it went, for without some capital or foundation to commence with, progress would be impossible. I, however, very much doubt whether the young of either sex are ever wholly deficient of musical ability; certainly our ordinary and common observation abundantly demonstrates that the voiceless are extremely rare. Of course, if people live through the bloom of youth and the prime of life without ever attempting to exercise their vocal faculties musically, they may possibly attain the unenviable condition of losing the desire and power of attempting to join in the concord of sweet sounds. Infants have naturally the powers of locomotion, but is it only from teaching and practical perseverance that they acquire the art of walking. If, then, you have never taken the first steps in singing, and are anxious to try your powers, you will find nothing more simple or more improving than a slow scale of eight sounds, sung gently, ascending and descending. Commence on some sound easily produced, and be careful that neither the highest nor the lowest sound needs any strain or undue effort. The voice must grow naturally like a plant up-

wards and downwards, and it is folly to force it in either direction.

In considering the question "How to sing a song," the primary difficulty is in the choice. People go to a concert and hear some popular singer vocalise a song, perhaps a good one, and not impossibly a very bad one; and forgetful of the fact that the singer, with reputation at stake, has been studying for weeks how to "make the song go down," the listener is pleased, thinks it easy and effective, and believes that it is only necessary to buy the song and sing it, and produce an equally favorable result. How often is this done, and how often does disappointment ensue!

In choosing a song, select something with at least sensible words; the better and more interesting they are, the greater will be your chance of success. Be careful to get a song wholly within your vocal powers, for if you attempt something too high or too low you will probably subject yourself to ridicule. Having chosen your song, study the words carefully that you may fully comprehend the sense and sentiment; popular singers make it a practice to learn the words by heart—a habit worthy of all commendation and imitation. When you thoroughly understand the words, you may attempt them in conjunction with the tune or music, and in doing so endeavour to arrange breathing places; these should be fixed so as to aid the sense, or at least not to mar the meaning and intent of the poetry. When you have decided where to take breath, mark the place with a pencil, and be careful in studying to observe these marks. As a general rule, unless a phrase of the poetry commences with the first beat of the music bar, we shall find that a bad place for breathing.

Many singers never dream of pre-arranging the places for taking breath, and this fact alone would suffice to account for much of the bad singing we hear. In one of Horsley's glees the bass voice has to sing alone the line, "Mista! black terrific maid;" and when the vocalist, as frequently happens, takes breath after "black" instead of after "Mista," the effect is truly comical, making the line sound like "Mr. Black, terrific maid."

Every word should be pronounced distinctly, even more so than in ordinary conversation. We sometimes miss the aspirate "h" when listening to a careless reader, but the loss is felt with greater force when words are allied to music. I have heard a line from "The Bailiff's Daughter of Ilington" sound like "Before I give you a penny sweet-tart," simply because the singer had forgotten to give fully the "h" in "sweet heart." Again, the letter "r," which we English almost ignore in common talk, should certainly be observed in singing. How otherwise are we to know, in such a song as "The Message," what is meant on the long holding notes by the word "farthing?" The absence of the "r," as so commonly sung, produces "father." These remarks as to the words have all been made in reference to English. Of course we ought not to attempt any other language before we know that we have acquired a proper control over its special pronunciation and accent, and then we should be careful to acquaint ourselves with the meaning and sentiment of the words before we venture to sing them for others to hear, and possibly to criticise.

So much for the words; we now turn to the music, and the first caution we have to give is as to singing the notes in their integrity, not only as regards pitch and intonation, but also as regards the length of the individual sounds. A familiar instance of the unconcerned manner in which a popular song is often murdered occurs to me. The charming melody from the opera Faust, "Quando a te lieta," is a great favourite with young ladies, but not one in ten sings it correctly. To produce the effect intended by the composer, Gounod, each note should be made exactly the length indicated to the text; but almost invariably the fair vocalists introduce numberless dots after the notes, thereby destroying all the charm of the song. Trills, cadences, shakes, and trills should not be introduced into music. The day for the display of musical fireworks is past—at least for a time; fashion, in its strange turnings, may bring them back again, but that will certainly not be for long years to come. Ornaments and embellishments which have been inserted by the composer should be practised until they can be accomplished perfectly and with ease.

All the marks of expression in the song should be carefully observed and regulated, from the softest piano to the loudest forte, remembering never to allow the latter to degenerate into a shout. In singing, the golden rule as to tone should be "quality, not quantity."

Something must be said about the accompaniment for a song. We may take it, as a rule, that this will be played on the domestic orchestra, the pianoforte; and probably the singer will need to play his or her own accompaniment, and there is a great danger, for many a tolerably correct and pleasing vocalist utterly ruins the song and singing by injudicious, and perhaps false and vicious, accompaniment. It is indispensable that the accompaniment of a song should be studied and mastered quite independently of the song or melody. When this is accomplished, the two may be practised together, care being taken that the harmonies set down are not added to or altered in any way, and still greater care that the right foot be kept away from what is commonly called the loud pedal. This should not be touched excepting by thoroughly efficient pianists, for if it be held down during the transition from one harmony to another, the effect is somewhat similar to that produced by a school-boy who, immediately he has finished writing a copy, wipes it all over with his sleeve. The last but not the least important requisite of "How to sing a song" is nerve. If the singer allows nervousness to get the mastery, it is impossible that the song can be well sung. Of course, some degree of nervousness is natural and desirable, as evidence that the vocalist possesses both soul and sensibility; but nervousness must be controlled, and the best antidote against it is the consciousness that the singer has well studied the song, and knows that he or she can render it competently and correctly; and I may add that the singer must not be discouraged if the first attempt at singing a well-studied song should not prove as successful as it ought to have done. The second trial will probably right matters; the mottoes, "perseverance," and "try, try again," are as applicable to singing as to all other undertakings. I cannot better conclude than by recording a tradition of John Bartleman, the most celebrated singer of the last century. He was described as "small of stature, but a leviathan in intellect," and it is said, used to declare that he "never sang a song in his life before the public until he had studied it, the words more especially, for twelve months." We may allow for the gradual exaggeration of the story by passing from one narration to another, and also something for the slow pace of olden days; but even then the anecdote gives us a hint which we ought not to be too dull to profit by.

**Uncle Tom's Department.**

**MY DEAR NEPHEWS AND NEICES.**—How often we notice our little folks, and some "big folks" too, who feel awkward and embarrassed when in society, owing greatly to the reason of not accustoming themselves, and practising politeness in their every day life at home. This fact is so old that it is new, and the following remarks the same, but like a mirror will stand looking at. How grating to the ear of a refined person to hear a tablefull of people supping soup; it is just as easy to take it noiselessly. When you get to the table wait until the others come before you begin, and if possible, do not get up before the others do. Do not pile everything on your plate at once, and then "eat" till there is nothing left. Take plenty of time to eat even in the busiest season. Keep your elbows to yourselves, and do not insert in you neighbors' ribs. Be very particular to hold your knife and fork properly, and always endeavor to accustom yourselves to good language and interesting conversation at the table. Never use any slarg or you will find yourself using it when you do not want to. And now my little nephews when your mother, sister or any lady friend enter, see that they have the most comfortable seats, if you have it to offer. By paying attention to all these and many similar hints when at home they will not only be made to make you an agreeable companion there, but in other society. The most obliging will make the best man or best woman. **UNCLE TOM.**

**PUZZLES.**

**23—BURIED GIRLS' NAMES.**

1. He lent a horse and away he galloped.
2. Over the rugged hills the little vagabond ran.
3. A franc is a piece of money used in France.
4. Queen Mab elects her people—so fairy stories say.
5. How Flora dare do such a thing is a marvel to me.  
From your nephew,  
**CHARLIE.**

**24—HEAD CHANGE.**

Complete I am a word meaning to discover; change my head and I am the will; again and I become a female deer; again and I am the skin of fruit; again and I become human; again and I am a current of air; once more and I am to confirm.  
**NELLY WESTLAND.**

**25—A PROVERB AMONG PROVERBS.**

- One word taken from each sentence in succession will form the answer.
1. "Likeness begets love, yet proud men hate one another."
  2. "They that hide can find."
  3. "Trade knows neither friends nor kindred."
  4. "It is better to be happy than wise."
  5. "Gold may be bought too dear."
  6. "If you would have a good servant, take neither a kinsman nor a friend."
  7. "A gift long waited for is sold, not given."
  8. "It is time to sit when the oven comes to dough."
  9. "Truly that which is honestly got is gain."
  10. "Prudent people always ask the price of things ere they purchase."
  11. "Good advice is never out of place."
  12. "Friendship is the perfection of love."

