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Loss \$2,500,000.

It is with chagrin and sorrow that we pen this article. This Province sustained a dead and irredeemable loss of \$2,500,000 last year, and may lose more than that this year on the one article of BUTTER, and we have ourselves to blame for it.

Great quantities of Canadian butter were last year sold in European markets for 5 cents per pound, while some American butter has been sold on this side of the water as high as 50 and 75 cents. Is it not a disgrace to us as Canadians, and a loss both now and in future.

Our farmers' wives were pleased to receive 15, 20, 25 and 30 cents a pound for their butter last year, and will be expecting the same this; but what prospect is there of it. The dealers and shippers suffered the loss last year, but they will be very careful in the future. You may rest assured that unless butter is good it will not be bought, and even then the price will be low, at least at the beginning of the season. This is a subject of more importance to Canada than many of the public questions which are agitating the minds of our people. So long as our products can be well spoken of and stand well in foreign markets, so long will we as farmers be able to make money, and find ready and good markets. But as soon as we are looked upon as producing third rate articles, then good bye to our chance of exporting at a profit.

Who is to blame? First, our farmers who are careless about their barn yards and the health of their cattle. You should be particular in keeping your yards, fields, and stables clean and free from any noxious smells. Nothing is more susceptible of injury than milk, even before it is drawn from the cow. Bad water and over heating of the cattle has a very evil effect. The blame next lies with our farmers' wives and daughters; we take up this part of our subject with reluctance; our wives have plenty of work on their hands—perhaps too much—still they are, and must always be responsible for the state of the butter when it leaves for the market. Why is it that if we buy ten lots of butter from ten different parties, nearly each one will be of a different quality. Keep your dairy clean and neat, have nothing in it which is in the slightest degree offensive in smell; wash your butter thoroughly, and cleanse it of milk; then you have done your part. We know that most of our friends do make good butter, it is only to the few who do badly that we address these remarks.

The next parties who are to blame are the buyers and shippers. It is with these that the greatest injury occurs. They have been in the habit of buying good, bad and indifferent butter, and mixing all together

indiscriminately; they then put it down into a cellar, where there is probably a lot of onions or potatoes half rotten, or where dampness or bad odors prevail, and the whole stock is spoiled; or else they let it lie in some hot place, where the butter melts and turns rancid; they are not sufficiently careful in shipping; refrigerator cars are provided by the railways, but an extra price is charged for them, and the dealer will not pay it.

And now, to sum up the whole matter, if we wish to be successful with our dairy farms, we must,

- 1st. Keep neat, clean cattle buildings and yards.
- 2nd. Fresh, pure dairies, and careful working and packing of butter.
- 3rd. Dealers who will not spoil all our good work by their carelessness.
- 4th. Special attention on the part of railways and steamships to this important branch.

We would recommend farmers to make their money and keep it at home until the weather is sufficiently cool to move it, and by no means to move it in hot weather, unless it is sold.

**Postage.**

On Saturday, the 12th of April, we received 51 letters, and on Monday, the 14th, we received 63; these are the largest numbers ever received on any two days, and show a great increase over any previous year.

Many of these letters contain money, sent for seeds; others contain correspondence. A large number are for Uncle Tom's Department, some asking questions which would puzzle us to answer. We are highly pleased at having so many correspondents, but attending to them all is quite a task, though a pleasant one and sometimes a profitable one; but every rose bush has a thorn. Sometimes the correspondent forgets that the law places a cent tax on all letters containing correspondence for the paper, and the consequence is we may have to pay from 4 to 6 cents for what should only cost one cent, or leave the letter in the office.

Some ask questions entirely on their own business and do not send a stamp for a reply. Many of our little correspondents might use the one cent postal cards instead of what they pay three cents for.

Remember, prepay your postage. We do not always take unpaid matter from the post office; if you want a reply, send a stamp or card.

If there should be any omission or neglect on our part through the pressure of so many letters and many other things to attend to, remind us of it again and we will try to satisfy you all to the best of our ability. Our staff of assistants has been

increased and must be again increased to meet the demands.

A great many of our subscribers make the mistake of sending the name of their township instead of their post office. Now we don't want to know what township you live in; what we want and must have is the name of the post office at which you receive your letters and papers.

**Good Company.**

We are sorry to have to inform those of our subscribers who have sent in their money as subscriptions to "Good Company," that that paper is no longer published. When we advertised it, we were led to believe that the proprietors were in a position to carry out their promises. We will do all that we can to make up your loss. Wilson & Co. have promised to send out the whole of last year's numbers to all those who subscribed with us, and we will also send a present of a few seeds or refund the money. The whole affair is a dead loss to us, and we will be more careful in future as to whom we associate with.

**Barley.**

S. E. Todd, in the *American Rural Home*, says:—

I frequently go to the New York Exchange—the great grain market in this city—where I have learned of the buyers and sellers that the barley in greatest demand and which will command the highest price per bushel is the four-rowed Canadian barley. Last week the price of our State barley was easy at ninety-five cents per bushel, while Canada barley was held firmly at \$1.25.

Canada barley is clean, bright and often shiny, all of one variety, and so free from foul seed and other grain that one must search a long time before he can find a single kernel of any seed; whereas most of the State barley offered consists of a mixture of two-rowed, four-rowed and six-rowed grain, much of it having a dark, weather-beaten color, and with the mass mingled more or less oats, wheat, buckwheat and seeds of noxious weeds. All such grain and seeds will make no malt.—Hence they detract greatly from the market value of the grain. Besides this, when a quantity of two-rowed, four-rowed and six-rowed grain is mixed together, one variety will be thoroughly sprouted before the remainder is grown sufficiently to have the germinating process arrested. We want the simon pure hordeum vulgare four-rowed barley, which, when sowed on good land of fair fertility, will produce the genuine hordeum vulgare with the same unerring certainty that a herd of Durham cattle is raised up from thoroughbred animals.

S, ANTS!!

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**Agricultural Progress.**

In the correspondence column will be found a letter from Rideau, coinciding with our views on the Experimental and Test Farm and Agricultural College, and also another from K. K. Kerringham, to the same effect. We have received none from the promoters or supporters of the scheme. We would just like to have one from any M. P. P. who voted for the bill or one of their leading supporters. But no, they dare not attempt to gainsay our assertions in regard to it. Let their own agricultural paper defend them if it dare; we are ready for a battle should they take up the subject. Why have they not treated on this as fully as on other subjects? The fact is, the great political papers have larger fish to fry. Agriculture is but a sprat or minnow to them. But, farmers, the time is coming when the agriculturist will not submit to have the wool pulled over his eyes, and a thief's hand forced into his pocket for any such political clap-trap as this Agricultural College has been, from the first starting of the plans till the last vestige of it had been disposed of.

Mr. K. K. Kerringham at the close of his letter asks the following question:—Could not a joint stock company be formed and issue the FARMER'S ADVOCATE bi-monthly or weekly?

As we have not said much about the prospects and progress of the Agricultural Emporium lately, of which this paper has been part and parcel, we now take the pleasure of informing Mr. K. and all other of our supporters and readers that at the last session of Parliament an

**ACT WAS PASSED**

which gives us farmers a greater power than we ever had before. It enables us to join together with our capital and abilities and establish the Canadian Agricultural Emporium.

In the same Act we have a clause inserted that gives us the power to join our capital and publish an agricultural paper, monthly, bi-monthly or weekly, as we may deem fit. It is our intention to publish this Act in full in the next issue of this paper. It is our desire to maintain the spirit of the ADVOCATE as it always has been, untrammelled by party politics or sectarianism. Agriculture is to be the main object. Farmers' rights and farmers' interests are what we desire to represent. We do not wish to confine its benefits to a few or to a locality, but to make it and the Emporium of as much general benefit as possible. Undoubtedly advantages will accrue to the stock holders; their interests will be first looked after. But who are to be the stock holders? Arrangements will be so made as to enable one person at each post office in Ontario to become a shareholder.

They will all have the opportunity.—Many may neglect to embrace it, and the shares will be taken by others; those holding most shares will have most power. Persons out of Ontario may hold stock, and have an influence, if each post office section should not take up its share. Due notice will be given of the first meeting, which will be called in May. You should all read carefully the Act and Prospectus that will appear, and use your own judgment.

It is already contemplated to issue the ADVOCATE either in an increased size or oftener; or to issue another paper in connection with it, and divide the agricultural department as one, and general household reading for ladies and children as the other. Sometimes we may add a little amusement that has nothing to do with the crops or land, and sometimes the ladies demand more information and amusement for the children. But the control of the paper and the Emporium may, on the formation of the company, be taken out of our hands. We will only appear as a single individual and have a voice in its management and control, the same as you may have.

It will be the fault of you all if it should not be conducted by yourselves and for you farmers. Its supporters, we believe, will be from the most independent of our inhabitants, both Conservatives and Reformers, who we hope will meet on one grand platform and maintain the banner already swaying its colors above all other agricultural papers in Canada, that is, in the number of its circulation. When the opportunity arrives we doubt not that many of you will be ready and willing to increase the sway of power of this journal and the Agricultural Emporium, and thousands will reap the advantages of being connected with it. We believe none can be losers.

**Seeds.**

Many of our readers will be anxiously looking for remarks under this head. We cannot always procure novelties; many old discovered varieties come into vogue again in a few years, but those farmers who continue to raise the old varieties as a main crop are apt to be the losers.

Where to procure new varieties is often a difficult question to answer, but many of our readers who notice our endeavors to procure such, endeavor to aid us. Many send new samples, some of which have to be condemned, from a knowledge of the varieties and other causes.

A short time since a farmer from the eastern part of Canada called at our office and brought with him a small bag of

**HULLLESS OATS.**

He claimed to be the only person in Canada that had them; he said he procured them many thousands of miles from Canada. Of course the usual account of enormous productiveness and immense value was portrayed. He was so sanguine of their general adoption and the looming fortunes to be made from them, that he would supply them only at \$1 per quart. He says he now has some forty bushels and will sow them all.

These oats were quite a new thing to us. He had them in the straw as well as in his sample bag. By rubbing the straw as one would do to remove the grain, the oats, after blowing the chaff away, remained in our hand without a hull. The substance of the oat appeared to us quite equal to the grain of our common oat, but we did not purchase any as we would like to know more of its advantages, and we had our doubts of its being a profitable investment for ourselves or our readers, without further knowledge. If any one knows anything about these oats we should like to hear from them.

Another farmer called at the office, from the western part of Canada, bringing with him a sample of a pea he called the

**GERMAN PEA.**

He said he procured them from a Dutchman who had brought them into the country. He had sown them for two years and no bug had touched them. The sample he brought was pretty badly mixed with other peas, oats and barley. He also set great value on his pea as being bug proof, and an enormous cropper both in peas and vines. He had commenced with one handful and now had a few bushels.—We have been unable to raise peas without having them about half eaten by our pea bug, for the past ten years, and there being no signs of the decrease of these pests, we felt much inclined to try this new pea. The price set on them was such as prevented us from making a purchase at the time; however, we at length succeeded in procuring four bushels by paying a pretty good figure. We intend sowing two bushels ourselves, and the residue, if any, of the other bag, but we shall give our readers an opportunity of getting a handful of them. Perhaps we may have been again gulled.

A farmer from the eastern part of Canada, who was examining our seed, informed us that he had seen the same kind of pea growing; he knew the pea very well. It

was a very prolific pea. He considered it one of the best for raising for feed, as the straw was better than that of our common varieties.

Some of our readers may know more about this pea; it may perhaps be well known and plentiful in some parts. If you can give us information regarding it, we shall feel obliged. This farmer said the name of it was the Grass Pea. It is of a very uneven shape, very hard, white in color; it is not round, flat or oblong; it is a small pea, much smaller than any of the other varieties—between the size of a vetch seed and a pea. We presume it is something of the nature of the vetch. At any rate we intend to try it, and another year, if all is well, we hope to hear and give more information regarding it. We do not think it a pea that would do for exportation for flouring purposes, for that is what our common peas are used for, but what we want on our farm is a pea that will raise both vine and grain, and something that these pea bugs cannot eat.

We consider the pea bug the most unprofitable stock we keep on the farm, and we do not know how to get rid of this gentleman, unless by starvation. If these peas answer as well as we expect from reports received about them, we shall from this article alone add another laurel to the bunch already worn, in introducing and bringing into notice the most valuable cereals. The loss caused by the pea bug alone in one township in one year, would be sufficient to pay all the expenses of the establishment of the Canadian Agricultural Emporium and the establishment of this paper.

We again repeat our request to you—if you know where we can procure any of these peas, or if you can give us any information about them, please do so; or if we are in error about them, we wish to know that also.

From our English papers we learn that they have a new kind of wheat in England. It is called

**THE SQUARE HEADED WHEAT.**

It is highly spoken of by the English papers, but as to whether it is a spring or a fall wheat we are uninformed. It was too late when our attention was called to it to procure any for this season. We intend to make enquiries about it, and hope to import some of it to try how it will answer here. Perhaps some of our readers will be taking a trip across the Atlantic, and being interested in grain, they might make some enquiries, perhaps import it on their own account.

**The New Canadian Herd Book.**

We are in receipt of the second volume of the Canadian Short Horn Herd Book. The paper is of good quality, the printing is well done, and the entries appear to be correct as far as they go. It is a credit to our country, and every person that is raising a herd of short horns should have one.

The book is beautifully illustrated with 24 engravings of noted animals, five of which belong to the Hon. G. Brown, four to F. W. Stone, four to Hon. D. Christie, three to Col. Taylor, three to Hon. J. Skead, two to H. Snell, two to J. Miller, Pickering, and one to J. Miller, Brougham.

There are other large importers and breeders in Canada who, perhaps, have as fine cattle, as much money, and as great a desire for publicity as those whose names appear in this publication. We should like to know the reason why they are not entered in this book; we do not believe this omission is in any way due to the Secretary who compiled the work.

Another defect, if it may be called such, is that the illustrations are not true or correct representations of the animals, the names of which are attached. We will make this clear, so that every one of you may understand that we are correct in our remarks, harsh as they may appear, on this important point, but we think it is due to the agricultural interests, and especially to the stock raisers of the country that it

should be known who is in fault for this omission.

If you look at the legs of any one of the engravings and compare their fineness, the fore ones especially, you will see on examining any animal of such size, that they are over fine; the muzzles of all the bulls are also too fine. The bodies of many we know are represented far too symmetrical; the necks of the bulls are generally too fine. Compare and judge for yourselves.

Let us ask why is this? The artist is undoubtedly a master hand; he can draw them correctly, but artists are like other men—work for pay. A true representation might not please the owner so well. The strife with breeders is to excel, and it is the same in every business; the question is who will have the best. Thus the artist's powers are brought into vogue where the breeder's fail. The illustrations are utopian; they are beyond (if we may express ourselves in such a term) the powers of nature. This appears strange that art should exceed nature, but such are the vagaries of fashion.

The Americans have set us such a pattern in the drawing of stock that we have been fools enough to follow, and led us to produce this criticism on our own productions.

We would be sorry to say that any of our leading breeders would desire a false representation of an animal to appear.—The next difficulty is, how are we to have them correct? They pay the best artist to draw their animals, and they are left to him. The result is that the artist improves on the animal to suit his finest imagination of perfection; his judgement is good, and the result is a fine picture, but a false one.

When is this to cease? We hope and trust some of our American exchanges will take up this question, and that the next year's illustrations will show us animals as they really appear, and not imaginary ones. Let us condemn the lot that have been drawn as imaginary, and we shall be doing good service. Write down the imaginary animals, and aim at correct representations.

We hope that some of the other journals that treat on agricultural subjects will aid us in giving information in regard to the question—Why is our second volume of the Canadian Herd Book incomplete? Is there to be another published in the Dominion? Surely we ought to know, and the public ought to know; some should know, and they should inform the press.

The press should not draw a veil over these discrepancies or defects. Look out, farmers! Enquire into these things; you will yet have to pay the piper. Demand explanations. We will give them to you as soon as we can find them out.

**State of the Crops.**

The fall wheat has stood the winter well; it is looking as well as we ever saw it at this season. We have seen less winter killed this season than for many seasons past. The prospects are that we shall have above an average crop of fall wheat, it nothing unusual occurs to injure it.

A GOOD SUBJECT for discussion at meetings of farmer's clubs and agricultural societies would be the Government Test Farm in all its bearings. We merely throw out this suggestion to our agricultural friends. We would like to have their opinions fully expressed on this subject.

PEAR BLIGHT FUNGUS, an old gardener says, may be destroyed by sprinkling from half a peck of a mixture of air-slaked lime, wood ashes and common salt about the tree to be applied by removing the soil around the trees to the depth of four or five inches, as far as the roots extend. It should be applied once or twice a year. He don't tell us when is the best time.

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Report of the Commissioner of Agriculture and Arts for the Year 1872.

AGRICULTURAL STATISTICS INCOMPLETE.

The Commissioner, in presenting his report, finds it necessary to refer to the incompleteness of the information contained. Partial returns of the products of the season are of much less value than complete returns would be if they were laid before us. They do not enable us to say what is the average per acre of the country. From the crop return given we can only guess at those not given, and consequently at the general average. Thirty-one electoral divisions have complied with the circular sent by the Commissioner to the secretaries of electoral division agricultural societies. He thus refers to the subject:—

"With reference to the harvest of the past year, I regret that so large a number of agricultural societies failed to make their returns, as desired in the circular issued from my department early in the fall." As some consolation for our want of the valuable information that a more complete report would have given us, he says:—"As no answers have been received from several of our best counties, it is not improbable that the average may have been somewhat higher than what is indicated by the limited returns in the Appendix." We must only console ourselves with the hopes held out to us that we know the worst, while the brighter prospect is withheld from us.

COMPARISON OF THE CROPS OF 1872 WITH THOSE OF FORMER YEARS.

The result of the returns as far as presented is not favorable as compared with former years. The average of grain per acre is reported lower in every particular than it was in 1869, and, with the single exception of spring wheat, lower than in 1871; though higher than in 1870, when the average was more than unusually low. See the following table:—

	1872	1871	1870	1869
	bush.	bush.	bush.	bush.
Fall wheat,	18	27½	15½	21½
Spring wheat,	19	17½	12	19½
Oats,	33	37½	29	39
Rye,	17	19½	12	18
Barley,	28	30	22	30½
Peas,	21	24½	19	22½

The comparatively low average of the fall wheat is thus partly accounted for in the report:—"The previous summer and fall having been in some sections of the country remarkably dry, a favorable seed bed could not be obtained; germination became slow and feeble, and the young plants in a great measure failed in so developing their roots as to give them a firm hold of the soil. This state of things was followed during the winter by high winds driving off the snow from exposed surfaces, that the plants completely perished, and the lands had to be ploughed and subjected to spring cropping. The past season has afforded additional and striking proof of the importance of shelter to winter wheat in this climate, for wherever the crops were protected by trees on the north and west, but very little injury was sustained." That the crops did not yield a greater average may be partly attributed to those causes is manifest; but might not much of this partial loss be traced also to other causes? Experience has long demonstrated that if the ground has been well prepared, in good tilth and fertility, an unpropitious season has less effect on the produce. Farmers, it is true, are rightly anxious for the fall rain "to put blood into the ground" for sowing their wheat, as we have often heard it expressed; but we claim, that one of the advantages of good farming is to make the farmer often less dependent on untoward circumstances. The man who, without due forethought, trusts to lucky chances, and does not prepare for probable adverse circumstances, cannot be a successful farmer. Thorough drainage where necessary; subsoiling if within reach; thorough, deep ploughing; a proper rota-

tion of crops; and good manuring, are great means to have a good seed bed, and to enable the root to take a firm hold of the soil, even in unpropitious seasons, and to prevent the risk of another ploughing and another seeding to secure one crop.

Again and again we have in the ADVOCATE pleaded for the preservation of our native trees, and the planting of trees in belts and clumps for shelter, as well as for the value of the timber. We hope the lessons taught by experience will have still greater weight than the words even of the Commissioner of Agriculture.

CROP RETURNS FROM ELECTORAL DIVISIONS.

Fall wheat—The highest average is reported from three electoral divisions, viz., Bruce, Dundas and South Grey—30 bush. to the acre. Four divisions give a return of 25 bush. per acre—Addington, East Middlesex, Northumberland and Oxford. Of North Middlesex the return is 23½; South Perth 22; Algoma and Co. Welling-ton return 20 each. From four divisions we have a return of 18; from one of 17; and from twelve of 15 bushels. Of five counties a return under 15 is given.

Of spring wheat the highest average yield does not exceed 25 bushels from any division, though the general average is higher than that of fall wheat.

Oats—Quality generally good. Average of the several divisions from 25 to 45.

Rye—Not much cultivated. The highest average returned 25 bushels. In some instances injured by the frost.

Barley—Generally not a heavy crop. The highest average was from S. Grey—50 bushel—good quality.

Corn—This is not looked on as a staple crop in Canada. The average yield is returned from one division as low as 20 bushels. The average yield most general is 40 bushels, while two divisions give a return of 45, one of 50, one of 60, one of 70, and one (W. Middlesex) of 80.

Root Crops—In the yield of root crops, in the several divisions, the difference is much greater than any other crop. A very great disparity in them was to be expected in this country, so much depends on the culture and other varying circumstances. Though there is in instances, some cause for discouragement in the growth of these most important crops, there is, on the whole, evident proof that the soil and climate of Canada are well suited to the growth of roots. The cultivation of them is yet in its beginning, and that beginning shows what may be done. Potatoes—In many places injured by the Colorado potato bug, and the crop inferior. In 13 sections the average is under 100 bushels per acre. From other places reports are favorable, the yield varying from 100 up to 300 bushels. Turnips—In some sections almost a failure. In many places averaging from 500 to 700 bushels. Mangold Wurtzel—Heavier crops than of turnips. Glengarry returns 1000 bushels to the acre. Carrots—About equal to the Mangold in produce.