**26—CHARADE.**

To make out my first each good lawyer will try,  
And endeavor my second to make it;  
Of my whole I am sensible when you are by,  
And heartily wish you'd partake it. **W. B.**

**27—CONUNDRUMS.**

1. Why is whispering a breach of good manners?
2. Which are the laziest fish in the sea?
3. Which of the reptiles is a mathematician?
4. Why is a newspaper like an army?
5. Why are fowls the most economical things farmers keep?
6. What is the difference between a good oyster and a bad one?
7. Whose best works are most tramped upon?

**28—AN OLD MAXIM BEHEADED AND CURTAILED.**  
Ich-are-pea-rea-re-e-um.

**29—CROSS-WORDS.**

1. Two brothers ever keeping side by side, The closer they are pressed the more do they divide.
2. Brothers again unite their ponderous strength, Toiling all day throughout its tedious length.
3. I never met my sister while she flies; I can but follow calling out replies.

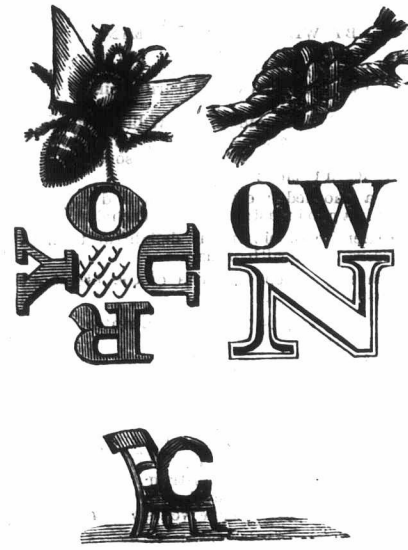
**30—CHARADE.**

One day I trod a London street,  
Though thick the first lay at my feet,  
In temper far from good;  
What horrid weather this, I thought,  
As against the wet and wind I fought,  
All drenched my cape and hood.

While grumbling thus a song I heard—  
The piping of some little bird,  
A second loudly singing;  
God's weather, this, it seemed to say,  
Why grumble at the rainy day?  
Shame and reproach thus bringing.

This lesson firmly to impress,  
A whole I saw in raggedness,  
Deep paddling by the river;  
I gave some coppers to the lad,  
And hurried home ashamed and sad.  
Now guess my whole, folks clever.  
**ANNIE STANTON.**

**31—ILLUSTRATED REBUS.**



**Answers to March Puzzles.**

- 1—The roof of the mouth.
- 2—Because it should be ground.
- 3—Because what is done can't be helped.
- 4—Because the water is always lean.
- 5—He got Hungary and wanted Turkey.
- 6—Your word.
- 7—Because it always takes *knights* to play the game.
- 11—Hay.
- 12—1, Gilt, Guilt; 2, Gate, Gait; 3, Hire, Higher; 4, Nose, Knows; 5, Pane, Pain; 6, Rest, Wrest; 7, Ring, Wring.
- 13—Scratch.
- 14—Clandian.
- 15—Let your motto be onward.
- 16—Ellipses.
- 17—1, Pace, cape; 2, Care, race; 3, Time, mite; 4, Page, gape; 5, Tale, late; 6, Live, vile; 7, Lure, rule.
- 18—1, Milton; 2, Wordsworth; 3, Cornwall; 4, Bulwer; 5, Randolph; 6, Rogers; 7, Parker; 8, Woods; 9, Cobb; 10, Petrarch; 11, Chambers; 12, Franklin; 13, Tasso; 14, Humphrey; 15, Sheridan; 16, Hemans; 17, Victor Hugo; 18, Abbot; 19, Trollope.

**18.—DOUBLE ACROSTIC.**

S U P E R B  
C O U N T R Y  
O T H E R  
T O R O N T O  
T O W N

**19.—WORD SQUARES.**

I. H O R S E O P I U M R I D G E S U G A R E M E R Y	II. J U N E U R A L N A I L E L L A
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**20.—WORD SQUARES.**

I. L A K E A B E T K E N T E T T A	II. S I N K I R O N N O T E K N E W
--	---

- 21.—Coral, Cora, Tra, Or, R.
  - 22.—Spine, Pine, Pin, In, I.
- We are happy to credit our niece Minnie Burton with answering the greatest number of puzzles last month.

**Names of Those Who Sent Correct Answers to March Puzzles.**

Catharine Jane Walker, James M. Jackson, Wm. H. Walker, Amelia Stranbel, Peter S. McLaren, Maggie Blair, Minnie Barber, Minnie B. Fraser, Thomas M. Taylor, W. Broughton, Rhoda G. McKay, Lizzie M. Reid, Jane Thompson, Eva Granger, Emily West, Thomas Muir, Francis McNamane, Jennie McNaughton, Frank Nelson, Eleanor Shore, James McCrae, Harry Johnson, Charlie Main, Jennie Fraser, William Housir, Sarah J. Sutton, Edwin Francis, Samuel Brown, Jane McBet, Carson Nesbit, Joshua Bally, Thomas Mercer, James McDermitt, C. Leach, Maria Summers, Sarah Duffield, G. Lockwood, Edith Williamson, Adelaide Chase, Eddie H. Orr.

**HUMOROUS.**

"Is he a good horse to go?" "Thee would be pleased to see him go," said the conscientious Quaker. A bargain was struck, and a balky horse changed owners. His purchaser in high dudgeon went back upon the Quaker. He defined his position: "I have not lied to thee, friend. I told thee, thee would be pleased to see him go. Now, would'n't thee be pleased to see him go?"

Some confounded idiot has put that pen where I can't find it!" growled a man the other day as he searched about the desk. "Ah um! yes! I thought so!" he exclaimed in a lower key, as he took the article from behind his ear.

There is a man somewhere whose memory is so short that it only reaches to his knees, therefore he never pays for his boots.

Lady (to a little girl of four years)—"What are you going to call you new doll?" Girl, heaving a deep sigh, like some anxious mother—"I shall call it Rosa—if it lives."

"Is you master at home?" inquired a gentleman of the servant of the house at which he was calling. "No, sir," replied the man, "When will he be back?" asked the visitor. "Can't say, sir," said the man; "when he sends me down to say he's out I can never be sure."

Americans are never tired of descanting on the immensity of their institution. Not long ago an Englishman travelling in the State met a Yankee who proudly stated that he knew England well. "I guess," said he, "that I saw pretty well the whole of your country; I was there five days last fall." "And you saw London?" asked the entranced Saxon, "Certainly, I did, sir, and it air a tarntaion big village I do confess; but we have a fall, sir, that would sweep the whole place to Gehenna in a matter of about three minutes." "And where is the fall?" demanded the Englishman, who was geographically knowing. "I mean, sir, the Falls of Niagara." "Then, my good man," said the Saxon, "you are mistaken. All the water that goes over the American side of the Falls would not clean the teeth of half the people in London." And such is almost the fact, for the part of the Falls that comes over in all its force and grandeur belongs to Britain, and not to the States.

A young lady in Wisconsin refused an offer of marriage on the ground that her father was not able to support a larger family.

**CHILDISH FREAKS.**—"What are you after, my dear?" said a grandmother to a little boy, who was sliding along a room, and casting furtive glances at a gentleman who was paying a visit. "I am trying, grandma, to steal papa's hat out of the room without letting the gentleman know it; he wants him to think he's out."

A grate want—Coal.

Joint affair—Rheumatism.

Policeman's motto—"Give us arrest."

Matters of interest—Government bonds.

**Potographer.**—"Now, sir, if you'll look a little less as though you had a bill to meet, and a little more as though you'd been left a legacy, you'll be a picture."

They were at a county fair. In one of the booths as a small stand for the sale of watch charms. "Oh, George," she said, "buy me a charm." "Sarah," answered he, "you have too many already."