FROM REPORT OF PROVINCIAL EXHIBITION FOR 1872.

"To glance very briefly at the details, the entries in nearly every one of the live stock classes, which are, perhaps, the most important to consider as an index of the progress and wealth of an agricultural country, either entirely surpassed those of any one previous year, or if in some one or two classes falling below some one previous year, exceeded the average of the four preceding years. The quality of the stock, also, was of a very high order, indicating a steady improvement, and showing that the enterprising breeders of Ontario are determined not lag behind in their efforts to reach the highest point of excellence attainable in this very important branch of agriculture. In the classes of draught horses especially, Durham cattle, long-wooled sheep, and the small breeds of swine, classes of prime importance, the classes were such as could hardly be surpassed in any country, and was considered by many competent judges to be superior to that on any previous occasion in this

Province. Indeed, the constant accession of high priced, first-class stock imported into the country, through the enterprise and honorable rivalry of our leading breeders, must inevitably result in a very high standard in the choice animals brought forward at our Provincial Exhibitions.

NOTE.—In the FARMER'S ADVOCATE of July, and again of October, 1872, we showed that it would be an unjustifiable and unnecessary undertaking for the Ontario Government to become importers of farm stock, as the work they were about to do was sufficiently done by private enterprise. This extract from official authority still further confirms the ground we took:—"The enterprise and honorable rivalry of our leading breeders must inevitably result in a very high standard in choice animals brought forward at our Provincial Exhibitions—and this without government importation or competition.—Ass't Ed.

High Prices of Short Horns.

When we hear of the prices paid for Short-horns, we are led to enquire are they really worth the prices they bring, and is it at all likely that such prices will continue. At the great sales of the Earl of Dumore's herd, three heifers were sold for 3070 guineas—they were of that tribe known to stock men as the Oxford family. At another sale, a three-year old bull was sold for £1732 10s.; and bull calves, we are informed, are sold for 1000 to 1200 guineas. We have a report of the Short-horn sales in England in the year 1872, and, though we had ere now known somewhat of the prices given for fancy stock, we were surprised at the amounts of money changing hands within a year in live stock purchasers. From the Short-Horn circular published by John Thornton, Esq., London, we abridge the following summary of the year's sales. There were forty-four great sales of Short-Horn stock; at which there were sold one thousand nine hundred and twenty-two head, realizing £112,404 12s. The average price was £58 9s. 8d. The prices of some animals were remarkably high, as for instance, at the sale of the Earl Dumore's herd, the highest price was 1200 guineas; and at Messrs. Harward and Downing's sale there was a still higher price—1650 guineas. The previous sale season had been distinguished for the prices, but the prices realized in 1872 were even higher than those of 1871, bringing an average of about £2 10s. higher. In the circular referred to, these prices are said to be the result of personal enterprise, of increasing demand, and of that abundant wealth and prosperity which the country has been developing during the last few years.

Are these stock really worth the prices paid for them—first, to the purchasers—second, to the country? To purchasers, the payment of such large prices has been remunerative. They have paid high prices, but they have kept at a high standard the value of their herds, and at their sales, they in turn realize good prices, that amply remunerates them for their outlay. Thus the sale of the Earl of Dumore is an instance: fifty-four animals sold, brought the nice little sum of £13,118 14s. The purchasers and breeders of such stock can hardly be charged with wild speculation, when they receive such paying prices at their sales. And the great demand, and the high prices for superior farm stock has been the means of increasing the wealth of the nation, independent of the immediate profits to the stock-owners. High breeding necessitates high farming, with a greater demand for skilled labor, and an increase of the value of the products of the soil. All this is a direct profit to the country. And there is yet to be taken into consideration the greater intrinsic value of improved stock. A well-bred animal—beifer or steer—is, if properly treated, in better condition for the shambles, and of higher value at two and a half years old, than one of the old, unimproved stock would be at a year older. In this there is a saving of the feeding for one year, and a higher value, and consequently greater remuneration to the feeder. It is of the highest importance that the improved qualities and value of stock be maintained, and stock more improved; and this is most effectually accomplished by the use consecutively of the very best and most purely bred stock to be bred from. For this purpose very high prices must be paid. That this improvement of stock, and perpetuating

their good qualities, will not be confined to the herds of those great breeders, but will extend throughout the country, will naturally follow, and the improvement will become general and permanent. At the same time, there must be brought into general practice, a more improved system of agriculture. Good stock require good feeding.

SALES OF SHORT-HORNS IN UNITED STATES.—In the United States there is evinced desire to follow the example of England in breeding and purchasing the best live stock to be procured, regardless of expense. We have a report from the States of sales of 888 head, at an average of \$234.90, with a total amount of \$254,177—the highest price, \$6000, the next highest, \$3000.

CANADA.—The sales of our great breeders and importers have been 184 head; average, \$289.31 in gold (a higher average than that of the United States); the highest price, \$2,025, sold to Mr. Miller. Some of the U. States breeders have made purchases at the Canadian sales, and some Canadian stock has gone to add to the best herds of England. From England stock has been also in turn exported to United States and Canada. The enterprise of our breeders and importers here, in this new country—the Arctic Regions, as it has been called—is worthy all praise.—Ass. Ed.

WINTER IN MISSOURI.

Do you think you are in a cold county, and sometimes wish you were further south? If so make sure to pitch your tent, whether real or imaginary, further south than this.

Where the mercury goes down to 32° below zero, it is by no means pleasant to one who has come one and a half degrees south to get into a warmer climate in winter. Six miles from here it was even down to 40° below.

Who will now undertake to tell what varieties of grapes are hardy? Here everything above the snow line is more or less injured except Hermann and Cynthians.

Native and Concord are considerably crippled in many places.

Such as the Harlemont, Cunningham, Rulander and the like, are dead to the ground.

One exception I know of, where sickness in the family prevented the tying up of the vines as well as keeping the ground clear of weeds. In this case the Herbemont vines ran on the ground, and when winter set in were covered with grass. This, together with the snow at the time of the coldest weather, was a protection, and we expect to have some Herbemonts. Last summer we had the thermometer indicate 106° in the shade; this winter, 40° below zero. Can any place on this earth beat that? Truly, as some one says, Missouri is the coldest and hottest State in the Union.

Peaches will be among the things to talk about (unseen) the coming season here.

Bluffton, Mo., March 1, 1873.—Com. to Iowa Homestead.

USE OF THE SUNFLOWER.

In the Argentine Republic the culture of this plant is strongly recommended, because the flowers are believed to be the best material for wax and honey; the petals of the flowers yield a valuable dye, the seeds give fifty per cent of oil—excellent for cooking and illuminating purposes, while they are also a superior food for poultry and for cows, increasing the flow of milk.

The bottom of the calyx may be used for food in the same way as the artichoke, which it closely resembles; the wood will yield one per cent of potash, while common hard wood only yields one-tenth as much; the leaves may be used as food for animals, or made into a good smoking tobacco; while the bark properly prepared, affords material for the manufacture of paper.

CLEANSE THE SKIN.

It is a curious fact illustrating the necessity of cleanliness, and of keeping the pores of the skin open, that if a coat of varnish or other substance impervious to moisture be applied to the exterior of the body, death will ensue in about six hours. The experiment was once tried on a child at Florence. On the occasion of Pope Leo Xth's accession to the Papal chair, it was desired to have a living figure to represent the Golden Age, and so a child was gilded all over with varnish and gold leaf. The child died in a few hours. If the fur of a rabbit or the skin of a pig be covered with a solution of India rubber in naphtha, the animal ceases to breathe in a couple of hours.

## The Horse.

## BUYING A HORSE.

First, acquire a knowledge of horses, so as to know a good horse when you see one that is a model. There is more money lost, and more honest men are defrauded, in buying and selling of horses, than in any other product of the farm.

For the last twenty years I have had all sorts and shapes of horses, from the pony to the Shanghai, and the greatest weight in the least bulk is the animal for service. A horse weighing from 1,100 to 1,400 pounds is large enough for farm work. You must understand what you want an animal for before you go to buy. One minute is long enough to examine the standing points of a horse. These are: A good lively eye, inclined to hazel, and a pleasant countenance; a flat leg and open foot, shoulders set rather back, and thin at the withers, a short back, and no objection if it is slightly arched; the proper shape of the hinder part depends on what you wish the horse to perform.

The prevailing blemishes are blindness or weak eyes, ring-bone, spavin, hoof-bound, curbed, or thorough-pinned, stifled, &c., all of which an expert observer will detect in a minute's time. The heaves is the most difficult to detect, as that depends upon the treatment the animal has had for the week previous. The thumps, or palpitation of the heart may be detected easily by moving and exciting the horse. Judging the age of a horse by his mouth is very uncertain. You can tell to a certainty within one year until he is six years old, then you must judge from general appearance. Some judges rely on the tusk, but some horses never have any tusk—about the same number of mares have tusks as horses that have none. Some men will tell you that they know the age of a horse by the jaw, or the wrinkles about the eye, or by the joints of the tail. You might as well say you know the age of a man by the wrinkles in his face. The wearing of the teeth depends upon the general health and lungs of the animal. Bad teeth follow diseased lungs.

In purchasing a horse rely upon your own judgment, and when you trade do not ask a neighbor, as every man ought to know his own business. If there is much talking to be done, let the other do it. What you say let it be to the point, and stand to it.—Ohio Farmer.

## HOW TO MANAGE RUNAWAY HORSES.

Always stick to your horses so long as they are fast to the carriage. If a line breaks or the bits give way, step out of the fore end of the carriage, even when the team may be running. Take hold of the harness and spring on the back of one of the animals. Once astride of a horse, one can reach forward, grasp his nose, and soon check his speed. When a horse is running toward you, as he comes up, stand so that he will be within reach as he dashes past; then make calculations to seize the reins near the bits with one hand and to grasp his mane or the top of the hames with the other hand.—A man may expect to be carried twenty rods; but if he will hang to the reins a horse will soon stop.

We saw a fine horse running away a few days since, with a wagon and a load of barrels.—After passing hundreds of persons who tried in vain to stop him, a lad sprang to the rear of the wagon as it passed, climbed up among the barrels, went to the forward end, and the lines being on the ground he stepped along on the thills, got on his back and stopped him before he had run one-eighth of a mile.

The numerous accidents in consequence of horses running away suggest the eminent importance of teaching them the monosyllable "whoa!" A horse is never half trained or half educated until he has learned that "whoa" signifies to halt. But, in the first place, teamsters must be educated to employ that word at no other time than when it is desirable to have a team stop. When the word is used let it be spoken with a full, open and sound voice.—N. Y. Times.

## HORSES PAWING IN THE STABLE.

Having noticed inquiries in regard to preventing horses from pawing in the stable, allow me to say I have been very much annoyed and provoked at a valuable horse of mine, in consequence of that bad habit, which seems to be the only bad trait of character he has ever manifested. I have tried a variety of means, among others the strap and chain, but all failed. Recently I devised a plan which has succeeded to my entire satisfaction. I made a frame four feet long and of sufficient width to reach nearly the top of the manger, from which I suspended it, allowing it to reach within about ten inches of the floor. I boarded up the sash or frame, in order that he could not get his feet over the lower bar, which was made of a round stick two inches in diameter. The act of pawing sets the swing in motion, causing it to strike against the shins, which so disgusted my animal that he gave it up entirely.—Com. in Rural New Yorker.

## WHAT IS A BLOODED HORSE?

He is a horse having more than an ordinary amount of drops or pounds of blood in his system in proportion to his size and weight.—This large amount of blood acts upon his system through a large heart and corresponding large arteries and veins, and put in motion, it acts in driving him to speed the same as an increased amount of fire under the boiler drives off a greater amount of steam, and makes the machinery go faster. This large amount of blood also acts in refining the skin, making it and the horse finer than a horse of less blood; it refines and gives elasticity to the muscles, the feet, etc., it refines the entire horse, making strong and valuable parts, and fitting the whole system for speed and endurance.

## FEED FOR COLTS.

A correspondent of the *Maine Farmer*, who is a successful breeder of horses for driving, etc., gives that paper his method of feeding colts. He feeds all colts as many oats as they will eat up clean, feeding three times a day.—He gives weanlings four pounds of oats per day, with eight pounds of hay; to yearlings, five pounds oats; two-year olds, six pounds; three-year olds, eight pounds, with ten pounds of hay for each of the last ages. The colts are all handled from their birth. Even in the winter the young colts have a half hour's gallop daily, while the old ones are daily driven. A warm bran mash is given once a week, and also three or four pounds of potatoes, occasionally sheaf oats instead of hay, and in cold weather an occasional feed of corn.

## CURBED HOCK.

A recent curb is generally easily reduced by rest, cooling, afterward stimulating applications or blistering. By these means it may often be perfectly cured; sometimes permanently. But this is by no means certain, for it is in no way improbable that it will be brought on again by exertion. If, however, after the curb has shown itself, it is trifled with and the horse kept going, the enlargement becomes so indurated that firing will probably fail to reduce it. A rank and decided curb is very difficult to get rid of, and very often is never cured. However, be the curb large or small, it generally does not interfere with the usefulness of the horse. Strong and well developed joints are not so liable to this deformity, which generally accompanies weak and ill-formed joints.

## BREED WALKING HORSES.

Whether for travelling or for farm purposes a fast even walk is the best gait for a horse, and with such an idea the *Rural World* gives the following advice for the production of fast walking horses:—

Breeders should pay attention to this matter. In selecting a stallion to breed from, by all means select one that can walk fast. A slow walking stallion will be likely to get slow walking colts; while the stallion that has a long, rapid, spirited stride, will be likely to beget colts of a similar action. Then there is a great deal in breeding to a horse with spirit and ambition. These cold blooded horses will beget cold blooded colts. The nearer you can approach the through-bred, even for obtaining a fast walker, the better. There is game there, and spirit, and endurance, and stamina, and style. There are the neat, bony heads and prominent eyes, the small ears, the capacious nostrils, the large lungs and chests, the well developed muscles, the bones as dense as ivory. Even for walkers, then, get the nearest to thorough-bred possible, and the same for trotters, and, of course, the same for runners. You have then horses fit for any company, and for any purpose—to haul the plough, or buggy, or carriage, or to carry you upon their backs. Breed large, fine mares, to thorough-bred horses, and you will get colts that you will not be ashamed to have your friends see.

## STABLE AND TRAINING.

Farmers are often regardless of the convenience of their stables. The horse is required to stand on a hard floor for a long time. He lies down for rest but it is much the same. To remedy this, straw, or some other light substance, should be placed in the stable, which would make a soft bed. The well treated horse appreciates all kindness. To make a horse gentle and kind, discipline should commence at its birth. It should be trained thoroughly, though kindly. He should be taught that you are his master—unmistakably so.

A gentle, vigorous and mettlesome horse can be made by the right training. In training, it requires gentleness and intelligence in the man. Be resolute with him when he is stubborn, show no excitement on your part; tolerate no vices or tricks, but encourage all his good qualities. By taking him when he is a colt, he can be fitted for use without any training when he becomes a horse. Overwork and small amount of bad food will kill any horse before he is hardly at his prime. We often see horses at thirty years of age strong and hearty; horses which have been worked continually from a young age; yet they were never overworked;

had done much work, but had never been strained. A continued tugging is what takes hold of the system, and it is that which breaks down many horses. There are but few rules in the training of horses. Special rules are of no great account. The disposition of horses differ, and they must be managed accordingly. There must be no contradiction in your course of treatment. Whatever is begun must be finished. Do not put him into cold, hard stables, or into those that are wet and filthy. He should have sufficient quantity of nutritious food, and a good supply of pure water when idle, and three or four times a day when working. Never allow him to drink when very warm, unless he is put into action immediately after drinking.

Too much stress cannot be put on to the point that the training of the horse must be commenced at his birth. He must be trained when a colt. The principle that the discipline of children must commence young, applies very forcibly in the management of the horse. If by chance you get a horse lazy, balky, stubborn, dirty, and ungainly, get rid of him, for he will prove a curse instead of a blessing. When you purchase be sure to get good blood, which is as easy as to get bad. Buy those which have weight and muscle with fair action combined.—*Willamette Farmer*.

## CARE OF HORSES.

All horses must not be fed in the same proportions, without regard to their ages, their constitutions and their work; the impropriety of such a practice is self-evident. Yet it is constantly done, and is the basis of disease of every kind.

Never use bad hay on account of its cheapness, because there is no proper nourishment in it.

Damaged corn is exceedingly injurious, because it brings on inflammation of the bowels and skin diseases.

Chaff is better for old horses than hay, because they can chew and digest it better.

Mix chaff with corn and beans and do not give the latter alone, because it makes the horse chew his food more and digest it better.

Hay or grass alone will not support a horse under hard work, because their is not sufficient nutritive body in either.

When a horse is worked hard its food should be chiefly oats—if not worked hard its food should be chiefly hay—because oats supply more nourishment and flesh-making material than any other kind of food; hay not so much.

For saddle or coach horses half a peck of sound oats and eighteen pounds of good hay are sufficient. If the hay is not good add a quarter of a peck more oats. A horse which works harder may have rather more of each; one that works little should have less.

Rack feeding is wasteful. The better plan is to feed with chopped hay from a manger, because the food is not then thrown about, and is more easily chewed and digested.

Sprinkle the hay with water that has salt dissolved in it, because it is pleasing to the animal's taste, and more easily digested. A teaspoonful of salt in a bucket of water is sufficient.

Oats should be bruised for an old horse, but not for a young one, because the former through age and defective teeth, cannot chew them properly. The young horse can do so, and they are thus properly mixed with saliva, and turned into wholesome nutriment.—*London Horse Book*.

## SWELLED LEGS.

Partial or local debility is generally the cause of horses' legs swelling over night in the stable. When swelled legs occur in a horse that is thin and impoverished, debility must be counteracted to promote a cure, by feeding somewhat liberally, particularly with a mixture of the edible roots, as carrots, parsnips, &c.; it is aided also by giving tonics, such as half a drachm of powdered sulphate of iron, and two drachms of powdered gentian root, mixed in the feed once daily. Smart hand rubbing and bandaging should be employed, for which purpose strong woolen cloths of any kind may be made use of; but flannel forms the best bandage when evenly and firmly applied, by means of a roller four yards in length, and four inches in breadth. Such bandage may be applied every evening as long as needed. Its application should always be preceded by smart friction of the limbs.

The *Turf, Field and Farm* says those keeping horses should twice a week throw in a handful of salt and ashes. Mix them by putting in three parts of salt to one of ashes. Horses relish this and it will keep their hair soft and fine. It will prevent bots, colic, &c. A little ground sulphur mixed with salt and ashes, and given once in two or three weeks, is also beneficial. All domestic animals will be thus benefited.

"Humph!" said an Englishman to a Scotchman, as they were walking over the fields, "oats are all very well in their way, but in England we feed them to our horses, while here they are food for men." "Ay, ay!" said the Scotchman, "an' just see what fine horses there are in England, and what fine men we have in Scotland!"

## VARNISH FOR HARNESS.

Pulverize and put in a jug or bottle half a pound to a pound of gum-shellac, cover with good alcohol, and cork tightly. Put the mixture in a warm place. In about two days, if shaken frequently, the gum will be dissolved and ready for use. If the liquid appears as thick as thin molasses, add more alcohol. To one quart of the varnish add one ounce of good lampblack, and an ounce of gum camphor. An occasional coat of this is also good for rendering boots waterproof.

## Veterinary.

## NASAL GLEET—TREATMENT.

Chronic bronchitis, which sometimes follows the acute stage of this disease, is marked by a discharge of watery and sometimes mucous fluid from the nose. Respiration is accompanied by a wheezing noise caused by obstructions within the bronchial vessels, from a thickening of the lining membrane, or from the accumulation of sero-mucous fluid within the cavities.

Nasal gleet is a chronic affection and is accompanied with the discharge of a thick yellow mucous, which, when the animal is at grass, assumes a green color and sometimes is tinged with blood, and, if not arrested, finally ends in ulceration of the cartilages of the nose, assuming a glandular form. In fine weather it sometimes subsides for days at a time, and again returns with the recurrence of wet cold weather. If the symptoms are as last indicated, the nasal passages should be syringed daily with an infusion of bayberry bark, one ounce of bark to a pint of boiling water strained through a close linen cloth, and applied after cooling. Give with the feed daily one ounce of the following mixture: Equal parts of grains of paradise, marsh mallows, sulphur, charcoal and white mustard seed, powdered. Keep the animal warm and provide good, nutritious food, and give occasionally half an ounce of balsam copaiba and two drams of sweet spirits of nitre in thin gruel.—*Western Rural*.

## CURE FOR FOUNDER.

I noticed in your paper, a few weeks ago, a sure cure for founder horses. I send you mine, which I have tried on many different horses, and in cases of long standing:

Take some old woollen blankets or rags—if woollen rags are not handy, take straw—and wrap the legs tight, up as high as you can conveniently, then take hot water, hot enough to scald the hair off a well horse, pouring it around the horse's legs until they are well soaked; then in an hour serve the same way except not quite so hot, and in two hours he will be as well as ever. This I know to be a sure cure, and there is no danger of injuring the animal, as would be the case with turpentine. The horse is paralyzed; the limbs are cold, and the hot water will start the blood circulating and start the perspiration. I have taken boiling hot water and applied and never injured a hair.—*Com. in Western Rural*.