A gentleman gave a letter of introduction to a student of music about to visit Leipsic, who wished to put himself under the instructions of Professor X., a famous teacher in that city. Upon the student's return home the gentleman asked, "How do you like the professor?" "Oh, wonderfully! He gave me fine lessons; but he is a very singular man. He kept praying all the time he was teaching me." "Praying! What do you mean?" "Well, while I was playing he clasped his hands, lifted his eyes to the ceiling, and kept saying—'Great Heaven, what sin have I committed to deserve this punishment!'"

**Uncle Moses' Sermon.**

Uncle Moses is the chief executive of a suburban colored Sunday-school. Last Sunday, raising his black face, with its snowy fringe, he peered over his ante-bellum "stock" and collar at the little nigs, who were buzzing like bees in a hive just under his nose.

"Ordah, chillen, ordah! Don't yer heah me, chillen? Little Jim Lumpkin, dere, hesh dat talkin' like a consterble on 'lection day."

When Jimmie ceased his conversation the chief executive resumed:

"I calls de 'detension ob de school ter de way youse been a-carryin' on dis bressed day. Wot yer been a-doin'? An' de way yer tongues is a bin a carruscatin' is scan'lous."

The black fingers pushed the tall collar back and pulled the black chin forward.

"Now, I puts it ter yer, an' do you all lissen, an' you, too, Lize Millins—I ax yer dis question: How menny eyes you chillens got?"

Chorus—"Two."

"How menny mouves yer got?"

Unanimously—"One."

"What does dat mean? It means yer mus' see twice as much as yer tells. Now, how many yeers yer got?"

Chorus—"Two."

"An' how menny mouves?"

"One."

"Dat means yer mus' heah twice as much as yer talks. Now, 'member dis lessen; an' you, Henry Giles, contribute de papers roun' fore we jines in prar."

**Praise Your Wife.**

Praise your wife, man; for pity's sake give her a little encouragement; it won't hurt her. She made your home comfortable, your heart bright and shining; food agreeable—for pity's sake tell her you thank her, if nothing more. She don't expect it; it will make her eyes open wider than they have these ten years, but it will do her good, an' you, too. There are many women to-day thirsting for words of praise, the language of encouragement. Through summer's heat, through winter's toil, they have drudged uncomplainingly, and so accustomed have their fathers, brothers, and husbands become to their monotonous labors that they look for and upon them as they do the daily rising of the sun, and its daily going down. Home every day may be made beautiful by an appreciation of its holiness. You know, if you can take from your drawer a clean shirt whenever you want it, that somebody's fingers have ached in the toil of making it fresh and agreeable, so smooth and lustrous.

**Never Forget Anything.**

Charge your mind with your duty. That is largely the true definition of faithfulness. Bad memory and mistakes are used as apologies a great deal oftener than necessary. A boy beginning business life will generally lose his place who pleads such an excuse more than once or twice.

A successful business man says there were two things which he learned when he was eighteen, which were afterward of great use to him, namely: "never to lose anything, and never to forget anything." An old lawyer sent him with an important paper, with certain instructions what to do with it.

"But," inquired the young man, "suppose I lose it, what shall I do then?"

The answer was, with the utmost emphasis, "You must not lose it!"

"I don't mean to," said the young man, "but suppose I should happen to?"

"But I say you must not happen to! I shall make no provision for any such occurrence. You must not lose it!"

This put a new train of thought into the young man's mind, and he found that if he was determined to do a thing he could do it. He made such provision against every contingency that he never lost anything. He found this equally true about forgetting. If a certain matter of importance was to be remembered he pinned it down on his mind, fastened it there, and made it stay.—*Youth's Companion.*

"Would you like to know a good thing to put in practice?" asked a young lawyer of an old friend of his father. "Yes, tell me," "Well, put me in practice," answered the young lawyer.

**The Leaves' Sweet Secret.**

Have you ever caught the secret  
Which the leaves forever sing  
Through each balmy day of summer,  
When the birds are on the wing?  
Have you listened to their language,  
And their laughter, soft and sweet?  
Have you watched their shining glances  
Through the noontide's glowing heat?

Oh! they make such merry music,  
Gayly dancing in the breeze,  
Every tiny leaf a-tremble  
On the solemn old oak trees—  
That you know some happy secret  
Must have stirred each winsome elf  
To those bursts of fairy laughter,  
And you fairly laugh yourself?

Up and down they dance and quiver,  
Back and forth they sing in glee,  
While the whistling winds still louder  
Pipe their merry minstrelsy  
All along the woodland borders,  
Past the reapers and their sheaves,  
Still the rippling music greets you  
Of the laughter of the leaves.

Ah! 'tis sure some lover's secret  
Which they whisper day by day;  
Never ceasing, never tiring  
Of the old and happy lay.  
Merry songs and merry singers,  
Merry hearts where love is king,  
Every summer brings new lovers,  
Every year fresh leaves to sing.

**A Moonlight Night.**

How beautiful on yonder casement panes  
The mild moon gazes mark!  
With what a lovely and majestic step  
She treads the heavenly hills!  
And oh! how soft, how silently she pours  
Her cluster'd radiance on the scene below;  
And hill, and dale, and tower  
Drink the pure flood of light!  
Roll on, roll thus, queen of the midnight hour,  
Forever beautiful!  
HENRY NEELE.

**An Honest Flower.**

The little maiden turned away  
A gaudy picture book,  
And cast where heavy snow-drifts lay  
An anxious yearning look.  
The painted rose and twining vine  
Had wiled the dragging hour,  
But now she said with weary sigh  
"I want an honest flower."  
O, little maid, a steep rough trail  
Your woman's feet must tread,  
And many a time your heart will fail  
Before the day is sped;  
When, tired of shame and friendship's lie,  
And crowned with woman's dower  
Of loving pain, your heart will cry  
For, "just one honest flower."  
ANNIE HALLS JOHNSON.

**My Garden.**

BY ETHEL ALLEN.  
O my bonny, bonny garden!  
Dearer to me from this hour;  
For my true love he doth covet  
From thy beds a flower.  
Shall it be a white rose, dainty,  
Gracious queen of all her kind?  
No, I'll have thee not, because thou  
Sadness means I find.  
Crimson roses, why so eager,  
When their merits I discuss?  
Could I choose them when they to him  
Say "Love's dangerous?"  
Nodding harebells, blue and fragrant,  
Will they come to my relief?  
But, alas! their pale sweet blossoms  
Do but breathe of grief.  
Evening primrose, that so softly  
Opens quick this world to see,  
Thou art lovely, but would whisper  
Of inconstancy.  
O, blue violets, meek and lowly,  
How their presence now I bless!  
For in confidence they'll tell him  
Of my faithfulness.

**An Inquisitive Boy.**

"What makes that noise?" asked a little boy on the train the other day. "The cars," answered his mother. "What for?" "Because they are moving." "What are they moving for?" "The engine makes them." "What engine?" "The engine in front." "What is it in front for?" "To pull the train." "What train?" "This one." "This car?" repeated the youngster, pointing to the one in which he sat. "Yes." "What does it pull for?" "The engine makes it." "What engine?" "The man on the engine." "What engine?" "The one in front." "What is that in front for?" "I told you that before." "Told who what?" "Told you." "What for?" "Oh, be still, you are a nuisance." "What's a nuisance?" "A boy who asks too many questions." "Whose boy?" "My boy?" "What questions?" The conductor came along just then and took up the tickets, and the train pulled up at the station before we could get all of the conversation. The last we heard as the lady jerked the youngster off the platform, was, "What conductor?"

A FEW HINTS FOR LITTLE FOLKS.—Did you ever stop to think to what an extent grown-up people are influenced in their feelings towards you by the little habits you may consider of but slight importance? A stranger can but be prepossessed in favor of a child who comes to the table with neat face and hair, sits quietly, and waits patiently to be helped, or politely makes known any wants not anticipated; yet all this may be done simply because of the stranger's presence, but the boy or girl who is uniformly dutiful and respectful, careful to save work and discomfort for others, who habitually says, "Yes, sir," "No, sir," "Thank you," and "If you please," will not be very likely to "forget his or her manners" when in company, and your failure or success in the chosen avocation of life, may be in a great measure influenced by the little things toward which your attention is so often directed.