## OPEN-JOINT.

If there is a lacerated wound which has suppurated, forming matter, cleanse the wound and apply a paste of balsam of fir and powdered charcoal, and apply a cold water bandage to be kept wet. If there is much discharge of joint water, use an equal part of powdered bayberry bark with the dressing and dust the parts frequently without removing the dressing. Sometimes it is necessary to splinter the joint, and apply a starch bandage to prevent moving of the parts. If this is necessary it will be indicated by the condition. A starch bandage is formed by soaking the bandage in strong starch and allowing it to dry on the limb. At all events, avoid exposing the limb more than is necessary.

## OVER-REACHING IN HORSES.

This unpleasant noise, known also by the term "clicking," arises from the toe of the hind foot knocking against the shoe of the fore foot. In a trot one fore leg and the opposite hind leg are first lifted from the ground and moved forward, the other fore leg and the opposite hind leg remaining fixed; but to keep the centre of gravity within the base, and as the stride or space passed over by these legs is often greater than the distance between the fore and hind feet, it is necessary that the fore feet should be moved alternately out of the way of the hind feet to descend.



application else should assertion, and would beg of you next spring it may be result for pu this metho year many had heard said that h believed mor and that it it had repe continue to merits were to prevent again. I a in a few ye are always the grosses just as sim Here it is: Immedia sprinkle on about one More will the corn w tablespoon would do. worms in s without do they will c or any see eat the you salt in the plantation C The exp done by th The wor continue c my brother per, or in s he gives hi The grains tender cor and wither salt should ately after solved by t the air, au greatly dil therefore s and also th may enter leaves, wh that some would try against the flict a nati of the crop successful recognize voting me which I w an exper

At a rec Club, a di tion of tur Mr. Jam ence in the believe th and manur manure at to prepare plough, ha the ground drill up an if you put acre, you tried salt was any b Mr. Wil turnips for ploughing tried it in ference eit and manur time in th nured a pi thorough 1872, culti



AGRICULTURAL.

CUT-WORMS AND CORN.

A correspondent of the *Country Gentleman* thus gives his opinions as to how cut-worms may be prevented from doing any damage to corn:

The method is cheap, of easy application and perfectly sure. If anybody else should write to you in the same strain of assertion, I should think he was "blowing," and would give but little heed to him, but I beg of your readers to give this plan a trial next spring over parts of their fields, so that it may be tested, and then send you the result for publication. My brother discovered this method, and has published it year after year many times. I once asked him if he had heard of anybody else trying it, and he said that he had heard of a few, and he believed more had failed with it than succeeded, and that it had killed the corn oftener than it had repelled the worms, but that he should continue to keep it before the public until its merits were appreciated by enough of farmers to prevent the discovery from being lost again. I am pleased to say that I have, within a few years past, heard of a good many that have used it successfully. The failures are always the result of mismanagement of the grossest kind, though the whole thing is just as simple as sweetening a cup of coffee. Here it is:

Immediately after the corn is planted, sprinkle on the hill, over the covered grains, about one tablespoonful of salt to each hill. More will do no harm, but how much more the corn would stand I do not know. A tablespoonful is enough, and perhaps less would do. That is all. I have buried cut-worms in salt and left them there a long time without doing them any apparent harm, and they will crawl over salt without hesitation or any seeming annoyance, but they will not eat the young corn plants if there is a little salt in the sap. That seems to be the explanation of its protective influence.

The explanation of the harm sometimes done by this method is as follows:

The worms begin to cut the corn, and they continue cutting it. The farmer has seen my brother's article in the country newspaper, or in some agricultural publication, and he gives his corn hills *and* corn a dose of salt. The grains of salt fall down the inside of the tender corn blades to the centre of the plant and wither it. Allow me to repeat that the salt should be put on the corn hills immediately after the planting, that it may be dissolved by the rain, dew or other moisture in the air, and thus reach the roots of the plants greatly diluted by mixture with the soil, and therefore safe to the young and tender plant; and also that it may be at the roots, where it may enter the sap of the plant—not at the leaves, where it can only destroy. I wish that some of your cotton-growing readers would try it on cotton plants as a protection against the worms that every few years inflict a national calamity by making so much of the crop a failure. If it should prove as successful on cotton as on corn, Congress may recognize the value of my suggestions by voting me a few sections of public land, which I will gratefully accept, and establish an experimental farm!

CAVAN FARMERS' CLUB.

At a recent meeting of the Cavan Farmers' Club, a discussion took place on the cultivation of turnips.

Mr. James Brock said that his past experience in the cultivation of turnips led him to believe that ploughing in the fall of the year, and manuring with a good coat of barnyard manure at the same time, was the proper time to prepare ground for turnips. In the spring, plough, harrow and cultivate until you get the ground in a perfect mellow state; then drill up and sow about the 12th of June, and if you put about three pounds of seed to the acre, you would seldom miss a crop. Had tried salt last year, but could not see that it was any benefit.

Mr. William Pritchard said he had grown turnips for a great many years. Had tried ploughing in the fall, and manuring, and had tried it in the spring. Did not see much difference either way, but preferred ploughing and manuring in the fall; it gave a man more time in the spring. Had ploughed and manured a piece in the fall of 1871; gave it a thorough good ploughing in the spring of 1872, cultivated, harrowed, and left it in a

good state as he knew how; sowed 700 lbs. of salt on two acres; sowed the seed about the 20th of June. After the plants were up, sowed four barrels of ashes and plaster mixed, on the plants; had left a small portion of the field without salt, but sowed the plaster and ashes all over; could see no benefit from the salt.

Several others agreed with Messrs. Brock and Pritchard in their mode of growing turnips.

Mr. R. Sanderson said he differed from those he had heard; he had read the Prize Essays on the cultivation of the turnip, in the *FARMER'S ADVOCATE*, but could not see how it was possible to raise turnips and make it pay, and follow their instructions. Thought he raised some pretty fair crops of turnips.—His mode was to raise turnips for the purpose of cultivating the land, and not cultivate the land to raise turnips. Last year he had taken a piece of land that was too poor to grow fox-tail; shook a little quantity of manure over it in the spring, ploughed it for the first and last time about the 1st of June, harrowed it until he got enough loose earth to form a drill, and sowed about 700 pounds of salt on two acres. A small portion of the field he sowed at the rate of one ton to the acre, but could see no difference when he came to raise them. Sowed the seed about the 20th of June. Had a very poor catch; cultivated thoroughly with the horse hoe, and had about 700 bushels to the acre. Had some that weighed fifteen pounds each, which he considered not bad for a Swede turnip; did not know how many bushels an acre should yield, but thought he was very well paid for his labor.—*Millbrook Messenger*.

[One of the beneficial results that we hoped for from the *FARMER'S ADVOCATE* prizes for the best essays on the cultivation of turnips was that it would bring many others, besides the writers of the essays, to more careful consideration of the subject.—We are pleased to find that this result has been obtained. The report of the Meeting of the Cavan Farmers' Club, from the *Millbrook Messenger*, is an instance of the spirit of inquiry on this topic that has been awakened. We would direct the attention of the successful competitors for the prizes to the remarks of Mr. Sanderson, as given above, that "he could not see how it was possible to raise turnips to make it pay, and follow their instructions." They are fairly called upon to prove the value of their essays; and we hope that in our next number we shall be able to present their account of the expenses of raising a crop of turnips per acre, and the actual value of the crop raised. We would, from our experience, give this month a Dr. and Cr. account of the profits of turnip-raising; but it is preferable that such an account be given by those the practical worth of whose experience and observation is now challenged. We have no doubt their replies will be satisfactory.—A. E.]

ALSIKE CLOVER.

As there are numerous inquiries concerning Alsike clover, I will give my experience in raising this most valuable plant. It is only a few years since the seed was imported from Sweden, where it has been grown in the native pastures for many years. The plant bears a greater resemblance to the common white than to the red clover. It yields two mowings annually, if cut expressly for hay when in full bloom, which in this latitude is generally the last of June or the first of July. But if cut for seed it should stand about two weeks later, then affording abundance of superior pasture for all kinds of stock. The seed is cut from the first crop. The Alsike, when left to seed, has its stalks and leaves yet green when its seeds are ripe, and produces much better hay than the red clover when it is cut for that purpose.

The weight of seed required to be sown is from 3½ to 4 lbs. per acre, which is an abundance. The seed being much smaller, a less quantity is required than of the red clover. Four pounds of Alsike will seed more land than ten pounds of red clover. The seed is sown at the usual time of sowing common red clover, on wheat, oats, rye or barley. It generally yields from three to eight bushels of seed per acre. The head is formed with pods, like common white clover, with several seeds in each pod.

I have tried Alsike by the side of red clover four successive years, seed sown at the same time and in the same field, and find that cattle, horses and sheep will not graze on the red clover so long as they can get a good bite on the Alsike. My experience is, there is no other clover equal to it for the

purpose of feeding cattle, sheep and horses, and I believe it to be equal to the red clover as a fertilizer. It will flourish on both dry and moist land—does not suffer from the severest frosts or drouth as red clover does—is as free from fuzz or dust as timothy; hence it will not cause horses to cough or heave as red clover hay does. It will grow from 1 to 2½ tons of superior hay to the acre, according to the season.

I think I never had a greater growth of red clover than I raised four years ago, growing from three to five feet in length. Alsike has many more branches, leaves and blossoms from the main stalk than red clover; the hay is therefore much finer, and far superior in quality. In fact, it is of the same nature as the common white clover, which all farmers will understand, except growing to much larger size. All farmers know, who have had experience, that common white clover pasture is far superior to any red clover; therefore, if it would grow large enough to mow, it would make much better hay than red clover. Alsike clover blossoms furnish an abundance of honey for bees; they can work on them as well as on the common white clover, and can gather honey much faster.

To sow the seed, mix the quantity of seed with the quantity of plaster you wish to sow per acre evenly, and sow as if sowing plaster, except on smaller lands. In so doing you sow your seed at the same time that you sow your plaster, saving the labour of going over the field twice, and it can be sown much more evenly. As the seed is so small, and such a little quantity is required per acre, it is difficult to hold the quantity in the hand or fingers that is required, if sown by hand. Plaster should be sown as a fertilizer, as on red clover.—*E. T. Bryan, Country Gent.*

ACTION OF THE FROST ON SOIL.

The most fertile and productive seasons are those where the frost penetrates the earth deeply, and exerts its influence during a considerable portion of the year. The action of the frost is a powerful stimulant of the soil, it disintegrates it, and unlocks the closely combined elements, and thus sets free vast quantities of plant food.

Its action also counteracts the compressive force of rains and the tread of teams and other animals, and so each year lifts up and lightens the compact earth. With frost to aid him, the farmer need not plough so much to put the soil in good condition, as when this element is not operative. In this respect then, winter is a blessing to the farmer, and he should wisely avail himself of all its advantages. If he cannot plow and harrow during half the year, let him expose his soil with judgment to the action of the frost which silently plows and harrows, subsoils and rolls for him. On heavy and naturally strong, rich lands, thorough fall ploughing is advisable. If the surface is left rough, it is perhaps better; if lumpy, the clods disintegrate and crumble to dust under the icy fingers of the frost farmer. The addition of fertilizers to such soil in the fall is wise, because they become intimately mixed with it by the combined action of frost and water, and are then immediately available for the plants when growth begins in the spring. Farmers who complain that the long winters do not permit thorough culture, under-estimate the value of the action of frost. It is a note-worthy fact that where winter is most severe, within the temperate zones, the soil is prolific, and good crops certain to a degree much beyond that of lower latitudes. The soil seems stimulated to productiveness in proportion to the time and severity with which the frosts act upon it.—*American Rural Home*.

SALT AS A MANURE.

The application of salt has been found in many soils to be followed with the most beneficial results. In our western country the ordinary farm manure receives but little attention. On account of the fertile character of the soils, most farmers are unwilling to bestow the labor necessary for its accumulation and hauling upon the land. But in this we think they greatly err. The application of three or four bushels of salt to the acre is a matter of small cost and little labor, which would in many instances be repaid several times in a single crop, besides the increased quantity in the crops; when applied to wheat land, the crop is often hastened to maturity eight or ten days earlier than wheat on similar land not salted, and this gain in time may often save the crop from rust or mildew. The proper time to apply salt on wheat land is at the time of sowing seed.—*Fireside Friend*.

FARMING IN ILLINOIS.

An Illinois farmer reports to the Department of Agriculture the cost, per acre and per bushel, of growing oats and corn on his farm, ascertained by keeping a careful account of each item of expense. He says:

Interest on the value of the land, estimated at \$40 per acre, is charged, as is each day's work by man, boy or beast, but there is no charge for seed and no credit given for straw or corn fodder. In seeding, cultivating and harvesting, improved farming tools and machinery were used. A field of oats, containing 15 acres, yielded 800 bushels, or 53½ bushels per acre; the cost of raising was \$9.45 per acre, or 17 7-10 cents per bushel.—The oats, when threshed, were worth in market 16 cents per bushel. One field of corn, containing 33 acres, yielded 45 5-11 bushels per acre; the cost of raising was \$10.16 per acre, or 23½ cents per bushel. Another field of 13 acres yielded 50 bushels per acre, and the cost of raising was \$12.27 per acre, or 24½ cents per bushel.

Because it costs this farmer more to raise oats than they will bring in market, he does not consider that he is thereby doing either an unprofitable or unwise business. His farm is stocked with cows, hogs, and long-wooled sheep, and his rule is to feed out to them all the corn, oats and hay it produces; on which account he reports that it is constantly improving in productiveness. The cost of raising 33 acres of corn was:

For ploughing, at \$1.50 per acre, \$49.50; three days harrowing before planting, \$9; marking with four row marker, \$3; planting, two men two days, at \$1.50, \$6; one team two days, at \$1.50, \$3; one planter two days at \$2, \$4; cultivating, six days' harrowing before the corn came up, at \$3, \$18; 22 days' cultivating, man, team and sulky-plough, at \$3, \$66; harvesting, 30 days' work, at \$1.50, \$45; interest on 33 acres at \$40 per acre, \$132; total amount, \$335.50, or \$10.16 per acre. The product was 1,500 bushels of corn.

PLANTING POTATOES.

The potato crop the past year was a failure in the quality, on account of the great heat. Many tubers were so scorched that they became watery and rank; and some, very near the surface or partly exposed, assumed the green color and bitter taste of the vine, making them unfit to feed even to stock, on account of the poisonous property engendered by the rays of the sun. The remedy is: plant deep, from six to seven inches. This for various reasons. It will permit very early planting—an advantage—securing thus the seed against the frost, or if reached by it, it will permit it gradually to draw out, which will save it; it will favor it in a drouth, and prevent the growing of tubers too near the surface, so that the sun cannot injure them; hilling can also be dispensed with, and only the cultivator used to make mellow and keep out the grass, with no danger of hurting the roots or the tubers.

By putting out early, with the first mellow soil, the potato will sprout and grow on unimpeded, in the ground instead of the cellar, and get the benefit of the winter's moisture, which, in an early drouth, is of importance. Particularly should the Early Rose be put in early. The experience here is decided and unvarying, that you cannot get it out too early, in case you have mellow ground for it. It will grow in the worst of weather, snow and frost excepted, and seems to delight in it, while at the same time other sorts are at a stand still, thus making this emphatically what it is, an early potato. Plant close rather than wide apart, say twelve or fifteen inches in the row, as this sort keeps its tubers close together, a nest of them, and easily gathered. They will then also be of a medium rather than a large size, which is favorable to quality; and by putting but one or two eyes in a hill there will be few small potatoes. Thus a crop of Early Rose can be ripened very early, and of a superior quality and yield. But the ground must be dry or well drained, and as a guard against rot, there should be more sand than clay in the soil.

Late sorts should receive the same treatment precisely as early. They will then, by being put out very early, get the seasons' growth, and will ripen in the time

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for dry gathering. A potato wants to be grown rather slowly, but continuously, and well ripened. It will then be sound and solid, fine grained and of better flavor, also more mellow. Rank growth will give a rank taste, and a watery condition a less concentration of substance.

Experience has demonstrated that it is better to manure in the hill than to apply broadcast. Better a poor soil, with some rich fertilizer in the hill, than rich land; and the best fertilizers are ashes, guano, reduced bones, plaster, &c. Ashes are a special manure for this plant.

Will our farmers who are not in the secret of early planting try it this year? Try it on a small scale, if no other. Put out with the very first mellow soil, if it is March; but be sure and plant deep, never less than six, and better seven inches. When I say better seven, I mean it, particularly with the Early Rose. But do it with all sorts. Do not fear the frost with the seed so deep in the ground. Put a good quantity of unleached wood ashes and hen dung in the hill if the soil is not rich. The ashes and dung should be applied and covered at once, as soon as mixed, or else the strength by the union will escape, and that rapidly. Keep out the grass, keep the ground mellow, and do not hill, avoid a stiff clay, and in no case plant on wet, undrained soil.—Country Gentleman.

#### BONE DUST IN AUSTRALIA.

Ground bones are one of the most valuable fertilizers known, especially for wheat and garden crops. They are not much used in the West at present, from the fact that farmers do not yet see the necessity of it for our rich virgin soils. Nevertheless, we think it would pay to experiment with this article, one of the chief constituents of which is phosphate of lime, so necessary to wheat. England has ransacked the earth to find bones to apply to her fields, with profit. The West yearly makes vast quantities of this commodity for export. Some of it should be retained at home, for it will pay the farmer, as well as the gardener, to use it as a special manure. The Melbourne, Australia, *Argus*, notices the following method of preparing bones for shipment from that country:

"The manufacture of bone dust and other animal manures has, it seems, greatly increased in Melbourne since meat preserving operations commenced; and as the Australian farmers have not yet got into the way of using artificial fertilizers to any great extent, it has been getting more and more difficult, year after year, to find a profitable market for the manure produced. Considerable quantities are sent to the Mauritius and Ceylon, where it is advantageously used in the growing of sugar and coffee; but this outlet has not proved sufficient, and efforts have lately been made to introduce the manures into the English market. To facilitate this trade, an apparatus has been contrived for compressing bone dust into half its original compass, reducing it at the same time to a form very convenient for shipment. By means of strong pressure, the crushed bones are moulded into cakes of six inches square and three inches thick, something like flooring tiles, each cake weighing a little over six pounds. These bone dust tiles are just adhesive enough to admit of their being handled freely, thrown about like bricks, if necessary, and are yet so free that when required for use they can readily be crushed, or melted by the application of a little hot water. A ton weight of the manure measures twenty-six cubic feet, and contains 252 of the cakes."

#### ESTIMATED VALUE OF SOOT.

A genuine economist claims that one of the best fertilizers, going constantly to waste, is soot. "It is as valuable as guano and should be carefully saved at least twice a year. You will find soot contains a large amount of ammonia, and on this account is very beneficial to nearly all kinds of plants. Apply it to the soil about the roots, and not to the leaves or stem; or twelve quarts of soot dissolved in a hog-head of water makes liquid manure."

#### RAISING BEANS FOR MARKET.

In the *Western Rural* for Feb. 27, in answer to inquiries, was stated the commercial names of the principal varieties of beans usually sold in our markets. Pursuant to promise then made, we now give some details of the characteristics of the varieties, the manner of cultivation and curing.

What is known in commerce as "medium beans" are the blue pod, a half dwarf variety with branching stem, dark green foliage, white blossoms, the runners sometimes extending three feet. They are always cultivated without poles, since the runners are abortive and not of sufficient length to interfere with cultivation. This variety may be planted as late as the 25th of June, and will then ripen about the middle of September.

All these varieties that we mention may be cultivated alike. And if implements suitable for cultivating the crop are at hand, we consider two feet to be the proper distance between the rows, the seed to be uniformly drilled at the rate of one bushel to five pecks per acre, since by this system of planting the crops ripen more uniformly and weeds are checked during the later growth. If the rows are two and a half feet apart, one peck less of seed need be used. If planted in hills three feet apart, six to seven seeds in each hill, but twelve quarts will be required. A quart of these beans will contain about 2,700 seeds. On account of the earliness of this variety, it is often planted among corn where the stand is bad, but this plan cannot be recommended, since it seriously interferes with the cultivation, and the crop usually costs more than it is worth.

The variety known as the *Pea* or *Navy* Bean is of vigorous growth, branching and sending out many short runners. The foliage is small, deep green, flowers white. It is a late variety, requiring the whole season for maturity. In favorable seasons, however, it will ripen if planted as late as the 20th of June. When pure, the seeds are quite small, of a pure white color, five-sixteenths of an inch long, and a fourth of an inch thick. Planted in drills two feet apart, three pecks of seeds to be used per acre. At two and a half feet apart eighteen quarts will suffice, and if planted three apart, eight seeds in a hill, one peck will plant an acre. About 4400 are contained in a quart.

The variety known as the "Marrow Bean" is really among the very best beans we have, and if better known would become a general favorite. It is from its size somewhat more difficult to cure. It is one of the best garden beans for shelling green, since it parts easily from the pod, and the beans are remarkably white and farinaceous. As a commercial variety, it is second only to the so-called navy bean. If planted in drills two feet apart nearly one and a half bushels of seed will be required per acre. If in drills two and a half feet apart about five pecks will suffice; 1200 of these beans will have a quart.

The best soil for the cultivation of beans is a rather dry, sandy soil; at all events it must not be wet. Excellent crops are raised on prairie sod trench plowed, that is turning the thinnest possible slice under and covering it with another about four inches thick. How you cultivate, have your rows perfectly straight and equidistant. Any of the larger garden drills will sow and cover the seed; cover about two inches deep. Commence to cultivate as soon as possible after the plants appear, but avoid working in after a rain or when the dew lies on the vines. As soon as the blossoms begin to appear discontinue the cultivation. Do not plant till danger of frost is over and the nights get warm. About the time corn is four to six inches high is a proper time for planting, or from the 1st to the 10th of June in the latitude of Chicago, or latitude 41° 40'; making allowance for difference of latitude.

Keep the crop free from weeds at any cost; and a little hilling is advisable. One of the best implements for cultivating beans after they get some size, if in two foot rows, is a single shovel plow. Allow the crop to get thoroughly ripe before pulling, since the danger of shelling and injury from dampness is less while in their roots than after being pulled. If very dry pull, only when damp with dew. In pulling, when a handful is gathered, squeeze the roots firmly together and set the bunches in regular rows tops down.

If rain intervenes they must be moved, so that no one part is allowed to hold dampness, since this blackens the beans and necessitates handpicking. When perfectly dry place on scaffolds in the barn, but never in compact bodies; or thresh immediately, and spread the beans in some airy place, where they will have free air.

#### USE OF MUCK.

Farmers on small wheat farms often find it difficult to keep up the fertility of the soil, not being able to keep enough stock to make manure. These same farmers buy costly and sometimes useless artificial manure, little thinking that the muck of their swamps and river beds, if judiciously applied, would greatly add to the fertility of the soil.

I tried three experiments with it last season on three different crops—clover, wheat and

potatoes—on three different kinds of soil. The clover grew on a light sandy loam. The field was summer fallowed for wheat two seasons before, and received a heavy coat of barn-yard manure. Last spring I picked out the poorest strip in the field, and top dressed it with muck at the rate of forty loads to the acre. The result was wonderful. That strip, in comparison to the rest of the field, yielded one ton more to the acre. The wheat grew on a gravelly loam. The field was prepared in a summer fallow the year before, and received a heavy dressing of barn-yard manure—all except half an acre, on which 20 loads of muck were spread. The straw on this spot grew stronger and healthier than on any other part of the field. I had no chance of comparing the grain. The potatoes were planted on a dry limestone shale. Those that received muck were large and dry, with very few small ones, while the potatoes on the rest of the field were of poor quality and too small for market purposes.

To prepare muck properly it should be hauled out of the swamp in the spring, piled on a dry knoll, and mixed with a liberal supply of lime, ashes and common salt. During the summer it should be turned over three or four times, until thoroughly pulverized and the compost completely mixed. Leave it to the action of the frost during the winter, and apply to the land in the spring. Every intelligent farmer knows that the liquid manures are of more value than the solids. There is sometimes great difficulty in saving them, especially if the stables are built on a hill side. Now, muck is a powerful absorbent, and if used freely as bedding and in pits beside and under the stables, the excrements would be absorbed and saved. I have found it to be of great value applied as a mulch to the roots of fruit trees. It seems to supply invigorating elements without the stimulating effects of manure. Don't sell your ashes to the soapmakers, but mix well with this mulch, and Grub & Co. will leave on suspicion.—R. K. K., in *Ontario Advocate*.

#### SPECIAL MANURES.

A committee of the New York State Agriculture Society have done the farmers much service in buying guano and employing chemical experts, to analyze eleven samples bought from as many dealers in the city of New York. Six of those samples contained so much brick dust and sand as to be only worth about \$31 per ton for the fertilizing elements they contained. And only three samples were worth each \$69, \$65 and \$66 per ton. As the selling price is about \$30 per ton, one would suppose that the profit was large enough for the dealer to dispense with every adulterating substance. There can be no doubt but that the manufacture and sale of special manures, now in its infancy, is soon to be here, as it already is in England, a great and rapidly increasing business. The day is coming when the bones of the great buffalo plains of the West, and the alkaline salts of the desert waste of that region will be articles of transportation for our Pacific railroads. But for the use of concentrated commercial fertilizers at the South, the cotton crop could not be kept up to anything like the yield of the past few years. Cotton seed, guano and superphosphate are their favorite commercial manures; and although Peruvian guano is the richest of all manures in nitrogen, yet the phosphatic Bahama guano, from the solubility of its phosphate, gives great satisfaction, and when mixed with cotton seed pays 200 per cent. on the cost of the fertilizer. When our corn growing Western States are burning Indian corn for fuel, they are burning the candle at both ends, if we consider the organic matter of the ears as an equivalent for the tallow of the candle, and they will soon see the day when the reduced corn crop will increase the price.

#### GIVE WATER FREELY.

Horses and oxen at work need water often. The plowman carries his jug of water, or leave his team to rest while he goes to the house for a drink. But the team works harder than the driver, and probably needs drink as often; yet many teams are taken out early in the morning to the field, where there is no water, except in the driver's jug, and worked five or six hours before they can get a drop. Is it any wonder that they are injured by drinking too much when led to the spring at noon? As an act of kindness to the horses and oxen that serve man so faithfully, and as a matter of economy, we recommend that in all cases where water is not in, or very near the field, in which the team is at work, a tub or barrel be furnished, and filled with water as regularly as the plowman's jug. This, with a bucket, may easily be set in the wagon and taken to the field, and the team should be permitted to drink once, at least every half day, and oftener if the weather is warm. If every one would adopt this plan, we should hear no more of "water founder." The teams would be more vigorous and hardy, and perform more labor for their owners.—E.

#### COMPOSTING MANURES.

I bought the farm upon which I now live last April. On looking over my resources of manure, I found enough under the tie-up to dress one acre pretty well. There was a fine granite cellar 40 by 50 feet under the barn, but there had never been a hog in it, and the scuttle through the barn floor had never been taken up.

There was nothing in process of manufacture of manure, and after planting, I don't think five loads could have been scraped up, and there was not a load of muck out of the swamp. The outlook was anything but encouraging, but the case did not admit of delay or debate. Something "had got to be done," and I "went for it." First, I put three old hogs under the barn, and dumped them down half a dozen loads of soda and loam, not forgetting to put in a liberal sprinkling of corn and small potatoes, and, upon the top of these, two loads of white birch waste. As soon as the brakes and weeds were large enough, I began to put them down, and upon this, all the waste water from the house, not only upon washing days, but upon all days. I had a cask set outside the wash-room door into which the women folks put the waste, and I carried it to the cellar after the rest were done work for the day. In the meantime I kept putting in the loam as fast as I thought best, digging it over once in a while and putting in the corn. After it was time to shut up the hogs to fatten, I put in four shoats. The first of November we hauled from this cellar forty loads as large as we could pile on a forty bushel cart. Also at the same time after the spring work was done I hauled twelve loads of loam and sods into the barnyard, hauled it down fine, and yarded twelve head of cattle on it nights.

I put on a load or two of the waste as often as I could get it, and once a week plowed and harrowed it, sowing on a peck of plaster. Each time it was plowed it was from the centre, leaving a dead furrow, and before harrowing, I put two loads of loam into the furrow. The saw dust and turnings acted as a divisor, and this was as fine when hauled out as any pile of manure I have ever seen.

It was so very wet in the fall that the plowing and replenishing was abandoned after the first of September. On the last days of October we hauled from this yard thirty-four loads, and I had put three loads on my winter wheat and flat turnips; making seventy-seven loads, and besides this I have enough in the hog pens made by the shoats through the summer, and the hogs while fattening, to manure an acre of corn well. Now, Mr. Editor, don't you think this worth telling of, and haven't I reason to be just a little proud. I have now four hogs in the cellar, the cattle and horses are all bedded every day, and every time they are cleaned out there is a little corn thrown in and all the waste water of every description goes there, too, and next Spring the manure from the stock will be worth well nigh twice as much as it would be without the hogs.

All this has cost time, labour and pains—sometimes of the back and sides—and has kept me from gunning, fishing, riding around and loafing, but I have got my seventy-seven loads of manure to show for it, and am fully reconciled with the privations.

I forgot to say that when snow came I had the leaves as high as the hogs' backs in the cellar. In addition to the manure I have the weeds destroyed, roadsides and fence corners cleared up, brakes and weeds mowed in the pastures, and what otherwise would have been a nuisance, was turned into a blessing.—Cor. Maine Farmer.

#### BONES AND ASHES.

Bones and ashes pass through the housekeeper's hands every day. Wood is still the chief fuel in the farm house, and the value of the ashes is pretty well understood. They are prized for the lye they yield, and if there is a surplus from the soap making, they help the kitchen garden and the back door. The bones are generally thrown to the dog and lost. Now the careful housewife could practice a wiser economy, and help her garden twice as fast. Bones are worth twice as much as ashes for manure, if dissolved, and ashes will reduce them. Put both into a barrel in the cellar, and after mixing them half and half, having them constantly moist with soap suds, the hotter the better. The suds should not be poured on in such quantities as to leach the ashes. In a few months the bones will be so disintegrated that the whole mass will readily mix, and will be an excellent fertilizer for the flower border or the garden.—Savannah Republican.

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LIME AS A FERTILIZER.

At a meeting of the Elmira Farmer's Club, Nov. 23, in reply to an enquiry from the President as to what he should do with a quantity of air-slacked lime which he had on hand, Mr. Lewis Fitch said, as reported in the Elmira Advertiser:—

"About thirteen years ago I had a piece of ground ten or twelve acres in extent, which had been so badly run that it would not produce any useful crop. It was too miserably poor to raise weeds, except sorrel, and with that it was completely covered. I plowed it well and planted potatoes, and, of course, got no crop. Not being acquainted with its poverty, I had hoped that diligent care would bring a moderate crop, but I was mistaken; the worthless sorrel was the only thing that would grow, and that monopolized the ground in spite of my efforts to raise potatoes. The next season I bought three hundred bushels of lime and spread it on about one-half the ground, throwing it from the wagon with a shovel. That made a good thick dressing. My idea was that I should thus overcome the sorrel, for I thought lime was its antidote.

"I planted that portion again with potatoes, and was awarded with a very fine crop, and a total extinction of sorrel, which has never appeared since. From that time to this, whenever the piece is plowed, traces of that lime application are seen.—It has proved a complete renovation of the worn out land.

"Another remarkable instance of its good effect I witnessed many years ago on a land near Hoffman's Grove, which was then in possession of the Mechanics' Association, and my brother had a portion to sow to wheat. It was wet, cold and poor, so I felt impelled to say to him: "You cannot raise wheat there." He insisted on the trial, and as a preparation, gave it a liberal dressing of lime. The result was a fine crop of wheat, which was manifestly due to that lime. When we used to run lumber down the river, I had opportunities of observing the uses to which lime was put in the vicinity of Little York, in Pennsylvania. That is a limestone region, and almost every farmer had his private kiln in which he prepared lime for his own use. They drew it on so liberally, that the heaps dumped from a bushel and a half basket would lie not more than eight feet apart. I cannot say how much value it had, but it is certain that the region is agriculturally one of the richest in the State, and its excellence is supposed to be maintained, if not created, by the use of lime.

MAKING MANURE.

A New Jersey correspondent of the New York Tribune gives his plan for making manure:—

"To carry it into practice I have a place for the manure heap convenient to the stable; clean the stalls every morning, or when necessary, and throw on the heap; always keep it well together, with a flat and broad top; it will soon commence to rot, and by the time there are eight or ten loads accumulated, take a day and haul it to some suitable place for manufacture. As the manure is hauled, keep it well together, and less than three feet deep; keep the top always flat or a little concave, as in this way the valuable quality is better retained. When manure is heaped conically or spread carelessly far around, and remains so, for any length of time, its value then would only be about equal to straw. The heap should be regulated in depth according to quantity. By hauling a day at intervals in winter, the yard may be clear by the time of turning stock out to pasture. When the pressing work of spring is past, turn the manure-heap over, mixing it thoroughly. It should be finished square or oblong, with straight and nearly perpendicular sides well packed all through, and not less than four feet deep, as the deeper it is the better; finish the top about level, with six or eight inches of soil, which will prove valuable in saving the good qualities of the manure. When application time comes there will be found a rich heap of manure, black and greasy. This plan is practiced by all of the best farmers of England, who obtain such heavy crops of roots followed by heavy and luxuriant spring grains and grass.

ASHES AND THE BORER about fruit trees do not agree, according to D. W. Kauffman, of Iowa, who says that during fifteen years' experience he has never seen the borer in fruit trees where ashes were freely used, and that he considers them worth \$1 per bushel for putting around trees alone.

STOCK & DAIRY

THE PULPER AND STRAW CUTTER.

Various plans have been adopted in different localities, in high farming districts in England and Scotland, in seasons of scarcity of winter keep, that might this season be worth the consideration of the Irish farmer. The pulper and straw cutter were put to work, and hay and straw a little damaged, when chaffed fine and mixed with turnip pulp, was eaten by the cattle with the greatest avidity, that would have been spurned as fodder if supplied in its natural state.

The use of the chaff-cutter and pulper for five years in the preparation of feeding-stuffs for from thirty to forty head of cattle, enables me to speak with authority on this subject; and I have no hesitation in stating that two cwt. of pulped roots, mixed with half its weight of chaffed straw, is of more value in the feeding of milch cows or young stock, than three cwt. of sliced turnips and double the weight of straw in its natural state. I have not been able to perceive the marked change in fattening stock that it had on milch cows, which may be easily accounted for.

It takes heat to generate milk, and when chaff and pulp are mixed about 24 hours (it depends on the temperature of the weather) fermentation sets in, and hence it is served out in a hot if not in a thorough cooked state, which supports the high nervous state of the animal, so necessary in the secretion of milk; whereas a feed of cold turnips on a cold winter's morning, with its ninety per cent. of water, chills the whole system of the animal, which must otherwise be heated at the expense of fatty matter which supports the animal's existence. Corn chaff, too, can be used to advantage in mixing the pulp along with broken oats, bean meal, palm-nut meal, etc. Although there is no great amount of nutriment in it, it assists to fill the pouch of the animal, without which it would not rest satisfied even had it consumed two stones of oil cake—five times as much as it could assimilate to its advantage.

There is also another benefit in the use of the pulper, which English feeders generally appreciate, and that is, the macilage or mealy substances incorporated with the pulp. As soon as fermentation sets in, it malts, making it in a soluble and easily assimilated state for the production of muscle and fat. The chaff cutter, too, takes its stand among the indispensable implements of the farm, where economy in feeding is practiced. Chemists tell us there is a considerable amount of gluten, albumen, gum and sugar in oat straw—all useful properties in cattle feeding; but that the mechanical labor necessary to masticate the straw from its natural state, neutralizes the beneficial effect it would have on the animal if it were supplied in a prepared state. This shows there are far more feeding properties in straw than most people are aware of, and that if it can be cut at a moderate expense, the more of it consumed on the farm the better.—*Irish Farmers' Gazette.*

CHEESE MAKING AS A BRANCH OF CANADIAN FARMING.

Abridged from a report in the *Cohovary Sentinel* of the Meeting of the Hamilton Township Farmers' Club.

Mr. H. Wade introduced the subject:—

Up to as late a period as 1864 (the year I mention as the first of the Factory System in Canada) we imported as high as 2,530,950 lbs. of cheese; in 1861, still earlier, we imported 2,165,000 lbs. The great change which has since taken place will at once be seen by placing side by side our exports and imports of cheese during the last two years but one, as the tables for the last season have not been compiled yet.

Year.	Imports.	Exports.
1869-70.	59,494	3,827,784
1870-71.	66,475	8,271,439

These figures indicate a complete revolution in this branch of Canadian farming, as up to that time we did not produce enough for home consumption. Now, taking the difference between the imports of 1870-71 and the exports, we have 8,204,945 lbs., representing in money value \$820,496, besides the enormous quantity used at home, which demand is steadily increasing every year as the article of cheese is much more generally used for food than formerly, as it was then used more for a relish; now it is proved to be

a very valuable acquisition to the working man, because it is an animal food, and may be substituted at any time for meat, as one pound of cheese contains more nutriment than one pound of meat, while the relative value per pound is about the same, assuming no waste. We, as farmers, especially in this grain growing locality, still are, I am sorry to say, in the habit of depending altogether on raising the cereals, and as a characteristic of our country, we as farmers are generally men of limited means, and not able to give the land that amount of working which is necessary, and not having stock enough to make manure sufficient, it is no wonder that our lands have become deteriorated. Now, the only cure for this that I can see is for us, as farmers, to raise more stock, work our land thoroughly, and then seed down more, giving the land a rest, while we will then be able to manure it liberally from our own barn-yards.

Many will argue that our land is not adapted to dairying; true, it is not as well as some parts of Canada, but then we have the advantage of being able at the same time to grow a large quantity of grain, while we find as a general thing where dairying is extensive, they neglect the other branches of farming, and my idea of farming is that you had better have several irons in the fire than to have any one speciality, for if that fails you have nothing to take its place, where with a certain amount of grain growing, a certain amount of dairying, which as a matter of course necessitates plenty of stock, which gives you plenty of manure to enrich your grain growing land and causes you to produce plenty of roots, and last, but not least, makes you look forward to the consequences of a dry season for your cattle, and the wherewith to feed them during that time, which in my judgment is one of the essentials of dairy farming in this locality. A liberal supply of green corn stalks for fodder to soil your cattle during the hot and dry months of summer and the bare months of autumn and early winter, as we find it quite impossible to keep a number of cows milking regularly through the season without this provision, and as you all know how very soon our pastures begin to give out under the scorching sun of July and August. I could say a great deal on the subject of soiling during the dry months; I do not mean altogether, as we have never tried that, but hardly think it comes under the scope of this article.

And now supposing we have all determined to keep more stock, the question naturally arises what are we going to do with the milk. We are not in the neighborhood of Toronto or Montreal, or we would at once know what to do with it, and could dispose of it to much more of an advantage than by cheese making. Again, we have another outlet, butter making. Who does not know the hard work that this enforces on our wives and daughters, whom goodness knows have enough to do in the house with the present evil of no servant girls, without slaving over butter making?—Who amongst us have not tried on a hot day in summer to churn, when the butter would not come, and go away in disgust? Of course I do not mean to say that butter making is not profitable, but where a number of cows are kept it involves much more labor than cheese making.

We are all of course thoroughly conversant with the old or tub method of making cheese, and I do not doubt that just as good brands of cheese are made that way as by the factory system, but not as a general thing, there frequently being about two cents difference in price for mercantile purposes; but that is only one reason for adopting the factory system, the other being economy of production or the saving of labor, the same process having to be gone through to make the cheese from fifty cows as it does from five hundred. And it is not too much to say that whereas ten private dairies of fifty cows each would require at least ten skilled cheese makers, while in the case of the five hundred, one skilled manufacturer with three or four assistants would do the work of the ten or more.

In conclusion, I have tried to show that the dairy business has increased in the last seven or eight years from less than nothing, in the matter of exports, to the enormous quantity of over eight millions of pounds, while our exports of grain have not fallen off in the least, showing that keeping a large stock of cattle does not diminish our grain crop in the least, in fact adding to it, as by manure we can have much larger yields of grain than formerly. I now speak from experience, and by cultivating less ground in the season we

have more time to do it thoroughly, which is the very essence of farming, especially in this locality.

Mr. A. McDonald said the establishing of cheese factories and working them on the combined system meant improved husbandry. He thought most of us were agreed that we wrought more land than we had manure for; we had been going in the wrong direction; we had been trying to grow too much wheat; yes, wheat after wheat, and the consequence was our average had fallen to a little more than half what it used to be; our cheese factories were a step in the right direction; it meant keeping more stock, and better stock, and keeping them better; it meant making more manure, and keeping more land in pasture, and hay and roots; it meant working the land better than we did, and also manuring it better. He thought no person need be afraid to invest in cows where they could send their milk to a factory, as our cheese was always becoming better and our cheese makers more experienced, and our markets were getting better.

Mr. Joplin did not wish to address them, but he was willing to answer any questions. In answer to enquiries he said that the general yield of milk to a cow would be about 20 lbs. a day, though he had seen them yield 45 lbs.; it took, in summer, from 10 to 11½ lbs. of milk to a pound of cheese, but in the fall from 8 to 9 lbs. of milk would make a pound of cheese. Last season in their factory, on an average, 995-100 lbs. of milk to a pound of cheese. Cows would pay from \$20 to \$30 each; he had known a cow pay \$40 from the factory. A cow would produce about 280 lbs. of cheese in the season. They found this difficulty, that farmers did not get their cows to come in early enough in the spring, and very often took them out too soon in the fall (for the purpose of making butter) thus lessening the yield of cheese. He approved of growing feed for soiling cows; he knew a case where a man kept twenty cows and had only about five acres of pasture—he fed them on vetches, oats and corn, entirely, and his cows yielded a better average than any others sent to their factory.

Mr. Johnston said that in looking over the returns he saw that our Canadian cheese did not command near such a high price in the British market as their home made thing did; when at home a few years ago he found that they thought our cheese tasted too strong; however we might prefer strong cheese here, there they liked a milder cheese; if a milder cheese, one more suitable to their taste, could be made, it would take better there, and we would get a better price for it. What you receive from the factory is not all the profit you derive from your cows; you have the milk of every seventh day, the calf, and what you make from the cows after the factory stops in the fall. Then look at the large quantity of manure made, that enables you to grow more roots and more grain; if you can raise as much grain from twenty acres, well worked and well manured, as is usually produced by a hundred acres badly wrought, there was surely great profit in that.

Mr. Sibley had never tried the cheese factories; his farm was not well adapted to dairying. He believed where the soil was damp and they had a creek for water, it would be profitable to make cheese; there were other methods of using pasture besides dairying; they could turn their grass into beef and get their profit from it in that way; this plan could be followed in many places where they had not opportunities of sending their milk to a cheese factory.

Mr. Lapp said he thought it would be more profitable for us to make cheese than to raise beef; it was as great expense to raise a steer to three years old as to keep a cow, and then they would not give us more than \$40 or \$50 for the steer. Now, if a cow will yield from \$20 to \$30 each year from the factory, besides the other profits, if we put the extra feeding on the cow, they would pay much better than the steers. No doubt a creek was best for watering cattle, but they could be watered very well from wells. Then see what a great advantage cheese was going to be to the country; see what an amount of money it brings into the country. Even now he had no doubt it paid well to raise corn to feed to the cows when the pastures dried up. He had, this season, sown about half an acre of Western Corn, on rich land; it grew 14½ feet high, and after feeding all they wanted in the fall, they cut and shocked up the rest and fed from it till the middle of January; he was astonished at the quantity of feed that half acre produced. It was so tall he had to

stand on a barrel when tying the top of the shocks.