I read of one gentleman who attributed his great success in business to the fact that his mother taught him to be tidy, his first lesson being to fold up his nightdress neatly every morning; and when I see men who need someone always picking up after them, or women who are slatternly, and have a house forever out of sorts, I think their mothers were mistaken in their ideas of true kindness.

**A Rich Scene.**

The following rich scene recently occurred in a court of justice between the judge and a Dutch witness all the way from Rotterdam:  
Judge—"What is your native language?"  
Witness—"I pe no native; Ise a Dutchman."  
Judge—"What is your mother tongue?"  
Witness—"Oh, fadder says she pe all tongue."  
Judge (in an irritated tone)—"What language did you first learn—what language did you speak in the cradle?"  
Witness—"I did not speak any language in the cradle at all; I only cried in Dooch."  
At this there was a general laugh, in which the judge, jury and audience joined. The witness was interrogated no further about his native language.

**A Beautiful House Plant.**

The calla lily, roots of which may be procured from any florist, is one of the finest plants for house growing when properly treated. The most practical method is to procure an earthen jar—suitably decorated on the outside, if desired, by painting or pasting on of freize or flower pictures, or by a paper open-work covering. In this place rich mould some five or six inches deep, and in this set the calla plant. Now put on the top of this mould a layer of clean, coarse sand, about two inches deep, and on the top of this some small pebbles. Then fill the jar with water and replace as evaporated, so as to always have the water several inches deep above the pebbles. Place in a warm and sunny window, and the plant will throw up large, luxuriant leaves, to be followed by the magnificent bloom. What is still better, the flower stalks will be sent up in a succession so as to afford a nearly continuous series of flowers. A few minnows introduced into the water will usually thrive without further care, and afford a pleasing study.

Men who attempt to live on their wits are apt to fail for want of capital.

### Minnie May's Department.

MY DEAR NIECES,—I want to have a few words this month with you in regard to setting a table; which it requires attention and practical ability to accomplish properly. How often good food is placed on the table presenting a most distasteful appearance. There are two things necessary for the proper enjoyment of a meal, whatever or wherever it may be—these are order and cleanliness. The appearance of the table affects our enjoyment of the meal. How far we should regard the appearance depends upon our tastes and our means. Who would not sooner partake of a simple meal at a well-ordered table than an elaborate dinner at a slovenly one? Let us for a moment refer to "dishing up." Even so simple an article as mashed potatoes is often sent to the table looking anything but tempting, in a shapeless mass, dumped into a dish; whereas, if smoothed, the whole look of the dish is changed. Nothing looks more distressing than to see a roasted fowl come to the table flying with outspread wings and legs, as if the bird had kicked before the fire, when tying the wings and a bit of string tied around the legs and sewed closely to the side would have converted the ridiculous object into a respectable, dressed fowl. Even so simple a thing as a mutton chop may be neatly served or otherwise. Let us compare a dish of chops thrown into a platter "higgledy piggledy" with one in which the small ends are all laid in slightly overlapping, and the difference will be manifest at once. Many other hints might be given, but we must now turn our thoughts to the table setting. In the majority of families where no domestics are kept, particular care should be taken to have all the necessaries on the table to avoid as little commotion as possible. The meat is placed before the man of the house, with carving-knife, fork and steel; the soup is generally served by the lady. The cruet-stand occupies the centre of the table; the salt-cellars at each end; the vegetables at each side; the bread at the side or one corner, also the butter, if used; the gravy at the right hand side of the meat, and pickles at the left hand corner of the opposite end. Many will think this too simple a matter to write about, but it must be remembered that many of my nieces are living in isolated places who desire to know how things are done elsewhere, and like to have their homes and tables looking cheerful and home-like.

MINNIE MAY.

### Life's Voyage.

The accompanying illustration represents youth, manhood and age in a pleasing and interesting manner. The lesson it furnishes is as impressive and instructive as the discourse of any orator, and should do quite as much good. We are all at some stage on the voyage—none of us are stationary, but continually moving onward. It is a forcible reminder of "Whither are we drifting." Look at the picture and see where you are, and you may with profit contemplate what the picture would be if drawn fifty years hence.

This picture is taken from a painting of which we have a beautiful chromo, very handsomely colored and executed by the best artists; the size of this chromo is 15 x 22. It is really a very fine picture, and is fit for any home, from the costly mansion of the wealthy to the humblest cottage. It must please every one. Many hundreds of copies have been already given to old subscribers of the *Advocate* for sending in one new subscriber, and Mr. Weld wishes every reader of this journal to have one. The price charged for this picture in the country where it was produced is one dollar, and at that price it is the cheapest picture we have ever seen.

Such advantageous arrangements have been made with the publishers of this picture, that Mr. Weld is enabled to send a copy to every old subscriber who will take the trouble to show his paper to a neighbor and get him to subscribe. Every one who has seen the picture is highly pleased with it.

### RECIPES.

#### MIXTURE FOR WATERING HOUSE PLANTS.

Dissolve in one pint of hot water four ounces of sulphate or nitrate of ammonia, two ounces nitrate of potash, and one ounce of white lump sugar;



CHROMO, LIFE'S VOYAGE.

keep tightly corked in a glass bottle, and add a tablespoonful to every three or four quarts of water used for watering. This mixture is inexpensive and more pleasant to use than guano water or other liquid manure, which it is sometimes necessary to apply.

#### TO KEEP MOTHS, BEETLES, ETC., FROM CLOTHES.

Put a piece of camphor in a linen bag, or some aromatic herbs, in the drawers among linen or woolen clothes, and neither moth nor worm will come near them.

The good housewife never boils a joint without converting the broth into some soup.

#### POTATO PUFFS.

Take cold, waste meat, either beef, mutton, veal or ham; clear it from gristle, cut it small and season with pepper and salt; boil and mash some potatoes, and make them into a paste with one or two eggs; roll it out and dust with flour; cut it round with a saucer; put some of your seasoned meat on one-half and fold it like a puff; pinch or nick it neatly round, and fry a light brown. This is an excellent method of preparing meat that has been dressed before.

HOUSE GIRL.

#### TO CLEANSE THE HAIR.

Ammonia should not be used on the hair; it injures the gloss and softness, causing the hair to become harsh and dry. The best way to cleanse the hair and keep the scalp healthy is to beat up a fresh egg and rub it well into the hair, or, if

more convenient, rub it into the hair without beating. Rub the egg in until a lather is formed; occasionally wet the hands in warm water, softened with borax; by the time a lather is formed the scalp is clean; then rinse the egg all out in a basin of warm water, containing a tablespoonful of powdered borax; after that rinse in one clear, warm water.

#### PREVENTATIVE OF LOCKJAW.

Every little while we read of some one who has stuck a rusty nail in his foot or some other part of his person, and lockjaw has resulted therefrom. All such wounds can be healed without any fatal results following them. The remedy is simple:—It is only to smoke such wound, or any wound that is inflamed, with burning wool or woolen cloth. Twenty minutes in the smoke will take the pain out of the worst case of inflammation arising from any wound.

#### TO CURE HOARSENESS.

Beat well the whites of two eggs; add two tablespoonfuls of white sugar, grate in half a nutmeg, add a pint of lukewarm water, stir well and drink often. Repeat the preparation if necessary.

#### PARADISE PUDDING.

Three eggs, one-fourth pound of bread crumbs, three apples, currants, juice of half a lemon, nutmeg, salt; mince the apples, beat the eggs, and stir them into the bread crumbs and other ingredients. Rub the currants in flour before putting in. Boil for an hour and a half. To be eaten hot with sweet sauce.

#### TO PRESERVE BRIGHT GRATES.

To preserve bright grates or fire-irons from rust, make a strong paste of fresh lime and water and with a fine brush smear it as thickly as possible over all the polished surface requiring preservation. By this simple means all the grates and fire-irons in an empty house may be kept for months free from harm without further care or attention.