Mr. Pratt believed it paid to keep a good many cows, and to keep them well; he thought we were all pretty well satisfied that the stock we kept only broke down our straw, they did not make it into manure. Now if we kept more stock, grew less straw, and made what we did grow into good manure, it would be better for us. He believed that the Ayrshire breed of cows was the best for dairy purposes; Durham cows would milk very well for two or three months after they calved, but after that they would not give much. He found that if the Ayrshires did not give so much milk at first, after calving they held out better, and gave more milk in the fall and winter. He thought he could keep three Ayrshires as easily on the same feed as he could keep two Durhams, and that the Ayrshires would give more milk per head than the Durhams.

#### For the Farmers' Advocate. Movement of Live Stock in Great Britain.

Horse, cattle and all sorts of live stock move briskly in the old country in the months of February and March. As our farmers of Canada are rapidly establishing a market in Great Britain for improved cattle, and as our best importations come from that country, we purpose to review briefly the leading features of those sales and exchanges amongst the first heads in England and Scotland especially worthy of note during the preceding two months.

Among the most notable shows was that of the Clydesdale stallions, yearly held in Glasgow. The show was very well attended, both in quality and quantity. There were no less than 81 stallions exhibited, being almost double the number shown in the preceding year. This exhibition was originally established under the auspices of the Glasgow Agricultural Society, for the purpose of securing to that Society a choice of a good stallion for the use of its members. Nearly all the stallions shown were young.

The first prize was awarded by the above Society, who chose for their use, Crown Prince—Dark brown, five years old, bred by Mr. G. Brown Shiels, New Galloway and out of Champion. We mention this last horse especially, because he is of the same blood as our own Champion horses in Canada, and it is a proof that Canada has imported the best blood of Scotland in heavy draught horses.

Highland Chief was secured by the Mid Calder Society, and drew their premium of £50.

The Iwell was selected by the tenantry of the Marquis of Londonderry, and that nobleman subsequently purchased the stallion at £300. Softy the Fourth was sold for no less than £500 stg., while Victor, four year old, was sold to the New Cornwall Stud Company at the handsome figure of £400.

#### THE SALE OF THE TOWNLEY HERD.

This herd should be well known to the Canadian farmer, as importations have been constantly made from it, and stock of Townley descent have invariably made their mark at our larger shows, notably at the Ontario Provincial Annual Exhibitions.

Lady Oxford, owned by John Miller, of Bronyham, and taking second prize at Kingston, in 1871, as a grading heifer (a decision which the writer of this notice at the time thought might have justly been reversed to first prize), was, through her dam, Lady Butterfly, by Great Mogul, a descendent of this celebrated Townley herd.

Lady Butterfly was of the old Townley Vestris tribe, and as a remarkable instance of the high position this tribe holds in the old country, our readers will perhaps remember that in 1864, 50 head were sold at an average price of £103 14s. 9d., and are in direct descent from Mr. Chas. Collings' Countess, which was sold as an aged cow, no less than sixty-three years ago, for the then enormous price of 400 guineas, or over two thousand dollars.

In the late Provincial Fair, held at Hamilton, farmers may have observed a very handsome bull, British Bason, three years old, shown by John Snell, of Edmonton. This bull was also bought from Colonel Townley, of Lancashire, England.

From these importations our own farmers can form some estimate of the style of cattle put up at the auction sales of the Townley herd, one of which is advertised to come off on the 1st of May.

#### SHORT HORN BULL SALE AT BIRMINGHAM.

This sale came off as usual in March, at Birmingham, when 180 bulls were entered for premiums and for sale.

The auction sale, which followed the award of premiums, averaged for bull calves \$160, and yearling bulls, \$290, bulls of serviceable age being sold at \$100.

#### THE WELLINGTON (ONTARIO), EASTER SHOW.

This Easter Show, always looked forward to with great interest by the farmers of the locality, and well attended by buyers from Montreal to Chicago, and from Chicago to New York, came off with unexceptional success.

Over 500 head of cattle changed hands, and there were a great number of buyers present.

It was fully expected by farmers that were present that prices would be low, but they were slightly in excess of those paid at the fairs held in the neighborhood during winter and early spring.

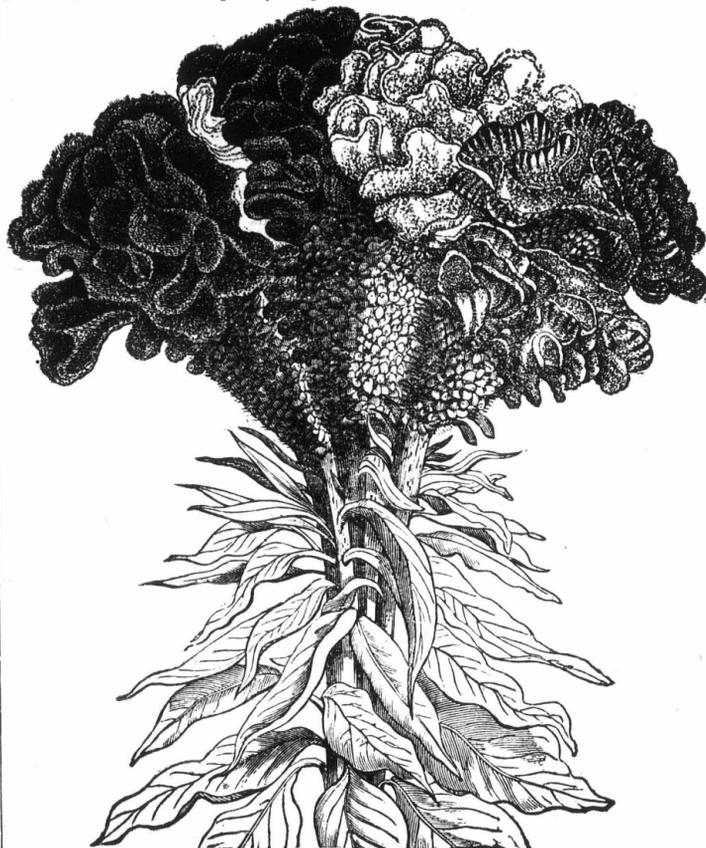
The fact appears to be, that feed is very short in the county of Wellington, and in parts adjacent, and consequently a great

number of cattle were thrown on the market which it was absolutely necessary for the fatter to get rid of.

We were at the February fairs held both in Elora and Guelph, and we found prices ranging from \$2.50 to \$4.00 per 100 lbs., while at the Easter Fair at Guelph, cattle sold readily and briskly at from \$3.50 up to \$6.00 per 100 lbs, while a very few even reached \$9.00 and \$10.00 per 100 lbs.

Mr. Wm. Rennie, of Lyons, had previously sold a beast for Easter at the rate of ten cents per lb. on foot. When we were at his barn in February, the steer weighed over 2,400 lbs., making the value of the animal then \$240. Query—Does it pay to keep only good grade cattle? We think Mr. Rennie would answer this question without hesitation in the affirmative.

We do not think our farmers will be justified in looking for very high prices this year, although doubtless June beef will be profitable. The fact is, the Western raisers are uncommonly hard up for money, and very large herds of Texas cattle may be expected to over crowd the Chicago and Eastern markets.



The New Gold and Crimson Variegated Cockscombs.

(*Colosia cristata variegata*.)

This superb novelty was propagated by Haage & Schmidt, of Erfurt, Prussia, who describes it as follows:—

"The cut shows the mode of variegation, which is as remarkable as it is strikingly beautiful. The golden yellow, as well as the deep crimson, is of the most brilliant hue, and the variegation is as distinctly marked as the Union Jack, even when the golden colored part is sprinkled and streaked with crimson. It is constant to the extent that but a few uni-colored crimson plants come up which are entirely glossy red in foliage and stem, whereas the color of the variegated plant, stem and leaves, is a glossy light grass green, quite distinct from any other *Colosia*. The stem is often marked with a vein-like, bright red stripe lengthwise up to the comb, and then the leaves are more or less tinted with a bronze red. It attains a height of three feet and should be sown early, as it comes to perfection late.

We presume this is the greatest novelty in flowers introduced this season. Messrs. Briggs Bros., of Rochester, New York, are the firm that introduce this remarkable

and beautiful flower. Messrs. Briggs Bros. is one of the oldest seed establishments in the States, and perhaps the largest. They issue a large and handsome catalogue, also a quarterly supplement. Their reputation is well known, and their authority is as good as any we can have on this continent.

Mr. C. E. Brydges is raising a few of the plants, but the price of Cockscomb seed is such as would astonish us farmers, namely, 19 CENTS FOR EACH SEED for one lot, and that by taking a quantity. What would our farmers think of purchasing wheat at 19 cents a grain. Mr. Brydges is an English gentleman. He has now the Hon. John Carling's farm, near this city. He has erected the best lot of propagating houses to be found in the western part of Canada. He thoroughly understands horticulture, and has the largest stock of choice house and bedding plants to be found in Western Ontario. Should any of our fair readers have time when they come to this city to walk through his conservatories, they would be pleased with his beautiful flowers and plants. This acquisition will save many of our readers the

trouble and expense of sending to Toronto or the States for their choice plants. He has imported from England, France, Germany and the States, such a collection as we may never have had before in this part of Canada. We presume no other florist in Canada has yet offered one these beautiful Cockscombs to the public. Mr. Brydges will offer a few this year at 50 cents a plant. Such prices may appear exorbitant to our farmers, but the cost of procuring these new varieties is little thought of by us. Mr. Brydges is preparing to fill orders from all parts of the Dominion. He intends sending plants per mail packed in such a manner that they may be safely sent hundreds of miles, in fact to any post-office in the Dominion. We think this plan may be adopted beneficially. Admirers of choice flowers may perhaps procure them at a much cheaper rate than by purchasing the seed, which being often very fine and delicate, dies on the hands of those that have not time to attend to hot beds, and have no propagating houses. He intends to have his plants ready to put out as soon as the dangers of our spring frost are passed, which he considers will be from the first to the tenth of June. Those that get them by the first of June will have to watch for frosty nights. By the tenth of June we may consider ourselves pretty safe. You will find Mr. Brydges a reliable and honorable gentleman. You can safely entrust him with your orders. We are highly pleased to inform you we have such an establishment in this part of Canada. We would call your attention to his advertisement in Supplement. These house plants are kept ready for order at all times.

#### Notice to our Patrons.

We have been receiving from 25 to 63 letters daily for many weeks past, and it has been a pressing time to attend to all. Perhaps some have not been as well attended as they deserved. Friends will excuse, enemies may bluster, we are endeavoring to do our best to satisfy all. We now wish for any that have complaints to make for inattention, or other causes, to write us, and head the letter complaint. State particulars, give dates, no matter how far back, and we will try to rectify for each of you. State what you require, what you may have done for us, if anything. As we have a large collection of seed, we will try and satisfy everyone, particularly those that have sent us money for subscribers.

#### WORTH KNOWING

A correspondent of the *Scientific American* asks "if there is anything that will remove the taste of kerosene from a cask?" The *National Oil Journal* answers yes, and says the operation is simple, cheap and effective. Set the cask on its end, remove one head, and build a fire in the bottom of the cask with straw, or any light combustible matter. Allow the head which has been taken out, to remain suspended in the cask while burning. When the inner surface is charred, put out the fire by covering up the open end, and rinse the barrel with strong lye. A barrel thus treated can be used for cyder, meat or any other purpose.

#### OILING THE HARNESS.

In these times of poor leather we should clean and oil the harness at least once a year to keep it in good condition, and to reduce the wear and tear as much as possible. Don't let the job out to the harness maker, but some of the stormy days, when the harness is not in use, just take it into the workshop and commence operations. Take the harness all apart, and scrape off all scuff, hairs and dirt, and wash the leather clean with soap and hot water. Then heat two or three quarts of neatfoot oil in a long, shallow pan, and draw each piece of leather through it slowly, bending the leather backward and forward, and rubbing the oil in with a cloth or sponge. Hang near the fire to dry, and repeat the process until the leather is saturated with oil; mix a little lampblack with clean tallow, and with a cloth rub it into the leather while warm, until the pores are filled and the surface becomes smooth and glossy. If a harness is oiled in this way it is never gummy, and will therefore keep clean a long time. Sometimes linseed oil or adulterated oils are used, but they dry on the leather and make it gummy, dirt and hairs stick to it, and the harness gets so filthy as to soil everything it touches. After the harness has had a good oiling, an occasional rubbing with tallow and lampblack will keep the leather tough and pliable, and prevent it from cracking.—*Country Gentleman*.



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**M**INNIE MAY'S DEPARTMENT.

MY DEAR FRIENDS: I have to thank you heartily for your response to my call for letters, and will now proceed to give the names of winners of prizes:—  
Best letter on Dairy Management—Ellen Mason, Morpeth.  
Best letter on the cultivation of flowers—I have received four essays so nearly equal in value that I feel compelled to divide the prize, and will send out a package of flower seeds and a bulb to each of the following:—  
Minnie Gray, Glenallan.  
Lesta Heacock, Kettleby.  
Lavinia Parkinson, Eramosa.  
Lizzie Colbeck, Brantford.

Below I give two of the letters and may give extracts from others next month.  
Minnie May.

**THE DAIRY.**  
A dairy should be built in an airy location, with a northern exposure, away from all impure substances so that the air around be not vitiated. The size depends upon the number of cows kept, and should be so constructed as to preserve as near as possible the same temperature, which should be about 54° or 56° Fahr. This is difficult, but a nearer approximate can be made than is generally done.

Shelves placed round the sides of the room, made of oak or hard stone, which is preferable, supported by pillars, are best and most convenient; they must be kept perfectly clean, as also the floor, for which stone flags or double brick pavement should be used, with a slight slope, to allow water to run off into a drain.

On the outside should be an iron grating, to prevent any ingress to the dairy. Care should be taken to have it well ventilated and a reservoir of water near at hand, if possible. To insure success the most minute cleanliness is indispensable, as it is a well known fact that milk is very susceptible to surrounding effluvia, and should therefore be taken to the dairy as quickly as possible, and immediately strained into free-stone or tin pans, which are quite narrow at the bottom and widening towards the top—thus assisting the oily particles in rising. It should now be left undisturbed till skimming time, which is, as a rule, 24 hours after setting. Some persons wait till the milk curdles, or till fresh pans are wanting. This is a mistake, as the constant parts of milk separate easily while in a state of repose and change quickly. When the dairy, however, is susceptible to the changes of the atmosphere, it should not be skimmed in summer till the milk thickens (if within the 24 hours) yet not long enough to permit whey to rise to the surface. When allowed to stand longer the cream contracts a sourish taste from the milk, the cheesy particles adhere, and the butter is injured.

The sooner milk is skimmed the sweeter the butter, but in this case some of the cream is necessarily lost. My manner of skimming is—make an opening at one side of the pan (pans with spouts are best) and let the milk run off; thus you have cream only, whereas if the cream is poured off, you cannot prevent more or less milk going; with it, and a skimmer loses some of the cream.

The cream is put into a stone jar in case there is not sufficient for a churning, and a little fine salt shook in at each skimming, and the whole stirred up and left uncovered.

Churning follows next and should be done in an adjoining room, if convenience will allow. The dairy utensils can also be kept in this room. The jarring of the churn, opening of doors, presence of hot or cold water, &c., changes the atmosphere and arrests the rising of cream.

According to season means have to be adopted of lowering or raising the temperature of the cream. It is best to equalize as you commence, and then continue a rather slow steady movement, uninterrupted till finished. You now remove the butter into a wooden bowl, previously well scoured and scalded, and with a wooden ladle work well to remove the milk, and having carefully and thoroughly done this, if for present use and you wish a delicate flavor, simply salt and work well again and form into rolls or prints. If, however, you wish to pack, first work well, then wash till the water is perfectly clear; one, or at most, two washings will affect this if the first rule is attended to. Any one who will take pains and try this will feel repaid and discover for themselves that water reduces the flavor of butter. Having washed it, salt, work again and let stand till next day, when the salt will be dissolved. Then wash in a weak pickle, remove,

work, and pack into a well prepared tub. Do not put on pickle from packing to packing. Rather have ready a piece of bleached linen wet with fresh water, lay on top of butter and keep moist. The water in swelling the threads of the linen, protects the butter from the air. Shake a light layer of salt in the bottom of the tub, and another on top just before closing. Now the work is finished, will it stand the test of time and market?

Quality and preservation of butter depends mainly on 1st.—The kind of cows, the food given, the health of the animals, &c.; 2nd.—The care taken of the milk; 3rd.—To thoroughly extract every particle of milk and use a proper quantity of salt. ELLEN MASON, Morpeth, Ont.

**THE CULTIVATION OF FLOWERS.**  
Elmbrook Farm, Eramosa, April 9th, 73.  
DEAR MINNIE MAY,—  
Seeing your very handsome prize for the best letter on the care of flowers, I write to let you know my method of cultivation. About the latter end of April sow the half-hardy and tender annual seed on a hot bed made in the usual way. Last year I covered with a frame made of oiled paper and found it to answer very well, but I think thin cotton would be better

a little warm. This should be done at least once a week. The plants will look so fresh and green that it quite pays for all the trouble. Some plants require a great deal more water than others; for instance, the Calceolias should be watered every day, while the Cactus tribe require very little water, especially in winter. I have heard persons complaining that their Cactuses never bloomed, and, upon enquiry, found that they watered them quite as often as they did their other plants, which accounts for their not having any blossoms.

Plants should not be left in the pot too long without being moved, as it is impossible for them to grow and look well with the pot almost filled with roots. They should be taken out, and if expected to grow larger, put into larger pots with fresh earth. Young geraniums and fuchsias can be lifted out of small pots and put in larger ones without their ever feeling the removal. Geraniums, fuchsias and a good many other house plants can be easily raised from cuttings, and it is best to raise young plants for they generally bear the best flowers. If insects appear wash the plant with warm water; this I think is quite as effectual as anything I have found. A great deal more might be said on the subject, but as my letter is already sufficiently large, I will conclude. LAVINIA PARKINSON.

**Farmer's Cottage**  
What a pleasant looking place for a home this is. The garden in front, the shade trees, and everything neat. We would like to see our farmers pay more attention to their homes and surroundings. If they did so fewer of our boys would want to leave for city life.



The Apiary.

ITALIAN VS. BLACK BEES.

The great advantage that the Italian bees have over the black bees are not a few; placing them side by side for three seasons in my bee garden, and watching their progress very closely under various conditions, both summer and winter. The first bee to bring home pollen in the spring is the Italian. They are the first to sally forth on wet or stormy days. The queens seem to have more vigor in keeping up their colonies, even laying eggs in the spring before the bees are induced by the warm weather to brood over them. Strange to say, the bees will remove the eggs which fall to the bottom of the hives until the time arrives for raising broods. Italians are easy to handle because they are always at work, and take very little notice of what is going on in the hive. They are found on certain flowers that black bees seem to care very little for. When the honey-producing flowers are scarce, they go to the late clover and sunflower, the latter being a favorite with the butterfly and bumble bee, the Italian being able, with his long proboscis, to sip the sweets and gather pollen in abundance, while the blacks are quietly watching at the doors of their hives, ever ready to fight like Indians at the first alarm. At the height of the honey season, there is no marked difference when all are at work, but late in the season the Italians are out early and late fetching in supplies to keep up the demands of a prolific queen. In wintering, my success has been better with Italians than black bees. The present winter has been severe, no doubt, but as yet there is none of that damp and filthy condition to contend with which caused so great a loss last winter.

B. LOSEE.  
Cobourg, Ont., March 13, 1873.

**CHEAPEST HONEY.**

Honey is one of the pleasantest sweets for family use. It may be secured at half the expense of cane, beet or any other sugar, and I think in sufficient quantities for a general and full supply. In the manufacture of sugar, fields of cane or beet are raised and gathered, and then the extract secured and prepared, at the expense of much time and manual labor. All the manual labor required for securing honey is simply furnishing a

room for the laborers and receptacles to receive and store the honey when gathered.

The expense depends upon the number of workers employed, and the cost of their sustenance. A farm prepared with reference to the production of honey, with sugar maple, locust, linden, and whitewood trees for shade; with apple and pear orchards, and other fruit trees; with white clover abounding in the fields; and a field of buckwheat, may be supposed to yield five pounds to the acre, more or less, according to the amount of honey-producing trees or flowers. Say such farm of 400 acres will produce 2000 lbs. of honey.

Put 33 colonies into the field, at 60 pounds for breeding season and winter, they will give but a trifle of surplus—200 lbs. might be secured by the strongest colonies, and the weaker fail in that amount, and require an equal amount of other feed to go through the winter, and some of them perish. Profits nothing. Again, suppose you place in the field 20 hives, at 60 lbs. each, they consume 1200 pounds and give 800 pounds surplus—average, 40 pounds. Or, suppose ten hives, at 60 pounds each, are placed in the field; they consume 600 pounds and give 1400 lbs. surplus; average, 140 pounds. The cost in the first case—33 swarms at \$5 each, \$165; 33 hives at \$1 each, \$33; total, \$198, outlay for 200 pounds of honey; that is, one-tenth of the product of the field. In the second case we have twenty swarms at \$5 each, \$100; 20 hives at \$5 each, \$100; outlay for 800 pounds surplus, \$200. In the third case we have 10 swarms at \$5 each, \$50; 10 hives at \$5 each, \$50; outlay for 1400 lbs. surplus, \$100.

In the first case we have one-tenth, in the second case, two-fifths, and in the third case seven-tenths of the product of the field in surplus. In the first case I remark that the supposition is better than the average of apiaries of swarming hives have done, within my knowledge and observation. If we reckon the surplus at twenty-five cents per pound, an outlay of \$198 brings in \$50, less the cost of feeding the weaker swarms.

The second case (non-swarmers) just covers the first outlay and leaves the clear gain of the 20 hives and swarms.

In the third supposition the ten non-swarmers cover the whole outlay three and a half times. With my farmer's hive I have done with the whole number more than one-third better than the second case supposed. The first season, with the Eureka hive, my four hives averaged within fifteen pounds of the last supposed case—125 lbs. per hive, 500 lbs. for the four hives.

In my present location our fields afford no honey after white clover, as no buckwheat of consequence is raised, and I know of no basswood within their range. After the white clover honey harvest, the bees have resorted to the surplus honey boxes for feed, if not removed, and then have had to encroach upon their winter stores. The colony that gave me 200 pounds of box honey in the summer of 1870, and 143 pounds in 1871, stored no honey after white clover had passed by, but commenced upon previously gathered stores. I think, had the basswood been abundant in the vicinity, and had the farmers each raised a few acres of buckwheat, my bees might have added fifty if not 100 per cent. to their surplus.

One other fact I will add: the hive that has done the best I have ever had done by one colony, has simple bars instead of movable comb frames. As I have no occasion to raise queens for sale, or to use the mel-extractor, I think them preferable to the movable comb frames for my use, or for the use of farmers who are not inclined to manipulate their bees.—J. H. in Western Rural.

**BEEES, HONEY AND WAX.**

In the census of the State of Iowa, for the year 1863, we find reported 88,731 swarms of bees, which gave 1,052,685 pounds of honey, and 40,762 pounds of wax. The returns from Massachusetts for 1860 gave as the honey product of that State 59,125 pounds, valued at \$23,223. Statistics show that Austria, in 1857, produced 66,000,000 pounds of honey, and 6,600,000 pounds of wax, valued in the aggregate at \$7,000,000. The production of wax in Russia is estimated at 5,142,000 lbs. per annum. The amount of honey and wax reported in the Department of Agriculture in the census returns for the year 1850 was 14,853,790 pounds; in 1860 it was 1,357,864 pounds of wax, and 25,028,991 pounds of honey, an increase of about seventy-seven per cent.—North American Bee Journal.



## GARDEN AND FARM.

## HINTS FOR MAY.

May is the month bright in hope and rich in promise. The earlier months of the year are not so agreeable or pleasant as the merry month of May. They are not without their blessings. They have aided in preparing and enriching the soil of our gardens and fields. The snow, rich in its fertilizing stores of ammonia, has lain long on the ground; and the keen frost has penetrated and drawn forth, for the young plants, stores of food that would otherwise be unavailable; and the rains have come in their season and filled the springs for the nurture of all things on the earth. And now the winter has gone, though sometimes lingering as if unwilling to go, and the bright days have come; the fields are rich with verdure, and the sweet-scented blossoms of the orchards give us promise of their annual tribute of fruit.

But we must give our *Hints for the Month*.—If there be bright promise in the "sweet month of May," it is not a season for idleness; there is no little work to be done. The farmer's life is a busy one, though it is one of much pleasure, and this is a busy as well as a pleasant month. There is no season in the year that demands more the busy work and care of the farmer and gardener.

The farm stock needs the provident care of the farmer. Horses in this busy season must be well fed and groomed. This should be the rule at all times, but if at any time it be more necessary than another, this is the time. Keep your cattle off the pasture till the middle of the month, if you have any other means of feeding them. A provident farmer will always contrive to have a supply of fodder to keep his cattle well till the 15th of May. Turnips properly stored will keep well for some weeks in May. Your cows and young stock can have the run of the woods a few hours each day. The care and feeding, too, of our sheep must not be neglected.

The chief operations of the farm are the completing the sowing of spring cereals and the planting and sowing of root crops. Oats, if not sown in April, must now be sown as soon as the soil is in proper condition, though it is getting late; do not make such haste as to sow before the soil is dry and well prepared. In the old country, when the spring and its labor were a month or two earlier than it is here, March was the great month for sowing grain, and the provident farmer there, bearing in mind the country proverb: "A bushel of March dust is worth a king's ransom," took care to sow his seed only when the soil was dry. Clover and grass seeds, sown now with your barley or late oats on well prepared soil, will do well.

Have the ground ready for Indian corn to be planted any time from the 24th of May to the 15th of June. Plant some to cut as soiling for your milk cows, if you plant for no other purpose. When the pastures are getting bare in the heat of our warm summer, you will find the crop for soiling help to keep up the profits of the dairy.

Plant your potatoes at intervals during the month. In planting them early you incur the risk of the June frost; yet we prefer running some risk, as potatoes early planted will be of the best quality, and the Colorado potato bug's ravages are more destructive to the late crop. We must for the present guard against this alien enemy.

Finish the preparation of the ground for turnips and mangolds. No other crop will better repay the farmer for his labor. The turnip crop, from 700 to 1200 bushels per acre, is sure, though not so quickly convertible into cash as wheat or oats, to bring a greater gain to the farmer. The culture of the turnip field leaves the soil in better condition than it would attain from a naked summer fallow. Turnips cannot be dispensed with in the winter feeding of stock, whether it be in the fattening or dairy department.—Store cattle will always do better if in the winter storms they have a daily feed of turnips, and to have your cattle do well in the summer it is necessary that they be well wintered. Sheep, also, will want their winter supply of turnips. In providing food for your stock, sow a mixed crop of oats and peas to cut for soiling when the peas are well podded. Sown together, they grow more luxuriantly than if sown separately. They are an excellent food for milk cows especially.

As early as you can in this month sow carrots; you will find them very useful in feeding your horses. Beans should be planted this month.

*Dairy operations* require your attention this month. At the time of your cows' calving, give them for a few days a little sheaf oats; it will strengthen them. See that the milk room is perfectly clean, sweet and well ventilated. If it be otherwise you cannot have good milk and butter.

*The Garden* calls for especial attention in its various departments. There is no time to be lost. Our Canadian springs are so short and vegetation so rapid, that every hour is valuable. The soil must be brought into the finest tilth, and seeds sown. Nor should the flower garden be neglected. In this, the ladies will gladly give a helping hand; but even in this, let not all be left to them. Let the heavier part of the labor with the wheelbarrow and spade be ours. Let no seed be sown till the soil be dry and in good condition. This is an essential rule for garden and field.

*The Orchard*, as well as the garden and field, calls for your attention this month. This is a good month for transplanting trees in your orchard, as well as shade trees.—Plant liberally. In purchasing fruit trees be sure to purchase from a reliable nurseryman. This is said to be the best month for planting evergreens. We have found them to succeed best when planted the last days of May.—The balsams, cedars, hemlocks, spruces and pines of our woods, if planted carefully when young, may grow well, and are very ornamental; though they are not so sure as those raised in a nursery, nor will they grow so quickly. But whether from the nursery or from the woods or swamp, we say plant trees, evergreen and deciduous—plant for shade, for ornament, for future use. This advice we can hardly repeat too often.—A. S. Ed.

## MEASURING THE HEIGHT OF TREES.

In the *American Agriculturist* is an illustrated article describing the mode of ascertaining the height of trees. The mode, although quite simple, is not always at hand when most wanted, and requires some nicety of management, and the extreme height of trees is less frequently desired to be found by farmers who wish to cut a stick of timber to some desired length from the timber woods. A more simple method, and one that can be put in practice at any time and place, when one has only a measuring rod, and has the experience of the writer, which is as follows: A stick of timber is desired, say fifty feet long; select your tree, measure fifty feet in a direct line from the foot of the tree on as near level ground as possible; now cut a stick the exact height of the observer and stick it in the ground exactly perpendicular; now let the observer lie flat on his back, his feet against the stick and head in line of tree and stick and look directly over the top of the stick, and where the line of vision strikes the tree, will be the length of the stick, fifty feet, desired. If the ground is not level the measure will not be exact, but all-wance must be made.

## ORCHARDS—CULTIVATED VS. UNCULTIVATED.

In your issue of December 12, 1872, I notice "A Request to Fruit Growers," in reply to which I give you a little of my experience in apple culture. I have several orchards about fifteen or twenty years old, that have always been kept in sod, and received no other attention than a slight pruning every two or three years, and an occasional load of manure or ashes as a top-dressing. As a consequence we never had a bushel of perfect fruit up to the year 1870. The trees bore pretty good crops, but the fruit was small, wormy at the core, and knotty, while the trees themselves looked very badly. The soil in all of them is a black gravelly loam. They consist principally of Bellefleur, Smokehouse, Green Pippins and Romanites.

In the fall of 1870, I plowed the ground in one orchard, containing about thirty trees, to a depth of five inches, gave it a good dressing of manure, and trimmed the trees carefully. Since that time I have kept the ground cultivated and the trees carefully trimmed and scraped, and each year noticed a marked improvement in both trees and fruit until this fall, when I had the satisfaction of sending to market the finest lot of Bellefleur and Smokehouse apples ever seen in this section, and which I readily sold at \$1.25 per bushel, while apples were selling all through our streets at from 30 to 70 cents. The fruit was large, rich-flavored and high-colored, while from the trees growing in the sod I did not get ten bushels of first-class apples. This I think proves clearly the importance of

cultivating the ground and scraping the trees regularly and carefully, as by so doing we can most effectually destroy the harbor of all the insects injurious to the apple, besides giving the trunk and limbs a healthy, smooth bark, under which the sap can flow freely in sufficient quantities to ripen perfect fruit.

Some may object to plowing an old orchard, on the ground that we cut off a large portion of the feeders. This indeed is true, as we find the sod filled with fine roots that come to the surface to get the moisture and air that the heavy sod prevented from penetrating to the lower layers. But if the ground is plowed and manured heavily in the fall when the tree is partially dormant, it does not feel the loss at the time, and in the early spring, by the time it has put out all its leaves, new feeders will have formed, and these being in the rich loose soil where they can have the full benefit of the surface heat and moisture, will enable the tree to make a better and healthier growth even the first year.—G. H., in *Country Gentleman*.

## EVERGREENS.

All over the Eastern States the evergreens are dying or dead. In the place of the dark green cones a few months ago, there are now reddish-brown masses of dry twigs. Of course the nurserymen are in trouble, and there seems to be no way out of it; and the owners of ornamental grounds are casting about for means of replacing their former favorites. This epidemic is ascribed first to the mild weather of February, which started the spring growth; next to the bitter cold weather of March, which abruptly checked it; and lastly, to the long drouth of April and May, which completed the mischief already done. The trials of the nurserymen are the hardest. They might possibly, if they tried, coax a fair percentage of their trees to live, but it would at best be two or three years before their recovery could be so evident as to satisfy buyers and nursery ground is too valuable to be devoted to such a purpose. Again, where can substitutes for the winter and drouth killed shrubs be found? Nursery stock is untrustworthy, of course, and we see nothing for it but a resort to the woods, and the slow process of starting afresh. A little advice to unprofessionals may be in order under the circumstances, and we will therefore hint that, provided the trees can be procured, the present time is suitable for planting or transplanting. Let the transit be as quick as possible, and mulch, after setting out, with decayed vegetable matter. The white spruce and Norway spruce are among the best for general use. The black spruce is at home all over the Northern States, but will not grow well south of the Alleghanies. A cool and moist atmosphere is generally essential to its full development. The hemlock is difficult to transplant, but if carefully tended for a year or two, grows admirably in light and dry soils. Such are a few of the most popular and the most easily procured evergreens, and we hope that every one who can will take hold energetically and transplant from their native hills three young trees for every one that has died; so that if two-thirds of them fail, the remaining third may flourish, and in part at least, make good the harm that was wrought by the unusual distribution of favors by sun and frost.

## BALANCE OF POWER IN PINCHING AND ROOT PRUNING.

M. Keane, in the *Journal of Horticulture*, of August 1st, in speaking of the management of Espalier trees touches upon the principal of maintaining an equilibrium of forces as follows: "The whole principal of pinching is merely this—in the first place, to pinch all young shoots not necessary for the frame work of the tree; secondly, to stop those shoots which threaten to outgrow their neighbors, by which means a due equilibrium of branches will be maintained, and, finally, having commenced a system of repression, to continue it in regard to lateral shoots which are developed by reason of this practice of stopping. While, according to the general plan pursued, every encouragement is afforded to the development of roots, by the applications of soils, a necessary limitation of wood destroys the unity of force between the two. Root-pruning, if thus obviously suggested, and may, at the proper season, be practiced with advantage.

MULCHING PEAR TREES with salt hay is recommended by a correspondent of the *Tribune*, he applying it to the whole surface in June and raking it up in November. This gives fine crops and protects the fallen fruit.

LIME FOR APPLE TREES, scattered in a powdered state over the soil late in fall or early in spring, at the rate of one peck per square rod, is said by a western writer to be most beneficial.

## FORESTS AND DROUTH.

A correspondent of the *Scientific American* writes to say that it lies with us to decide whether our continent shall retain its present luxuriance and salubrity to remote ages or not. He regrets that the rapid diminution of our forests, and the decrease of moisture in the interior parts of the country; and concerning the latter point, he states that, in some parts of the country, where five feet of snow usually fall in a year, there are not now five inches.

Sardinia and Sicily, once the granaries of Italy, have suffered the penalty of their thoughtlessness in exterminating their forests. Two thousand years ago, those lands were celebrated for their wonderful productiveness, and were said to be the most beautiful in the world. In 1800, Humboldt visited Venezuela, South America, and was informed by the natives living in the valley of Araguay that they had noticed, with great astonishment, that a lake which lay in the middle of the valley had decreased in volume every year; the cause of this is clearly traced to the felling of a great number of trees which grew on the surrounding mountains. In Hungary the periodical drouths are attributed to the annihilation of the forests. In Cairo, Lower Egypt, a great many years ago, rain fell but seldom, only once in three or four years; but since the time of Mohammed Ali, twenty to thirty millions of trees have been planted, and the result is now that the people have from thirty to forty rainy days every year. Surely these few of the many examples are warnings sufficient to put us on our guard."

## SOAP-SUDS FOR VINES.

Soap-suds should never be wasted. It is well to have grape-vines planted so that the waste from the house can be used to fertilize them. If there is any food the vine especially loves, it is the soapy liquids which accumulate on washing days in families. Vines drenched every week with these liquids will flourish astonishingly, and extend themselves so as to cover large buildings, every branch bearing fruit. A distinguished Ohio horticultural says that his family of ten persons eat a ton of grapes, fresh and canned, during the year, and he thinks that not only does it pay in the matter of health, but also in the saving of grocers' bills, through the diminished desire for pastries and other rich food.

## NOVEL GARDEN.

A hanging garden of sponge is one of the latest novelties in gardening. Take a white sponge of large size and sow it full of rice, oats or wheat. Then place it for a week or ten days in a shallow dish, in which a little water is constantly kept, and as the sponge will absorb the moisture, the seeds will begin to sprout before many days. When this has fairly taken place, the sponge may be suspended by means of cords from a hook in the top of the window, where a little sun will enter. It will thus become like a mass of green, and can be kept wet by mere immersing in a bowl of water.

## DO BEES INJURE GRAPES.

Geo. W. Campbell, an extensive grape grower, writes the *Ohio Farmer* as follows:—"The point which I wished to establish was, whether honey bees were justly classed among the grape destroying insects, or whether they simply utilize the juices of the grape by appropriating what would otherwise have been lost after the skin of the berries had been broken by some other agency. I have, up to this time, been wholly unable to ascertain that they ever attack a sound, unbroken grape, and believe they have acquired this reputation only by reason of sometimes being found in bad company. The wasp is furnished with a powerful and efficient saw-toothed cutting apparatus, with which the grapes could be easily abraded; but this is entirely wanting in the honey bee, whose organs seem only suited to the suction of liquid substances. Grapes are often burst by over-crowding on the stems, especially if rainy weather succeeding a drouth occurs about the time of ripening, and wasps and other insects will then be found abundant among the vines."

## SUGAR-MAPLE TREES.

The sugar-maple is one of the most beautiful of trees; its stately and graceful habit renders it an object of especial interest to those who practise landscape gardening. No other tree supports an equally massive head of foliage by so slender a stem. In autumn it displays a gorgeous variety of tints, and those groves or groups of trees which best its presence in a goodly proportion, then stand arrayed in a mantle of beauty which is most captivating to a lover of the picturesque. Sugar-maple trees will grow on steep side hills, in gorges and glens, on mountains, on plains, among rocks and stones, in waste places where the ground may not be ploughed or otherwise utilized. It would by no means be out of place along lanes and roadsides, on lake shores and river banks, and along railways. There ought to be a sugar-maple "sap-bush" on every farm. It would pay in timber, in fuel, and in sugar, to say nothing of summer shade and beautiful landscape.—*Orillia Express*.

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PARLOR AND WINDOW.

Flowers cost so little, and their care and culture is commingled with so much pleasure in watching their progress, that they may be considered the cheapest luxuries afforded humanity. It is a mistaken idea that flowers in a room exhale poisonous gases. A single lamp takes from a room more oxygen than a whole bay window full of plants. Plants or flowers giving off strong perfume should not be permitted in a sleeping room. Plants, like human beings, subsist on air, food and light, and it is given to those who have become most familiar with the proper proportions required of each to reach the greatest success in maturing and having choice flowers. An even temperature, as a general thing, is best for house plants, and they should never be kept in a room where it is below 40°. Too great heat and too little light are injurious to plants. Guard against too dry a heat in a room by having a dish of water where it can be evaporated by the heat. Plants should be ventilated, although not allowed a draft of very cold air. A few of the large leaved plants, such as callas, cornelias, oleanders, &c., should always be washed (taking care not to wet the flowers), for the leaves of plants, like the human skin, contain innumerable pores, which should not be allowed to become clogged. Finally, they should be watered judiciously, and to such an extent as a careful study of their needs may dictate.—From *Brigg's Illustrated*.

THE TRUE WAY TO WATER TREES.

If trees standing in grass land are watered, the surface round about the body for three or four feet in each direction should be covered with mulch of some sort, to retard evaporation. It will be labor lost to water trees on the lawn without exercising this precaution as the water will disappear before a hundredth part of it has reached the roots. Straw, hay, lawn-grass, weeds, shavings or tan bark, will make an excellent mulch. Spread the mulch three or four inches deep, pour three or four pailfuls of water round each tree, and the water will permeate the entire soil, keep it damp, and supply the moisture which the tree must have, or die. If the soil is in a tillable condition, draw the earth away from the tree to the depth of one or two inches; pour in two or three pailfuls and return the mellow earth, which will keep the surface from breaking. Yet mulch is far preferable to the latter mode.

When the soil appears nearly dry to the touch, the roots cannot possibly derive the needed supply of water to keep the leaves and branches from injury during the rapid evaporation which is going on night and day. When the atmosphere is as dry and hot as the air in a huge lumber-kill, it will have the moisture in every tree and plant, and the moisture of our bodies, even if it is the hot air, has to take it (the moisture) out of the hide. Hence we must drink, and the roots of the trees and plants must be supplied with water, or they wither and die.

A great many persons scatter the grass from the lawns and the weeds from their gardens in the highway, which is bad horticulture in many respects. If they would spread such grass and weeds around their growing flowers or around any garden vegetables, the mulch would save the labor of carrying hogheads of water to supply the plants with necessary moisture, and the covering would keep the surface mellow, keep the weeds down, and save a good deal of manual labor; and the crop would be heavier.—Our *Home Journal*.

TRANSPLANTING SEEDLING TREES.

All seedling fruit or forest trees should be transplanted while young as a hastening process, as well as to insure safe removal in later years. Transplanted, seedlings grow more rapidly than untransplanted, and when the operation is properly performed a tree will be as large in ten years, as it would have been at twenty, if allowed to remain where the seed was sown or naturally grew as it fell from the parent tree. I do not know of any exception to this rule, for the hickory, butternut and black-walnut, which are generally difficult to remove, if transplanted when one or two years old, and deprived of its tap root, will throw out numerous side or lateral roots, which not only causes vigorous growth, but insures success in transplanting.

One of the most erroneous theories ever promulgated is that a tree will grow more rapidly and remain healthy longer if it is never meddled with from the time the seed is placed in the earth. Such a theory belongs to the barbarian and non progressive ages, and not to the nineteenth century.—*Ex.*

CLEARING MOSS FROM FRUIT TREES.

The *American Agriculturist* says nothing is better than carbolic soap and lye. Make common lye of wood ashes, not strong, and add half a pound of carbolic soap to three gallons of boiling lye. Apply hot with a swab to old trees. It has been used with entire success on apple, pear, peach and cherry trees, destroying every particle of moss it touches.

RENOVATING ORCHARDS.

When the least symptom of failure or decay in a bearing orchard is perceived, the ground should have a good top-dressing of manure, and of marl, or mild lime, in alternate years. It is folly to suppose that so strong growing a tree as the apple for instance, or indeed most other fruit trees, particularly if planted rather thickly, will not, after a few heavy crops of fruit, (and very little, if any, thinning seems ever resorted to), exhaust the soil of much of its proper food. If we desire our trees to continue in a healthy bearing state, we should, therefore, manure them as regularly as any other crop where the ground needs it, unless a rotation of grain and grass crops is practiced, (and the remnants ploughed in), which, of course, in the orchard, cannot be so well done as elsewhere. Orchards will amply repay the expense of proper manures.