DEAR MINNIE MAY,—Your very interesting journal we look for with pleasure. Below is a recipe for spicing beef—a most excellent dish, and one I rarely meet with from home:—One ounce of saltpetre, three ounces of cloves, three ounces of coarse sugar, one nutmeg, half ounce of allspice, three handfuls of salt. Grind all to a fine powder, rub well into the beef, keep in spice for three weeks, rub-

bing daily. This is sufficient for a round of say fifteen pounds. When spiced put into a kettle, and keep on a slow boil for four or five hours; turn up side down once or twice. Only put in one teacupful of water.

P. S.—Can any of your correspondents give a recipe for polishing zinc. Yours truly,

ANNIE.

#### CURE FOR SPRAINS BRUISES &C.

The following is a recipe many would think it not worth the time of mixing because the articles are to be had in every person's house. But many persons after using once would be sure there was virtue in it. For bruises, sprains and where the skin is not broken if used and well rubbed in, I have never know it fail of instant relief. It is good on man or beast, and it has scattered fistulas and polleivil when used before puss had formed. One pint of good vinegar, cider best; one pint soft-soap, handful salt, one table-spoonful saltpetre; mixed in a white dish, then use.

Your Niece,  
ELVIE E. GAVEL.

#### BAKED HAMS.

Choose a small ham, and soak over night, putting it in quite warm water; in the morning lay it to drain and wipe dry; mix flour and water in a stiff batter, and cover the ham with it; place it on a trivet or on sticks laid across the baking-pan; when cooked trim the rind and garnish as you would a boiled ham.

**CHOCOLATE.**

To each quart of new milk, or half milk and water, allow three heaping tablespoonfuls of scraped chocolate. It is best to set a coffee-pot or any convenient dish, into a kettle of boiling water; pour in the milk and as it heats add the chocolate mixed to a paste with a little milk; boil for two or three minutes and serve. Some prefer to boil chocolate only one minute, others fifteen, while others boil it one hour, setting aside to cool that the oil may be removed and then reheating when wanted.

**BUTTERED EGGS.**

Take four fresh eggs, beat them well. Put two ounces butter into another basin; place the basin in boiling water, and stir the butter until it melts. Have ready a lined saucepan. Pour the eggs and butter into it, and as the mixture begins to warm, pour it backwards and forwards from the saucepan to the basin, that the two ingredients may be thoroughly incorporated. Keep stirring the mixture one way until it is hot, not boiling, and serve on hot buttered toast.

**Method of Hanging up the Washing.**

"When we build I am going to have a place in the house where we can conveniently hang the clothes to dry." This has been one of my sayings every stormy washing day since we went to house-keeping, until recently. "When we build," however, is still an indefinite time in the future; but I have found a way of hanging the clothes in-doors during the drying process which is so simple and easily done that I want the rural housewives to know of it. Thus I decided to tell them while comfortably hanging a large washing in our dining-room yesterday, while the wind and snow were holding a grand carnival outside.

All that is required are four strong nails, a line, and two windows or doors opposite, or nearly so. Drive a nail in each corner of the casing of either doors or windows, and tie the rope so that there are two lines passing from window to window parallel with each other.

The manner of hanging up the clothes is where the advantage is gained. We will begin with towels. Take two clothes pins, and pin one corner upon the line; then take the corner opposite and pin upon the second line, and let it hang between the cords. With pillow slips, fasten one-half upon the first line, the other half upon the second, thus only using as much of the line as the clothes pins are wide. For tablecloths and sheets, use four pins, one for each corner. A large washing in this way can be hung upon a short line, but strong nails are required. One can have the clothes ready and hang them in the sitting-room where it is warm, and they will be dry and ready to take down before the family are astir in the morning.

I am very enthusiastic over this plan. I trust it will please the lady readers, and should it make the washing-day easier for any of them I shall rejoice.

M. L. S.

**GRAND'S HORSE SALES.**—We hear that many purchasers from Europe will attend these sales. We admire the enterprise of Mr. Grand in being the first to move in establishing horse markets. Farmers will get higher prices at good, established markets than they can get at their stables. We hope these sales will be well attended by both buyers and sellers, and that they may become permanent.

We would call the attention of our readers who wish to grind their grain to the advertisement of the Big Giant Feed Mills in this issue. We are pleased to hear of any of our American friends introducing any improved machinery into our country.

**Commercial.**

FARMERS' ADVOCATE OFFICE,  
London, April 1, 1878.

The past month has seen little or no change in our grain markets. What, with bad roads, light deliveries, light stocks and the extreme dullness, with a slight decline in Liverpool, there has been little or nothing done the past month.

**WHEAT.**—The month of March has been one of extreme dullness in this article. There has been no disposition to buy at any price. The deliveries from farmers have been light, and there being no heavy stocks held, there has not been much disposition to do business on the part of holders or sellers. Leaving the Eastern question aside, we see no reason for any further decline, even in the face of the favorable reports of the growing crop which are coming in. As near as we can get at it there is 35 to 40 per cent. of the crop of 1877

still in the country. From this must be deducted seed and sufficient for home consumption.

The late reports from the Black Sea ports seem to convey the impression that the wheat from that country is likely to arrive in doubtful condition.

The following is from the *New York Produce Exchange Weekly*:

The export surplus of Russia has ranged in different years from thirty-two to seventy million bushels of wheat, with an average for ten years of 49,000,000 bushels. The Russian wheat crop is said to have been a large one in 1877. The least that need be expected is an average export—a very considerable portion of this amount was exported in 1877-8 from Northern Russian and German ports and overland by rail.

The American crop of 1877, including Canada, was larger than ever before, but it has been already drawn upon by export in wheat and flour since September 1, 1877, to the extent of about 57 million bushels. The extent of surplus in America remaining for export for the six months from March to August 1878 will certainly be less than it has been in the first six months of the harvest year, and will probably be about twenty to twenty-four million less, making the aggregate for the year about ninety to ninety-four million bushels. With war continued and bad crop prospects, higher prices will rule; but with peace in Europe and generally good crop prospects, lower prices later in the season will probably prevail, but not so very much lower, as the price of wheat now in the United Kingdom is about the average price for the last ten years.

**PEAS.**—Peas have ruled very quiet and steady all the season through. Stocks are completely cleared out, and an order for a 20 car lot would be with difficulty filled.

**BARLEY.**—Barley is still very dull, and we do not look for any improvement this season; in fact the malting season will soon be over.

**CLOVER SEED.**—There was a short spurt some two weeks ago, but the light deliveries and no stocks made it very difficult for dealers to fill orders, and many good ones were lost for that reason. The export demand is now over.

**BUTTER.**—Butter still continues inactive, with heavy stocks in store. We hear of sales in Toronto and Montreal at 6 to 8 cents, and one firm in this city has an order for 1,000 packages at 6 cents. This will give our readers some idea of the state of the butter market, and we would advise caution the coming season to all who have anything to do in this article, both manufacturers and dealers. We shall make no further comments on this article but would call attention to a letter on this subject in another column.

**CHEESE.**—Cheese has ruled steady and very much higher than we had any anticipation it would. When we compare the price of cheese and the price of butter and hams, there is a striking difference. This difference, in our opinion, is a strong argument in favor of the associated system of cheese making, and the same system cannot too soon be adopted in the manufacture of butter.

**London Markets.**

Deihl wheat.....	\$1 90 to	\$2 00
Treadwell.....	1 85 to	1 95
Red.....	1 85 to	1 93
Spring.....	1 50 to	1 70
Barley.....	80 to	1 00
Peas.....	95 to	1 07
Oats.....	90 to	92
Corn.....	80 to	1 00

**PRODUCE.**

Roll Butter, fresh.....	16 to	20
Tub Butter.....	10 to	16
Lard.....	9 to	10
Cheese, per lb.....	11½ to	12½
Eggs, per dozen.....	10 to	12
Hay, per ton.....	10 00 to	12 00
Clover (at market prices).....	4 00 to	4 25
(at merchant's prices).....	1 50 to	2 00
Timothy seed.....	55 to	60
Potatoes.....	25 to	30
Carrots.....	60 to	70
Onions.....	60 to	1 10
Apples.....	60 to	1 10

**Chicago Markets.**

Chicago, March 30, 1878.

Wheat, excited and higher, averaging 5c in advance; Chicago spring, \$1.10½ to \$1.14; Corn active and firm; Oats higher; Barley unsettled 46c; Pork, \$9.50.