We subject our orchards to bear too excessive crops, by which they exhaust most of the organic matter laid up by the trees. When some of the fruit is thinned out in a young state, leaving only a moderate crop, the apple like other fruit trees, will bear annually more regular crops, as it will also if the soil is kept in high condition. Fallow crops are the best for orchards—potatoes, vines, buckwheat and the like. An occasional crop of alfalfa or grain may be taken, although alfalfa is rather too coarse rooted and exhausting for a young orchard. When this, or grass, is necessarily grown among young trees for a year or two, a circle of three feet in diameter should be kept loose by digging every season about the stem of each tree. We hardly need state that it is an indispensable requisite, in all young orchards especially, to keep the ground at short intervals mellow and loose by cultivation.—*Pacific Rural Express*.

SETTING OUT TREES BY THE ROADSIDE.

The growth of timber to take the place of our rapidly disappearing forests, has led farmers in some sections to set out trees. While it may not be convenient or desirable for all to adopt this plan, all may set trees by the roadside along their own land. There are many advantages to be obtained from them, which can be seen at once, to more than pay for the trouble. They beautify the premises and give a better appearance to the landscape; and if the trees are maple, which is one of the best and most easily raised, when grown, they will furnish a large yield of maple-sugar. If butternut, or walnut, the nuts are, in a measure, the compensation for the labor of setting them out. There is to be in the future such a demand for wood that it will not answer to cut them down, and not replace them in some way.

In Baden and other German States, as well as in some parts of France, the law obliges a person to plant a tree in place of every one cut down. In this way, miles of rows of shade trees line the roads, making pleasant shaded walks through all the towns and villages.

It is a fact not generally known that trees increase their wood-making capacity in about the ratio of the square of the number of years indicating their age. The third year they make nine times, the fifth year twenty-five times, and the tenth year one hundred times the amount of wood they make the first year. The trees grow more rapid as it gets older, and we cannot afford to cut them down until they get their growth.

Some towns in this section have already formed associations for beautifying their towns by planting parks and setting out trees by the roadside. If this is not done, individuals can, with but little trouble and without expense, procure trees and set out in front of their own lands, and stimulate their neighbors to do the same, so as to make a uniform and continuous line of shade trees along the roadside.—*New England Homestead*.

The *Galt Reformer* refers to the peculiar operation of frost as manifested upon apple trees in the vicinity of Harrisburg, which had their trunks split from the roots to the branches, with the severe frost of this winter. These trees are large and vigorous, but considerably exposed, being on the top of a hill. We have not heard of similar instances in any part of the country.

PRUNING GRAPES.

In localities where the grape vines have, from being uncovered, been injured by the severe winter, we would caution our readers not to be too hasty in cutting back. Many may retain sufficient vitality to bear a part of a crop. At all events, cutting back, or even trimming, whether in healthy or injured vines, should not be practiced after soft weather comes, else the vines will bleed severely and perhaps fatally. Pruning should always be done in the fall. If neglected at that time they may be pruned in the winter, but never in the spring until after the new growth is somewhat advanced, after which bleeding ceases.

THE SUM AND SUBSTANCE OF SUCCESSFUL FRUIT CULTURE.

The most important items in fruit culture are:—

1. Thorough and perfect drainage, either natural or artificial.
2. Proper preparation of the soil for planting; clean after cultivation, and constant care of orchards.
3. Regular manuring of the trees for the first three or four years, unless the natural fertility of the soil is sufficient.
4. Mulching shallow soils under the trees, with shallow culture for such soils to protect the roots from drought in the one case, and their destruction by the plow and spade in the other; as, in such soils, the roots lie near the surface and also require more space to travel in search of food.
5. Deeper plowing and stirring where the soil is rich and deep, with no mulching beneath the trees.
6. Train according to the habit of the tree without material disturbance of large limbs.
7. The advantages derived from scraping apple trees are very great. This operation should not be neglected in winter or spring; the improved appearance and condition of the trees will reward the labor, and it is probable that many insects will be destroyed—at least their harboring places will. A drawing knife is a good implement for this work—use the back of a knife. Afterscraping use a strong wash of soap-suds. For very young trees use only the soap-suds, and not too strong.
8. The best implement to use immediately under the trees is the garden or spading fork. It breaks the soil well and does but little injury to the roots.

VIOLET.

Having been asked to reply through your columns which is the best violet and our manner of growing the same, I respond as follows:—

We have grown them profitable for the past fifteen years for their bloom. We plant in cold frames of well prepared soil about the end of September, say two thousand plants; these commence flowering two weeks after removal; from the 1st of November to the 1st of February we pluck from fifteen hundred to two thousand daily. After this the sun becomes stronger, and they flower more abundantly, until the first of April, when they cease. The sashes are then removed to allow the plants to grow and harden before we separate them; about the first of May we take the old plants up and divide them, making say ten to fifteen out of each, or as many as we can get with good crowns and roots—tops and roots cut back like strawberries, and then planted in open field in good rich soil.

Start your plants early in spring, so that they may be well established before the summer drought commences. Artificial heat is not required to bloom the violet; bank your frames well with leaves or manure, cover early in the afternoon in severe weather with mats, salt hay, etc. Here is why so many fail in growing them; they do not keep them warm enough at night.—*R. J. H. in Horticulturist*.

CONSUMPTION OF TIMBER.

The United States Commissioner of Agriculture says:—

"If for twenty years to come the demand for lumber shall advance in the same ratio to the population as in the past twenty, more than \$200,000,000 worth of American sawed lumber will be needed each year, denuding more than ten million acres of land. About 7,000 are cleared each week-day in this country. Of the annual crop \$72,000,000 worth goes to fuel and twice as much to fencing. The locomotives in this country consume about 7,000,000 cords a year or 5.0 acres per day. This is a startling revelation, but there is no doubt that it is substantially true, and the day is not far distant when every acre of timber land will be immensely valuable. Coal will soon be used for fuel by all our locomotives and also by families. But if we would keep up supplies of timber, even for building purposes, we shall need to plant trees to take the places of those now being destroyed. Why not organize tree planting commissions, whose duty it shall be to promote this most useful interest.

WOOLEN RAG MANURE was used by a Frenchman in Canada, when planting out his fruit trees on poor land, each tree receiving 20 to 24 pounds of it at the time of planting. This manure is very rich in azote, and is said to have produced wonderful results.

HOW TO RESTORE TREES KILLED BY FROST.

The following we clip from the report of the recent meeting of the Michigan fruit growers at Battle Creek:

In view of the fact that thousands of fruit trees, especially the peach, have been injured by severe cold of the present winter, and that many have been killed outright, it will be seen that anything that might indicate a practicable relief from the loss that will fall upon this branch of industry will be hailed with satisfaction. On this subject, which was taken up by the Society, the views of Mr. Harford, of Indiana, were called out. He said in the cold winter of 1866, he had an orchard of thirty young trees absolutely killed to the snow line, and of course a total loss as far as appearance indicated or experience could suggest.

Knowing however, that the trees had been vigorous, and that their roots must possess considerable power of reproduction, he proceeded to cut off the top of every tree that had been killed, and left nothing but unsightly stumps throughout the orchard.

The spring came on; advanced somewhat; he watched his stumps with anxiety; found that numerous buds started out from these stumps, put forth their shoots and made a remarkable growth, and in two years he had a good and healthy orchard as that which had been cut off by the frost. Since that time he had frequently occasion to treat other trees in a similar manner, sometimes cutting off injured branches only, and had almost uniformly had good results. But it is necessary to cut off the injured branches of frozen tops as early as possible after the snow is gone, and always before the sap has begun to ascend the tree.

Other gentlemen expressed their opinions upon this very important point. To the argument that this practice would cut off the present season's product, was answered that in orchards whose trees are badly injured, the crop of this year is out of the question; if the orchard may be saved by a timely application of the surgical knife, and in two or three years be in as good condition as before frozen. A true economy cannot fail to indicate the course to be pursued.

EVERGREEN TREES IN ORCHARDS.

You are aware, Messrs. Editors, that I have a long time objected to belt planting as a protection to orchards or fruit culture, and that I have advocated the planting of evergreens here and there in and among the orchards. Now I have no desire to place myself in antagonism with or against any advocate of the system, but I do know that the influence of an evergreen extends to just about double the distance of its height, and that when placed alone there is an ameliorating influence obtained in temperature, both summer and winter, and I also know that a thick bank of evergreens, while it has a sheltering influence for a certain distance, has also an influence tending to moisture and miasmatic disease of trees and foliage within a near radius, and especially when the southern line of heat comes most strongly upon it. I could make quotations to prove my position last named, but I have no desire for controversy, and only seek to induce planting of evergreens in and among orchards indiscriminately, because when a fruit grower has done it, he waited ten years to see its results, I know he will thank me for the suggestion of a good and reliable protection in the matter of orcharding. F. R. E.

OUR FORESTS.

There is no doubt that the natural growth of forests will disappear, and that, more rapidly than many imagine. There is an enormous annual increasing consumption, and there is also an enormous waste. We have our doubts of the wisdom of the present Commissioner of Crown Lands selling so cheaply enormous acres of our timbered lands, as timber is increasing in value year by year, and the increase will certainly be kept up. The U. S. Commissioner makes the startling revelation that "if for twenty years the demand for lumber will increase in the same ratio to the population as in the last twenty, more than \$200,000,000 worth of American sawed timber will be needed each year, demanding more than 10,000,000 acres of land. About 6,000 are cleared each week-day, and of the annual crop \$175,000,000 worth goes for fuel, and twice as much for fencing. The locomotive consumes 7,000,000,000 cords, or 500 acres a day." The day is not far distant when coal will be the chief fuel of locomotives, and so by families, but we must still have lumber. In the United States, tree planting associations are being formed, and it will not be long before they will be needed in Canada.—*St. Catharine's Daily News*.

TO KEEP CUT FLOWERS FRESH.

A few iron nails placed in a vase with flowers will keep the water sweet, and the flowers fresh. This arises from the sulphur eliminated from the plants, combining with the iron.

## INFLUENCE OF TREES ON RAIN.

A very striking illustration of the influence which trees have upon rain, is given by a gentleman who had just visited the island of Santa Cruz, West Indies.

Twenty years ago he was there, and the island was a lovely garden throughout its length and breadth. Trees native to it and flowers everywhere flourished, and the soil was fertile.

When his last visit was made he found a third of the island a desert waste; the soil was parched and barren on the sea shore. The destruction of vegetation is steadily going on, and the planters one after another abandon their farms, as they yield them nothing. The only way to account for the great change is that nearly all the trees have been cut down, and the amount of rain which has fallen since has not been enough to keep the land refreshed.—*Colonial Farmer.*

## TANSY AND PEACHES.

A writer in a New York paper recommends sowing tansy about the roots of each tree as a means of preserving them. He says he once knew a large peach tree which was more than forty years old, while several generations of smaller trees in the same soil had passed away. This led to an examination, and a bed of tansy was discovered about the trunk. It was naturally inferred that the preservation of this tree to such a green old age was attributable to the presence of this plant. It was decided to try the experiment on others, and accordingly a few of the roots were placed about each of the trees on the premises, some of which gave signs of decay. Not only has it preserved them for several years, but renovated those that were unsound. The odor of this plant, he says, keeps off the insect enemies of this kind of tree, and it would have the same effect on others, such as the plum, apple, and pear, as well as ornamental trees.

## CABBAGE WORM.

A remedy which will keep the butterfly off the cabbage surely strikes at the root of the evil, or entirely removes the cause of it. Such a remedy has been found, and it will be verified and enjoyed by all who shall next season, soon after transplanting their cabbages and before the butterfly begins her work, simply spread a cheap, coarse white netting over the cabbages, a foot above them and coming to the ground on all sides. The butterfly will light upon, but never pass through it. The same net will last for several years. All are cordially invited to try it next year, and all who raise cabbages will from necessity do so. We say nothing now about a "fee."

## SUGAR FROM THE BUTTERNUT.

A correspondent of the Chautauqua Farmer writes: "When my neighbor, Brown, tapped his sap bush, he had a quantity of buckets and spiles more than maple trees, so he tapped about thirty butternut trees. I thought I would see what I could make of it, and went to his bush, finding every one of the buckets under the butternut trees full, while those under the maple trees were not over two-thirds full. I took a six-quart pail with me and borrowed it full of the butternut sap, and boiled it down, getting one-half pound of nice sugar. Mr. Brown gathered twenty-nine buckets of that sap, and boiled it down with his maple. It worked as nicely as if it were all maple. The flavor and appearance were perfect."

As a means of promoting the germination of fruit and other seeds, a German horticulturist recommends the following simple preparation, as tested by his own experience:—Seeds of apples, pears, &c., are placed in a tumbler or glass jar, with a sufficient quantity of rain water to cover them, and kept in a room at a temperature of from sixty-two to sixty-five degrees Fahrenheit, the water to be removed when its odor indicates spoiling. After about a fortnight the germs appear, when the seeds should be slightly dried by spreading upon a cotton or woollen cloth, and planted immediately. Locust seeds and others, having hard shells, are equally benefited by such soaking.

A German pomologist gives certain figures in regard to the cultivation of plum trees, by which he shows that seedlings obtained by planting approved varieties are much more hardy and resist cold and the injurious agencies of insects much better than cuttings or graftings. This is supposed to depend upon the more equable nature of the roots and their more perfect penetration into the soil to such a depth that they are less exposed to the action of frost and other injurious agencies.



## POULTRY YARD

MR. MECCHI ON POULTRY.

John Mecchi says in the *Gardener's Monthly*:—

"Poultry is evidently dear food to the consumer; but does it cost more food to produce a pound of poultry than a pound of meat, live weight? I answer decidedly not, but the reverse. For my cattle and sheep don't eat worms and insects, whereas fowls consume them abundantly, and economize and apply every scattered seed or kernel that would otherwise be wasted. In another point of view, is the cost of attendance and shelter greater with poultry than with cattle? I reply not. As to the production of eggs, that depends upon the quality and quantity of food administered, and the accompaniments of proper warmth and shelter. There is no fear of overstocking the market with either eggs or poultry; we consume daily 1,000,000 of foreign eggs!

I generally keep from 300 to 400 fowls. They have free access to every field during the whole of the year, and although they help themselves at harvest time when the corn is in sheaf, I always get the best crops of corn in the fields adjoining the hen house. I have this year two fields of wheat drilled, and only one bushel of seed per acre. They come within ten to twenty yards of the fowl house, and are a perfect plant, although the poultry have been scratching and cultivating the fields ever since they were drilled. We are apt to forget that fowls, like sheep, manure where they go. I must say I used at one time feel nervous and angry when I saw them hard at work on the newly-sown corn, but I soon learned to feel confident that insects were the principal object of their search, and that my well and deeply deposited corn escaped.

## POULTRY ON THE FARM.

Extracts from discussion on the question "Will it Pay to Raise and Keep Fowls on the Farm?"

It was noticed that no member of this Club could be considered to be a real poultry fancier. In regard to the various breeds information was wanted; the Shanghai had been laid aside; the Black Spanish hens were said to be fair layers, but useless for other purposes; the Light Brahmas had proved, in the experience of members, to be the best layers and setters. These latter were also docile and did not get over fences.

Turkeys were not considered to be profitable to raise for market. Ducks should be killed as they arrived at maturity. Their feathers were the most value. Geese no one seemed willing to keep at all on their farms. Guinea hens were valuable for keeping off hawks; but were not otherwise specially desirable. Peacocks were thought to be more for ornament than use. The Club were about unanimous in recommending that no more poultry should be kept on the farm than a sufficient number for the supply of the family with their flesh and their eggs. The markets here were said to be unremunerative, although some instances were related of profit being made under favorable circumstances.

In a large flock of poultry, from experience, about a half bushel of corn was considered the requisite daily feed for 100 fowls of all kinds, mixed together. A variety of food, consisting partly of flesh, was recommended during the winter. It was also considered of essential importance that they should be kept in warm quarters; an underground poultry house was recommended for this climate.

The most profitable time to raise young chickens was said to be during and immediately after harvest, when they thrived on the waste of the grain fields. Some

early chickens would have to be raised, however, in order to keep up the breeds, as early chickens made the best hens. To raise young turkeys, it was thought better to set the eggs under hens.

It was recommended to confine fowls during the garden season until about four o'clock, p.m., when, being let out, they would go immediately for the worms. A yard with a high pale fence was considered best for this purpose.

The most formidable enemy of poultry raising in this vicinity was said to be the skunk, which was killing them off in great numbers. Some discussion took place as to the best means of getting rid of this rapidly increasing animal.

For preserving eggs fresh through the winter the formula had given the best satisfaction. To two gallons of water a half pint of quick lime, and a half pint of salt; lay down in a keg or barrel, the brine to cover the eggs.

## COST OF FOOD FOR HENS.

It is very often asked, What is the annual cost of feeding a hen? There are, of course, differences according to breed, namely, the size, activity, etc.—and particularly generative activity—vary. An egg represents a large amount of nutriment, of the most condensed sort, and a hen that lays two hundred eggs per year will need, say some sixteen or seventeen pounds more of pure nutriment, for this purpose alone, than one laying but half that number. And, of course, every additional ounce of fat laid on your fowls' ribs must go in at the bill, (as well as telling in your bills), so that fattening breeds consume more than non-fattening ones under equal circumstances. Again, other things being equal, a very active fowl uses up entirely, without accounting for it in egg or fat, nutriment enough, in excess of a quiet one, to pay for her liveliness. Every flap of your turkey's wing costs a grain of corn.

But from a series of painstaking observations, we can say that the average fowl at large consumes not far from a bushel of corn per year. If at large, she supplies herself with green food, and picks up insects, larvae, etc. If kept confined, animal food must be artificially supplied, such as crushed chandler's scraps, chopped sheep's lights and livers, and house scraps. In summer you must add to this, short, tender grass, and in winter raw cabbage, or boiled potatoes, or other green vegetables. This, for the year, brings the estimate for the cost of the food of the confined fowl up to the equivalent of a bushel and a half of corn. It will generally be found that when corn varies in price, the cost of vegetables and animal food varies with it; so that this estimate is generally correct.—*Poultry World.*

## FOWLS TAKING COLD.

All the feathered tribe are naturally liable to take cold, more particularly whilst very young, and the adults during the trying season of moulting. The earliest symptoms are slight loss of appetite, drooping of the tail, and a clear limpid discharge from the nostrils. It is entirely due to the damp, exposures to cold winds, and imperfect housing; but there are inducing causes frequently combined; improper and insufficiency of food is one which materially aids it by rendering the system poor and weak, and incapable of resisting or shaking off any kind of hardship, however light. Breeding in and in, that is from stock related to each other, is another means by which artificially reared families are certain to become weak and the seeds of various diseases quickly sown, and the constitutions degenerated with an inevitable certainty. Seeing, therefore, the means by which the stock is to be prepared for resisting the simplest disorders, should an attack come upon them in the form of a cold, take a few precautions for removing the cause, if it can be found by extra dryness of the soil upon which they rest, and taking special care that they are not in the vicinity of stagnant moisture. There are few cases of simple catarrh that will not speedily yield to a little more generous feeding than they have been used to. Crumbs of bread soaked in spiced ale is wonderfully efficacious, and should be given in addition to other meals, if they will partake

of so much. If the birds are not looked after in the first stages of the complaint, it invariably runs into a worse condition. From the clear discharges from the nostrils, as before mentioned, it here takes the most offensive forms; becomes thick and clotted, stopping up the nostril; and the cavities of the air passages being highly inflamed, continue to secrete the discharge. The eyes also become inflamed, and the frothy secretion exudes from the eyelids. The face and eyelids at once become swollen, and the bird cannot see to feed. Here we have a troublesome case, and if the bird is valuable it should be removed at once to warm indoor quarters. We do not hesitate to say that there is no more contagious diseases known to the feathered tribe, and any bird so attacked should be immediately removed from the rest. There is no doubt the disease is communicable in various ways, such as drinking out of the same water vessel, the liquid being contaminated by the discharge. In the same way, the food they peck over, or the grass in their runs, holds upon it some of the matter coughed or sneezed up. It is only with birds of value that real attempts at cure should be made, which should be to purge out with a dose of castor oil first. Bathe the head and nostrils with a warm, weak solution of carbolic acid, keeping it from the bird's eyes. When the matter is free from the nostrils slightly syringe (with a small ear syringe) some of the solution up the same. Well dry the feathers about the head and neck. Pills of the following parts should be always at hand, and one, night and morning, administered while the bird is ill: Quarter of an ounce of camphor, quarter of an ounce of valerian, quarter of an ounce of cayenne pepper, quarter of an ounce of lobelia seed powder, quarter of an ounce of gum myrrh; make into forty-eight pills.—*Land and Water.*

## FEED FOWLS A LITTLE AND OFTEN.

It is a very careless method of feeding fowls which we see so often adopted, where the grain is thrown in great heaps on the ground or floor. It is not only wasteful, but injurious to the fowls, because they get overfed, and it is, in an important respect, contrary to their habits. For their nature is to "scratch." Watch the old hen with a brood when she is let out of the coop. She hardly stirs from the spot, but as soon as she has realized her freedom, down go her claws into the soil, and afterward, when you see her, she is at it.

Always feed, then, no more than can be eaten at once, and take care that this is so scattered among some light rubbish, that they may have the luxury of scratching for it. If feed is buried in fresh earth then they get, with their mouthfuls of grain, something of use to their peculiar digestive organs. Grain, however, should not be allowed to come in contact with the filthy, tainted soil, too often found in poultry yards.—*Poultry World.*

## LANGUAGE AMONG ANIMALS.

M. Houzen maintains that not only does each group of animals possess a language which is understood by other members of the same group, but that they can learn to understand the language of other groups. His dogs, for instance, perfectly understood his poultry. Cocks and hens have one danger signal for the approach for a bird of prey, another for that of a terrestrial animal or for a man. Whenever the latter was sounded, the dogs would rush out and bark, while to the former they paid no attention whatever. He therefore concludes that fowls have the power of expressing slightly different but closely allied ideas, and dogs can learn to understand these differences.