**Liverpool Markets.**

Liverpool, Mar. 30, 1878.

Flour, 25s to 27s; Spring Wheat, 9s 10d to 11s 0d; Red Winter, 11s 0d to 11s 6d; White, 11s 3d to 11s 8d; Club 11s 8d to 12s 6d; Corn, new, 26s to 26s 3d; Oats, 3s; Peas, 36s per quarter; Barley, 3s 0d; Bacon 27s 0d to 28s 6d per cwt; Cheese 66s; Beef, 82s.

**New York Markets.**

New York, March 30, 1878.

Flour, \$4.05 to \$5.85; Wheat, \$1.29 to \$1.29½ for No. 2 Spring; Rye, firm, 78c to 79c; Corn, sales 75,000 bushels, 50c to 57½c; Barley quiet; Oats, 32c to 41c; Pork, \$10.25 to \$10.50; Cheese, 6½c to 12½c.

**Toronto Markets.**

Toronto, March 30, 1878.

Spring Wheat, \$1.00 to \$1.07; Red Winter, 1.00 to \$1.07; Treadwell, \$1.12 to \$1.15; Deihl, \$1.15 to \$1.20; Barley 50c to 60c; Oats 35c to 37c; Peas 66c to 68c; Hogs \$5.00 to \$5.50; Flour, Superfine \$4.20; Spring extra \$4.75; Extra \$5.50; Superior, \$5.80; Butter 5c to 17c.

Money to lend on the most liberal terms. Apply personally or by letter to John Martin, Barrister, &c., 438 Richmond street, London.

**Good Wheat Prospect in the West.**

The Cincinnati *Gazette* publishes dispatches from fifty-seven points in Southern Ohio, Indiana and Northern Kentucky, from which it appears that the prospects for a large crop of wheat are exceedingly good. The acreage sown last fall was larger than ever known. Not one report is unfavorable, although from a few points there are apprehensions of rank growth. Advices from the interior of the state indicate that the storm of the past two days has been one of great severity. A great amount of damage has been done to property generally, and especially to railroad property.

According to a cable dispatch from London, 160 head of Canadian cattle have been sold for \$28 10s each. These animals were shipped by a Toronto firm. A large margin of profit was realized on the drive.

**COUNTY OF ELGIN STOCK FAIR AND EAST ELGIN SPRING SHOW.**

The Directors of the East Elgin Agricultural Society and the Managing Committee of the County of Elgin Stock Fair have decided to hold a conjoint Fair and Show on the

**Agricultural Grounds, St. Thomas, on Thursday, 18th April, 1878.**

This will afford a good opportunity for farmers who have stock of any description to sell, or who wish to replenish their herds, as the Committee have determined to spare no pains in order to make the gathering a complete success.

dd-1 S. DAY, Chairman of Committee.

**\$250 IN PREMIUMS**

**Pringle's New Hybrid Spring Wheats.**

**CHAPLAIN.**—A bearded variety—a cross between the Black Sea and Golden drop—combining the remarkable hardiness of the former, with the superior quality of the latter. Its strong and vigorous straw, growing 6 to 12 inches higher than its parent varieties, stands erect, frequently bearing even in very ordinary culture heads from 5 to 6 inches in length, containing from 60 to 75 kernels each.

Price \$1.00 per lb.; 3 lbs. \$2.50, by mail, post-paid.

**DEFIANCE.**—Another variety of Spring Wheat of the highest promise, the result of a series of experiments, to incorporate superior qualities upon the hardy stock of our common Club Wheat, by hybridizing it with one of the finest, whitest, and most extensively grown sorts of the Pacific Coast.

This variety displays great productiveness, vigor, and hardiness. It is a beardless, white chaff wheat, with heads frequently 5 to 6 inches long, very closely set with large white kernels, frequently numbering 75 to 80 to the single head.

Price, \$1. per lb.; 4 lbs. \$2.50, by mail, post-paid.

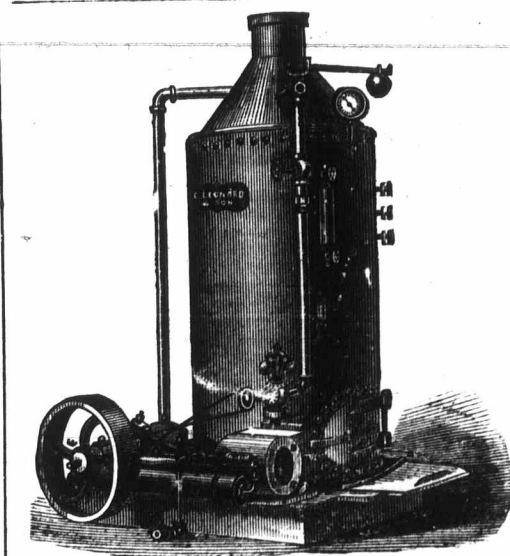
In order to induce Wheat Growers to give these new sorts a thorough and universal trial, we offer \$250 in premiums for the largest quantities grown from 1 pound of seed, also for the 20 largest heads. For particulars see Circular.

**Bliss' Illustrated Catalogue of Garden, Field, and Flower Seeds, Fertilizers, Agricultural Implements, etc., etc.** One hundred pages, many illustrations, 3 cents.

**Bliss' Illustrated Catalogue of Plants, for the Greenhouse, Conservatory, Lawn, and Flower Garden.**

**Bliss' Illustrated List of Novelties for 1878, mailed free to all.**

Address: B. K. BLISS & SONS, 34 Barclay St., New York



**Engines and Boilers FOR FARM USE.**

P. Engine & Boiler, \$200 | 10 H.P. Engine & Boiler, \$425  
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The safest, handiest, cheapest and most economical Engine and Boiler in the market.

Send for circulars to **E. LEONARD & SONS, LONDON.**

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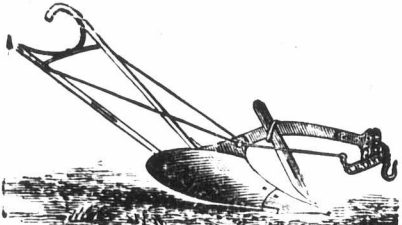
My annual Catalogue of Vegetable and Flower Seed for 1878, rich in engravings will be sent FREE to all who apply. Customers of last season need not write for it. I offer one of the largest collections of vegetable seed ever sent out by any seed house in America, a large portion of which were grown on my six seed farms. Printed directions for cultivation on each Package. All seed warranted to be both fresh and true to name; so far, that should it prove otherwise I will replant the order gratis. NEW VEGETABLES A SPECIALTY. As the original introducer of the Hubbard Squash, Phinney's Melon, Marblehead Cabbages, Mexican Corn, I offer several new vegetables this season, and invite the patronage of all who are anxious to have their seed directly from the grower, fresh, true, and of the very best strain.

JAMES J. H. GREGORY, Marblehead, Mass.

**USE THE**  
**Ontario**  
**Baking**  
**Powder,**  
White, Odorless, and Does Not Discolor.

Manufactured at the  
**ONTARIO**  
**Coffee and Spice Steam Mills,**  
**TORONTO.**  
W. J. SMITH, Proprietor.

**The "Little Hero"**  
One-Horse Plough,



For Orchards, Gardens & Nurseries.  
Made by  
**COPP BROS. & CO.,**  
Manufacturers of  
Ploughs, Garden Seed Drills, Garden Cultivators (iron or wood), Garden Rollers, Horse Hoes, Straw Cutters, Corn Planters, etc.  
Send for Price List.  
Office and Works Corner York and Bay Streets, Hamilton, Ontario.  
dd-11

**HAMILTON BRIDGE & TOOL CO'Y,**

HAMILTON, ONTARIO.



**IRON HIGHWAY BRIDGES**

Iron Roofs and all kinds of Iron Lattice & Girder Work.

TESTIMONIAL—"It is with great pleasure I state that the bridge built by the Hamilton Bridge and Tool Company over the River Nith, on the 12th concession of this Township, is a first-class structure in every respect, and has not only given satisfaction to the Municipal Council of this Township, but, as far as I have heard, has been admired by all (and they have been many) who have seen it, and I have no hesitation in recommending all who contemplate building Iron Bridges, if possible, to view this bridge; and I feel assured that, if they do so, they will patronize the Hamilton Bridge and Tool Company in preference to foreign companies, thus retaining the money in the country and giving employment to our own people."  
Yours, etc.,  
JEREMIAH COWAN, Reeve of Blenheim, Co. of Oxford.

Drawings and Estimates furnished on application to

dd-3 A. JAMIESON, Manager

**THE**  
**Bishop Strachan School**  
**FOR YOUNG LADIES.**

President, Lord Bishop of Toronto.  
THIS SCHOOL OFFERS A LIBERAL EDUCATION at a rate sufficient only to cover the necessary expenditure, the best teaching being secured in every department.  
The Scholastic year is divided into four terms of ten week each. Trinity term begins April 22.  
Fees per term, \$6.00 to \$18.00. Additional for boarders \$45.00.  
Apply for admission or information to  
MISS GRIER, Lady Principal,  
dd-14 Wykeham Hall, College Avenue, Toronto

**The Three Potatoes.**

**EARLY OHIO.**—Earlier than Early Rose. Ranked by general consent, in earliness, yield and quality combined, at the head of all the early potatoes.  
**BURBANK.**—Medium late; a prodigious cropper; flesh remarkably white; quality excellent.  
**DENMORE.**—A splendid late sort. A greater cropper than the Peerless, which it resembles in form, while far better in quality.  
Each, per Barrel, \$4.00; per Bushel, \$2.00; per Peck, 75 cents.  
My Illustrated Seed Catalogue free to all applicants.  
JAMES J. H. GREGORY, Marblehead, Mass.  
de-2

**MOORHEAD**  
**MANUFACTURING COMPANY,**

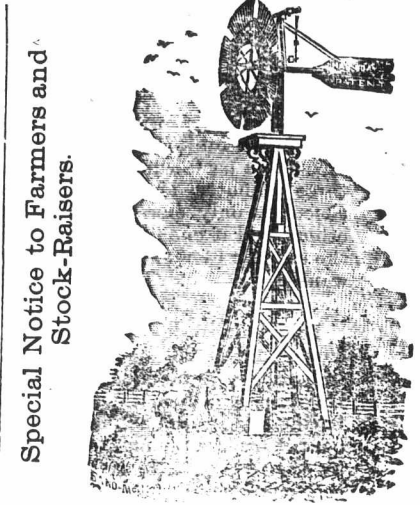
WHOLESALE AND RETAIL  
**Manufacturers of Furniture,**  
UPHOLSTERERS, &c.  
D. A. Kin Street, London.  
JOHN ABEL Woodb dge, Manufacturer of Steam Threshing Machines, Reapers, Mowers, etc. Send for Catalogue.  
de-12

**ONTARIO**  
**Agricultural College.**

The Summer Session opens on the 16th April, when there will be accommodation in the residence for twenty additional students. Staff now full, appliances good, and curriculum complete. For particulars as to terms of entrance, course of study, etc., send for circular to the undersigned, by whom applications for admission will be received until April 12th.  
WM JOHNSTON,  
Guelph, March 18, 1878. dd-1 President.

**The Agricultural Mutual Assurance Association**  
OF CANADA.

Head Office, Molsons Building, London, Ont. CAPITAL, \$241,062.00.  
With nearly 30,000 members. Does the largest business in the Dominion. Insures farm property, and detached residences in cities, towns and villages.  
CAPITAL ACCOUNT, 1st JAN., 1877:  
Amount available of Premium Notes ..... \$130,101 20  
Premium due by Agents, secured by short dated due bills from members and bonds ..... 46,034 59  
Due on Assessments ..... 18,157 14  
Bills Receivable ..... 6,520 83  
Mortgage and Office Furniture ..... 5,169 09  
Dominion Stock ..... \$25,000 00  
Dominion Deposit ..... 25,000 00  
50,000 00  
Cash in Federal Bank ..... 9,129 34  
" Molsons Bank ..... 431 25  
" Treasurer's hands (postage stamps, &c.) ..... 840 31  
10,400 90  
LIABILITIES. \$266,383 75  
Payable ..... \$25,000 00  
Sundry Liabilities (small am'ts) 321 75  
25,321 75  
Total Capital Account ..... \$241,062 00  
**OFFICERS.**  
Crowell Wilson, Pres.; Daniel Black, Vice-Pres.; W. R. Vining, Treas.; C. G. Cody, Fire Inspector; A. McDonald, General Agent; D. C. Macdonald, Sec'y and Manager.



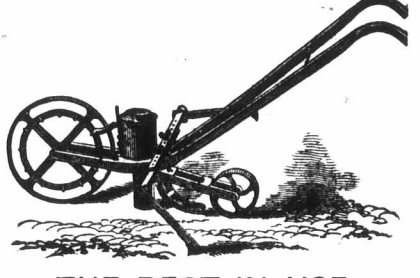
**THE HALLADAY**  
**STANDARD WINDMILL**

The only Mill that received two medals and two diplomas at the Centennial.  
The only Mill made on truly scientific principles.  
The only self-regulating Mill constructed.  
The only Mill that has stood the test of a quarter of a century.

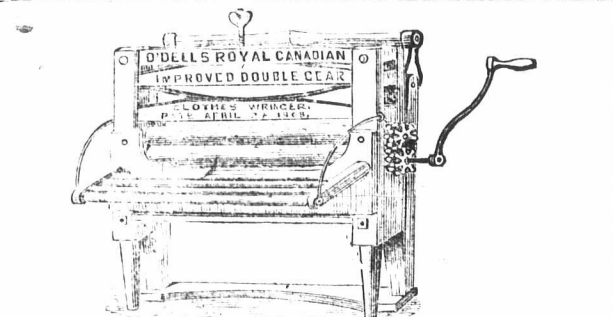
**Farmers Need Them**  
for Pumping, Shelling and Grinding Corn, Cutting Feed, Sawing Wood, etc.  
Purely automatic. Estimates furnished.

**FRED HILLS,**  
General Agent,  
31 Church Street, Toronto

**MATTHEWS'**  
**Garden Seed Drill**



**THE BEST IN USE.**  
It sows all kinds of Vegetable Seeds with certainty and regularity, and is used by leading seed growers and market gardeners everywhere.  
WM. EVANS, Esq., the well known seedsman of Montreal, Canada, says: "The Matthews' Garden Seed Drills have given great satisfaction to my customers. They are now in general use with the market gardeners and farmers in the vicinity of this city, who find them indispensable in planting their small vegetable seeds, such as onion, carrot, beet, turnip, &c."  
Manufactured only by  
**EVERETT & SMALL,**  
Boston, Mass., U.S.  
Send for descriptive catalogue. dd-3



Ten years' experience has proved  
**OUR WRINGERS**  
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**THE BEST WRINGER MADE OR IN USE.**  
Sold by all principle hardware dealers in the Dominion. Ask for it. Take no other; or write us for Price List Catalogue.  
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**FIRST PRIZE**  
At Six Provincial Exhibitions throughout Canada:  
At Great Central Fair, Guelph; at Midland County Fair, Kingston; and at 43 Local Fairs since 1874.  
**The simplest, easiest operated, and most perfect Rake in the World.**  
No part can possibly get out of order or bother a farmer in the field. In 2000 tests, only one broken, and LESS THAN FIFTY repairs were required to supply 10,000 rakes since 1874.  
MADE ONLY BY **C. M. COSSITT & SONS,**  
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ALSO MANUFACTURERS FOR 18 YEARS OF  
**BUCKEYE MOWERS AND SELF-RAKING REAPERS,**  
Threshing and Shingle Machines.  
Send for Circulars. Correspondence solicited from Agents and Wholesale Traders, in any part of the world.  
P. S. F.



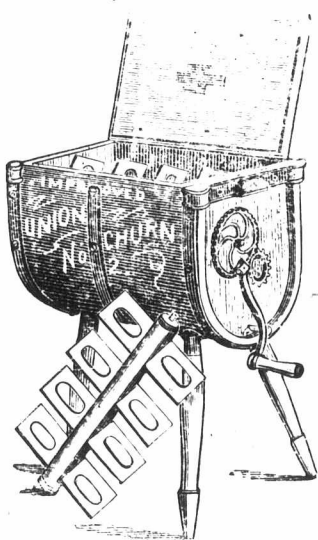
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NEW YORK  
**GARDEN & FARM SEEDS**  
AT  
**RETAIL & WHOLESALE**  
**"ONLY THE BEST"**  
**CATALOGUES FREE**  
**East India or Pearl Millet.**  
This new Millet is quite distinct from all other species, and is without doubt destined to take a place in the front rank of valuable forage plants.  
Price (clean seed) 25c per pkt.; 5 pkts. for \$1.  
Descriptive Circulars free.  
W. H. CARSON, Seedsman,  
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db-3

### IMPORTANT TO FARMERS

If you require good serviceable implements get COLLARD'S FLEXIBLE IRON HARROWS, CULTIVATORS and IRON COMBINED HORSE HOES. These implements are extensively used and have given and continue to give general satisfaction. For strength, efficiency and durability they cannot be surpassed. The Harrows can be made to cut any width of ground and of any size of iron required. Many object to them because they are too heavy. This they need not do, as I am now manufacturing harrows suitable for any soil, from 100 pounds in weight and less up to any weight they may want. The harrow teeth are all steel pointed. Circulars sent free on application. Agents wanted. **G. O. GILLES**, Manufacturer, GANANOQUE, ONTARIO. dc-3

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1st Prize at Hamilton, Provincial Exhibition, 76. 1st Prize at London, Provincial Exhibition, 1877. 1st Prize at Quebec, Provincial Exhibition, 1877. **Take Notice**—That we have appointed Thos. Grover and James Grover, of 450 Ontario street, Toronto, OUR SOLE AGENTS IN ONTARIO for the disposal of the Union Churn and County Rights, to whom applications for churns or territory must be made.

**McMURRAY & FULLER,** TORONTO. DB-tf

**SOMETHING NEW.** John Richardson, of Ancaster, has invented and is manufacturing a **Combined Cultivator and Gang Plow.** Both work under one carriage—can be changed in five minutes—driver can ride or walk—any ordinary team can draw it three inches deep through the hardest fall-plowed land—will cross the highest ridges or widest furrows without sticking or choking. Gang Plow can't jump sideways—can't slip down on side-hills. Teeth and Plows wrought-iron and steel—can be sharpened or laid. No humbug—a complete machine. Please send card for circular with price and wood-cut.

**FARMERS And Market Gardeners** SHOULD TRY MY NEW YELLOW CARROT. Yields 2,000 bushels per acre. Excellent for table. One bushel worth two of the white varieties for stock. Descriptive price list free. S. H. MITCHELL, Seed Grower, Market Gardener, &c., St. Marys, Ont. dd-1

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[Established 1862.]  
PROFESSORS:  
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was awarded International Medal at Centennial, Canadian Medal by British Judges. First Prize as Brick Machine and First Prize as Tile Machine at Western Fair at London, 1876. Grand Medal Intercolonial Exhibition, Sydney, Australia, 1877. First Prize as Brick Machine, and First Prize as Tile Machine, at Provincial Fair, London, 1877. **Tile Dies of all Shapes and Sizes. Horse-power Drain-Tile Machines,** etc., etc. Send for Circular. GEO. S. TIFFANY, London, Ont. da-tf

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**Encourage Home Productions**  
**PROTECTION AND PROSPERITY.**

The Fruit and Ornamental Trees, Shrubs and Hardy Vines are Canadian grown, and suitable to our climate. Catalogues furnished on application.

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**For Pumping Water.** The cheapest power in use for Farms, Dairies, Gardens, Lawns, Railways, Brickyards, and all places where large quantities of water is used. Also all kinds of Pumps—wood and iron, force and lift. Wells dug, Cisterns, built, and Curbs made. Water Pipes and Fanning Mills. Strawcutters made and repaired. J. M. COUSINS, Bathurst-St. LONDON. dg-tf

**Facts! Facts! Facts!** Scarrow's Oak-Tanned Leather Harness Lasts for a Life Time! Our Hair-faced Collars never gall. Have mercy on your horse and use no other. The best work at the lowest prices of any house in Canada. Fact! Try us. **W. M. SCARROW,** 235 Dundas street, London, Ont. dd-4

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Danvers Onion Seed, raised from the choicest onions of each crop for fifty years in succession! The difference in the crop will be ten times greater than the cost of the seed. My Seed Catalogue free to all. **JAMES J. H. GREGORY, Marblehead, Mass.** dc-2

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THIS INSTITUTION IS NOW FULLY EQUIPPED for its special work. With a full staff of teachers, and all the necessary appliances in the school and on the farm, it is prepared to give a thorough education in the theory and practice of Agriculture. The education is precisely what a farmer requires, and is given at an exceedingly light cost. For circular, giving full information regarding terms of course of study, &c. Apply to **WM. JOHNSTON, President,** Guelph, Jan. 1, 1878. db-tf

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AS A BLOOD PURIFIER HAS NO EQUAL. It regulates and keeps the stomach in a healthy condition. It acts on the diseases of the urinary organs, digestive functions, and should be used this season of the year by all farmers. For sale by all dealers. dd-1

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**THE BEST IN THE WORLD** This Machine embraces all the latest improvements, and has all the desirable points that can be claimed for any of its competitors, while the inventor has avoided the objectionable features of other machines. It has **no noisy shuttle to thread, or wear out, but simply a bobbin which never wears.** It is simple of construction, and easy to handle, runs quietly and rapidly, and is without a rival. **FARMERS!** If Agents call on you tell them to bring you a **Wheeler & Wilson Machine**, that you will buy no other without seeing it. Send for circular. Address, **WHEELER & WILSON MANUF'G CO'Y,** 85 KING STREET WEST, TORONTO ONT db-12

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For Season 1878,  
—IN THE—  
**Patent Fire-Proof**  
**CHAMPION**  
**Agricultural Engine**

**Lock up Safety Valve.**  
Nickle-plated to prevent rust. Is set at 100° pressure, over which pressure cannot be raised. A Silent Guard to prevent Explosion cannot be tampered with without detection.

**Hood or Guard for Furnace Door.**  
To obviate the slightest danger of sparks escaping from furnace on opening door, we put on an extended mouth-piece, which effectually prevents any fire escaping from the furnace.



**Heavier Wheels.**  
We make the fellos and spokes much heavier of thoroughly seasoned first-class oak. Heavier tires. Improved the construction of the hub. No stronger or more durable wheel is made.

**Cool Hubs.**  
A non-conductor of heat placed between hub and boiler, prevents excessive heating of wheels.

In short we the *most Perfect Agricultural Engine in the world.* If any one wishing to purchase an Engine desires to test our Engine with any other Threshing Engine, we are willing to furnish an Engine on the understanding that the Engine that is found to be the best is purchased.

**Insurance Companies place no Restrictions on this Engine.** Address,  
**WATEROUS ENGINE WORKS CO.,**  
**BRANTFORD, ONT.**

**THE "CHAMPION" RECORD**  
**FOR 1877.**

**Over Thirty-five Thousand Machines Sold.**

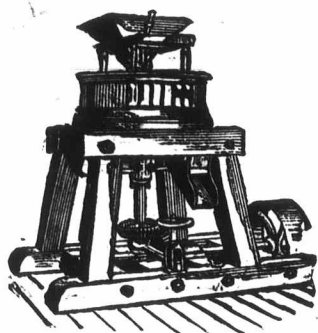
NO BREAKAGES—No vexatious delays in gathering the crops—NO CROPS DAMAGED while waiting for repairs—No telegraphing for repairs—NO REPAIRS TO BUY—No express charges to pay  
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Only Five Pieces of Cast Iron in Combined Machines  
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Single Reapers, or Light Mowers.

The result is that the "Champion" will be the lightest in weight and draught of any machine in the market, and at the same time equally as strong and durable, and as free from liability to breakage as those built in 1877. The manufacturers are determined that it shall excel in every particular all other machines offered, regardless of first cost, and have therefore taken this UNPRECEDENTED STEP IN ADVANCE OF ALL THEIR COMPETITORS in the manufacture of Harvesting Machines. For further information, address,  
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