## FOOT AND MOUTH DISEASE.

The following remedy for that disease has been successfully put in practice by the Rev. W. Straton, in Leicestershire, England:—One ounce of Chlorate of Potash dissolved in one quart of warmish water, adding eight drachms, that is about two large table-spoonsful, of strong camphorated spirits of wine, when about to administer the dose. When the feet become lame some tar softened with a little lard placed upon the parts, preventing any oozing or discharge, will cure the pain and heal. The drink is to be repeated for three days at a time, and half the quantity for sheep or calves for the same time.

The County Agricultural Societies of North and South Waterloos have amalgamated. The shows are to be held at different points in each riding alternately.

Correspondence.

IMPORTANT TO FARMERS!

"Kohl Rabi."

SIR,—It is not often that I intrude upon your columns with any remarks of mine regarding agricultural matters, but as it seems to me that the above-named root at the head of this article is but little known, with all its advantages and desirability, to the Canadian farmer, I have thought it would not be amiss to state through the medium of your widely circulated journal what I know of the merits of this plant, and to suggest that the enterprising agriculturists of Canada give it the consideration and trial which it is worthy of.

In the first place I may safely say that the failure in many parts of the country of the turnip crop the two last hot, dry summers—but more especially the last one—has caused the cultivator of field roots to reflect seriously on a substitute for its failure; and I know of no root that can be grown for stock that will always insure the farmer against so severe a loss as he has of late suffered from his turnip crop, as the Kohl Rabi.

I have seen heavy crops of this desirable root grown in the old country to great advantage in dry summers, when the turnip crop has proved a partial failure, on the same farm, with no other preparation than an ordinary one for turnips and other roots. And I have heard of the same success attending the cultivation of this root by farmers in this Province the last two dry summers, who thought themselves fortunate, as the seasons turned out, in having given it a trial; and a great desideratum of this crop is that it can be grown upon soil that you hardly expect would produce a crop of turnips. Never mind how strong the nature of the soil may be, provided it is deeply ploughed and well pulverized, with as much manure as you can give it.

The reason you are sure of this crop in dry weather is that it is cabbage-rooted and consequently goes deeper into the soil and wider in search of food than does the turnip, and the moisture it finds prevents any stagnation of growth in dry weather; hence the bulk you obtain both above and in the soil.

There is not a more forcing or stronger green food than the head of this plant affords for fattening either sheep or cattle, and this has been proved and is freely admitted over and over again in the old country, but more especially so with regard to sheep; and as a much heavier weight per acre can be grown than of turnips, it must be in every respect a very desirable root to cultivate, particularly so as it requires no more labor than the turnip to produce it. I should say two lbs. of seed to the acre would be sufficient, thinning out the plants the same as you would the turnips.

After the head of the root is eaten off, towards the fall of the year, when the grass keeps becomes so valuable and scarce, the roots will increase in growth if sufficient time is allowed, and they can afterwards be stored away for winter feeding; at that period I have known the bulbs to weigh as high as from twelve to fifteen pounds each, with good cultivation.

AGRICOLA.

[Accept our thanks for your article; we should like to hear more from your pen.—We think this plant deserves a little more attention than it has had. When we were attending the Guelph Exhibition we saw several specimens, and while conversing about them we were informed that Messrs. Sharp, Bros., seedsmen of Guelph, had adopted a rather sharp practice. They tried to talk farmers into the benefit of sowing Kohl Rabi, but talking hindered the business, and they resolved to adopt another method. They put a handful or two of the Kohl Rabi into each lot of turnip seed they sold, and risked the censure

of their numerous patrons. The result in some instances acted like a charm; some farmers had their turnips eaten by the fly, but the Kohl Rabi remained, and they did not know the difference until the bulbs began to form. Some were vexed at first, but when the crop matured and they found what they had, they were highly delighted. We hear that several about Guelph intend purchasing seed this year. We would not advise our readers to abandon the turnip, carrot or mangold, but would advise a trial of a small quantity of this plant. We will put a small package of this seed separately in every pound of turnip, carrot or mangold seed we send out, unless specially ordered to the contrary. We shall give it as a present; the quantity will be but small, but sufficient to show how it will answer.—Ed.]

HOW TO SELECT DRAIN TILE.

Strike the tiles together; if the sound produced by the concussion is of a clear metallic ring, the tiles are hard burned and free from checks; if they have a dull leaden sound, they are soft burned and liable to dissolve. The test by striking is the best one known, and is used by engineers in selecting pipes for city sewers, for which purpose every one is thus tried. It would, however, be very tedious to subject all common tiles to this test, but by subjecting a few of different shades of color, one will be able to tell by the color those that are well burned. The red color of tiles is owing to the pressure of oxide of iron, or some vegetable pigment. If it is due to the presence of iron the tiles will grow darker colored under increasing heat, until they assume a mahogany color. Of such clay are made the Scotch pipe imported, and used in large quantities in the city of New York; also the "black pipe," exclusively used in the city of Chicago. They are made from an inferior quality of Stone-ware clay. A Stone-ware clay will retain the form in which it is moulded until the body of the ware is semi-vitrified, and the surface melted, forming a glaze. There is no Stone-ware clay in Ontario. The common clay of Ontario will only bear a heat sufficient to change the color of the tiles to a dark red, or cherry color. Those of a lighter red are not so well burned, and those of a dingy red are soft burned and liable to dissolve.

In judging by the color of tiles colored by vegetable matter, the reverse is the rule. They are darker colored in the early part of the burning, and grow lighter colored as the heat is increased, until they become white, or nearly so, then have a yellow tint, which changes to a very light green tint. If the heat is then increased the tiles very soon lose their shape, and melt.

The color is slightly affected by the absorption of water. No tiles should be laid before ten days after burning, so that if there be any lime in them it may have time to slack.

GEO. S. TIFFANY.

SIR.—I send you my sincere thanks for the prizes you sent my son, for the Cotswold ram lamb. He has a splendid fleece of wool on him, measuring eleven inches, and of a very fine quality. It is much better than I expected, from what you wrote to me, that it was in poor condition. I think it is better than if over-fed when young. And also, for your improved Berkshire boar; he is a beauty. My son intends to continue getting subscribers, as he wants to get some more of your valuable prizes, but as he is only eleven years of age, he is too young to canvass far from home. He got the most of his subscribers that he sent you after school hours. If your new subscribers appreciate your paper as I have done for the past year, I think they will all continue taking it, and recommend it to others, as your ADVOCATE is suited to all classes of the farming community, whether old practical farmers or new beginners, as it reminds the one of what he may have forgotten, and instructs the other in what he wants to know. I cannot go into detail of the benefits that may be received from you through the ADVOCATE. R. W. CARSON. Clarke, March 15, 1873.

DEAR SIR.—I have read your two essays on Culture of Carrots. I think highly of "Young Farmer's." I can't agree with Mr. W. G. St. John—1st, I like to see the same crop all through my field, a patch of carrots and the rest of the field stubble from July till you get your carrots out. Suppose you wanted to lay your wheat, part down in proper grasses, as is generally done? 2nd, I don't see it gives a better chance to prepare the ground than in the spring. A person ploughs deeply in the fall the fields he intends for potatoes, roots, and green crops; here he is laboring the whole field for a root crop; gets in his carrots first, potatoes, with manure and turnips last; if he runs short of manure he can pound up bones, plaster, &c., to finish off his field with the turnips; but this thing of carrots and wheat in the same field is no farming, all your fields the same turn. 3rd, I don't think any spring seed is more likely to germinate by lying in the ground all winter, nor do I believe the seed has half the vigor. It will have to be planted properly, at the proper time in the spring. There may be some little hollows in your land, and if water lodges your seed is done. Again, let any farmer look at the state his garden is in, in the spring and summer,—as hard as some roads. Then, ground manured in the fall! It is impossible to keep down weeds except by turning it over or cultivating. I would not take the gift of a piece of carrots planted in the fall, to keep it clean with the hoe. The great point now in farming is, to do our work with the least possible labor. When a farmer takes \$250 and board for a hand out of his profits on 100 acres, it opens his eyes a little. No, no! Make your drills so that you can make use of both your plough and cultivator. It improves the land so much.

I am much pleased with your good, honest memorial respecting this cumbersome and dreadful expensive Agricultural Farm. It is all very well for office hunters, and those who have lined their pockets well out of agriculture. Humbugging gents, who expect good fat offices for themselves, or their dear friends. It is all very fine for these so-called practical ploughmen and farmers to shout, get up this institution, and that institution; the farm here to-day, and there to-morrow; making a political scape-goat of it, over the whole Province. The honest, industrious farmer has to pay the piper for these dancing excursions and big feeds. Mr. Christie may be a thundering fine farmer, and able to swell a regular practical farm. What I call a practical farmer is a man who has held his own plough; knows how to plough; has followed it from his infancy; has a place like a farm—not a hole that you would think Bullrun Hearnes was after inspecting. How Mr. Christie has railroaded free! I dare not say drunk, but he may have stretched his rural sides on the "canoe couch damask." Did Mr. McKellar tell Mr. Christie where he ever ploughed a day in his life? Did he give him a description of his here and there and everywhere Model Farm? And yet he is a practical fall ploughman! What a humbugging world this is! No, sir, this Model Farm will be only a political den to fleece the Province. Rent it, at a fair rent, to a couple of good Old Country men, who are practical farmers—no humbug; bind them to proper rotationary cropping; bind them, that any proper, moral young man, who wishes to be instructed in true practical farming, shall get said instruction free to himself, and free to the country, for his own work on the farm. If the farmers of Ontario would open their eyes—not allow themselves to be hoodwinked any longer, they would let these political practical farmers look to their own dens.

AN OLD FARMER.

DEAR SIR,—I have often thought of writing to you, to express my approval of your conduct in regard to the agricultural college affair. Although I believe that an agricultural college, conducted by real practical farmers, would be of benefit to the country, still, I as firmly believe that the Government has been humbugging the thing from beginning to end, for reasons already advanced by you through the columns of your valuable paper.

If agriculture was taught in our country schools—such books as "Johnston's Elements of Agricultural Chemistry"—or, if the Government would pay some of our leading farmers to set aside a few acres of their farms, for the purpose of trying agricultural experiments, and report the same through the

agricultural press, it would be of more benefit to the country than half a dozen agricultural colleges.

I like your rotation of crops described in your last issue very much. My rotation is, 1st year, summer fallow; 2nd, wheat; 3rd, clover; 4th, clover; 5th, oats, and the cereals, and repeat. I have, in a great measure, dispensed with bare summer fallows, sowing peas and beans as a clearing crop; I put all my manure on this crop.

As there is a large strip of wild pasture land on my place, I do not use any of the tillable land for pasture.

Query.—Could not a joint stock company be formed, and issue the FARMERS' ADVOCATE bi-monthly or even weekly?

I remain, my dear sir,

Yours respectfully,

R. K. KERNIGHAN.

Rockton, Rushdale, April 14th, 1873.

MR. EDITOR.—I endorse all your statements regarding the Agricultural College and experimental Farm. The thing is very fine on paper, but in my opinion a great humbug. Is there an intelligent farmer in Canada who is not an experimental farmer? I maintain that the whole matter ought to have been submitted to all the agricultural societies before the passing of the act, which will necessarily receive a large outlay, and out of the farmer's pocket. I fancy to myself I see professors and servants, with all the appliances already at hand, busy at work gathering piles of manure and purchasing guano and other artificial stimulants, and raising an immense crop—a great improvement and the discovery of a secret, but which is already known to every intelligent man. Every simpleton knows that if he milks his cow and gives her no nourishment she will go dry. Just so with old mother earth—keep cropping year after year and give no return, and by the law of nature she is exhausted. This is mainly the cause of our failure in raising good crops, and will in the end ruin an otherwise fertile country. If the College will put a stop to this process carried out all over the country, it will deserve the support of all intelligent men. But this is well-known; yet men will violate the laws of nature year after year. I have never read of agricultural colleges in England or Scotland, where agriculture is carried on next to perfection. I have never seen a report of any improvement or discovery made by the so-called Agricultural Colleges of the States. On the contrary, private enterprising men have made, and are still making, discoveries and improvements, and all this we have through the press. We have two agricultural papers which compare favorably with any other I have seen, and I maintain that they promote the interest of the farmer more than the College will ever do. It is paying a poor compliment to our high schools and universities to say that we must send our sons to an agricultural college to be educated a sound English education. Chemistry is the only branch of science that would be useful to a farmer. But will that science be taught more perfectly at the so-called college than at our Provincial University? I trow not—nor so cheap either, and I predict that but few of our farmers sons will ever grace the halls of our great Agricultural College. Some of our rich men may send their sons to the College, to make use of the old Scottish proverb where men go in storks and come out asses.

Yours truly,

RIDEAU.

Rideau, April 14, 1873.

MR. EDITOR.—I thought I would write an essay on carrots, for the ADVOCATE for this month, but time slipped by, and I failed to do so. As I have had some experience in growing carrots, I must say that I must agree with Wm. G. St. John, in every point excepting one, and I do not know as I could differ in that if he had been more particular as to what kind of manure he put in his drills. Experience has taught me that unrotted manure put into the drills will make the carrot grow rough and sprangled, while they will grow smooth and even when the manure is well rotted. I have not much to say against the Young Farmer. But I have found that Wm. G.'s carrots would be up and growing by the time Young Farmer's would be planted. But I think that if all carrots were manured even as well as Young Farmer's, there would be better crops than there are generally. As to gathering the carrots, they should be left to lie in the sun, and dry before pitting, or putting in the cellar. The pit, I think, is the best to keep them in, but I have not had much experience in the cellar.

Yours Respectfully,

ALEXANDER.

North Oxford, April 11, 1873.

MILLIONS OF ACRES IOWA & NEBRASKA LANDS

FOR SALE BY THE Burlington & Mo. River R.R. Co. On Ten Years' Credit at 6 per cent. Interest. No part of principal due until commencement of Fifth year. Products will pay for the land and improvements much within the limit of this generous credit. The Soil of Iowa and Nebraska is rich and easily cultivated; climate is warm, seasons long, crops large, markets good, taxes low, and education is free to all. Extraordinary inducements on freight and passage, for purchasers and their families. Circulars giving full particulars, gratis; call for all that are wanted to read and circulate. Come West and thrive. Friends will follow. A Sectional Map, showing the exact location of Iowa lands is sold at 30 cts., and of Nebraska lands at same price. For Circulars and Maps apply to GEO. S. HARRIS, Land Commissioner, Burlington, Iowa. Or to F. S. CLARKE, Agent, London, Ont. And please say in what Paper this advertisement was seen. 5-1in

WHYTE & DAVIS

MANUFACTURERS OF Reapers, Mowers, Steel Plows, Cultivators, Gang Plows, Straw Cutters, Sulkey Rakes, Grain Crushers, AND AGRICULTURAL IMPLEMENTS OF ALL KINDS. PETERBOROUGH, ONT. 5-1t

BEE-KEEPERS!

IF YOU WANT Italian Bees or Queens, BEE HIVES, HONEY EXTRACTORS, BEE BOOKS, QUEEN NURSERIES, &c. SEND FOR DESCRIPTIVE CIRCULAR AND PRICES TO S. H. MITCHELL, Apiarian, St. Mary's, Ont. 5-2in.

JOHN MILLS,

Wholesale and Retail Bookeller, Stationer and News-dealer, Richmond-st., London. American papers received twice a-day from New York. English magazines received weekly from London. London, Ont., Oct. 28, 1872. 12-1f

DAYS SULKEY HORSE RAKE.

THE ABOVE RAKE IS offered in entire confidence to farmers and dealers. In the Department of Agriculture it is INFERIOR TO NONE as a labor-saving implement. It is operated with ease by a lad 12 or 14 years old. Its advantage over all other rakes consists in this:-



The head is so attached that it permits the teeth to accommodate themselves to uneven ground, the wheels running upon an elevation will not raise the teeth from the ground. By the raising attachment the operator can throw the teeth of the rake higher in passing over the winnow than any other manufactured. The elasticity of the teeth enables it to pass over stones and other obstacles. The teeth are so shaped and attached that they do not scratch or harrow the ground like most steel teeth rakes.

This Rake is the result of steady and repeated experiments. They are manufactured from good material and are well finished, being nicely painted, striped and varnished.

PRICE OF RAKE with Plaster and Seed Sower, \$35.00; 60.00

All orders addressed to the manufacturer, A. HOWELL, Bradford or W. WELD London, will be promptly attended to. Descriptive Catalogues sent free on application. 4-4

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OCEAN PASSAGE.—Persons intending to take a trip to the Old Country, will find it to their advantage to go by the Steamers of the National Line—large, safe and comfortable vessels. Fare low. Apply to F. S. CLARKE, next door to the Advertiser Office, London.

C. D. HOLMES, BARRISTER, &c., Dundas St London, Ont. m-c

For Strong, Early and Good Plants of

CABBAGE, CAULIFLOWER, TOMATO, CELERY, PEPPER, EGG PLANT, VERBENAS, GERANIUM, FUSCHIA, COLENS,

and other Foliage Plants, Greenhouse, Bedding and Basket Plants of all kinds.

Asters and other Annuals from Imported Seeds. Send to C. E. BRYDGES, City Farm Gardens, London. Address P. O. Box 50 B. 4-tf

J. BEATTIE & Co., IS the cheapest Dry Goods, Millinery and Mantle Store in the City of London. 3-y

COTTON YARN.

WHITE, BLUE, RED and ORANGE. Warranted the very best quality. None genuine without our label. Also, BEAM WARPS for Woolen Mills. W.M. PARKS & CO., New Brunswick Cotton Mills, St. John, N. B. 4-tf

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Is made of the BEST WROUGHT IRON

And is not only strongly made, but light in draft Every improvement that experience can suggest has been effected. The frame is of the best wrought iron; the feet are made of the best steel, and the manner of lowering or raising is both simple and efficient.

FARMERS See White's Cultivator Before purchasing. It may be examined at my workshop, King St., London; or at the Canadian Agricultural Emporium, Dundas St. #112; White's Cultivator has taken FIRST PRIZE at every Exhibition.

Col. Cheeny Strawberry.

AFTER MANY YEARS' EXPERIENCE in growing strawberries, I find this the best both for market and home use, and well adapted to this climate. It is a cross between the Triumph de Gand and Russell. It partakes of the firmness and meaty character of the first, and has the rich gloss and fine scarlet of the latter—of excellent flavor.—The fruit is very uniform in size, and as productive as Wilson's Albany. The plant is most healthy and robust. 16 plants for \$1., or 100 for \$5; mailed free to any Post Office in Canada. Delaware Nursery, Address A. FRANCIS, Delaware, 4 2in

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FRUIT AND ORNAMENTAL TREES, SHRUBS, ROSES, &c., For Planting in the Spring of 1873.

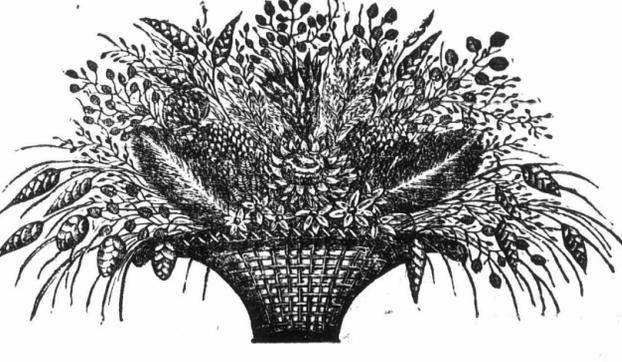
Standard and Dwarf Apples, Standard and Dwarf Pears, Standard and Dwarf Plums, Standard and Dwarf Cherries, PEACHES, Grape Vines, English and American Gooseberries, CURRANTS, Ornamental, Deciduous and Evergreen Trees, Ornamental Flowering Shrubs. HYBRID PERPETUAL, MOSS & PROVINCE ROSES. Hardy, Herbaceous Flowering Plants, Mammoth Rhubarb, Giant Asparagus, etc., etc., etc.

Send Two Cent Stamp for Descriptive Catalogue.

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Manufactures all kinds of Agricultural Implements— CANADIAN SIFTER FANNING MILLS, PARIS STRAW CUTTERS, LITTLE GIANT STRAW CUTTERS, ONE HORSE SEED DRILLS, HAND SEED DRILLS, ONE HORSE PLOUGHS, TURNIP CUTTERS, &c., &c. The attention of farmers and others is called to his superior HORSE TURNIP SEED DRILL, all of iron, sows two rows, and runs the canister with an endless chain instead of friction wheels, therefore is not liable to slip and miss sowing; and by raising a lever the sowing can be stopped at any time, thus preventing the waste of seed when turning at the end of drills. Orders from a distance carefully attended to and satisfaction guaranteed. LEVI COSSITT, Nelson Crescent, Guelph. 4-tf

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NOW IS THE TIME TO SAVE YOUR MONEY by sending for a Right of

STROHM'S RACK & GRAIN LIFTER

IT RAISES THE WHOLE LOAD AT ONCE, and when elevated, it can be pitched off by hand, or thrown into the mow by a horse at one pull. It is the ONLY CHEAP and GENUINE Machine for the purpose yet invented.

Any handy farmer can erect one in three days. Satisfaction guaranteed, or the money refunded.

Address—MARTIN & BROTHERS, Oneida P. O., Agents wanted. Township, County and Far Rights for sale. 3-2

SEE in another column, advertisement about Iowa and Nebraska Lands.

Transplanted White Cedar for Ornamental Hedges.

Red Tartarian Honeyuckle for Ornamental Hedges.

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This is our 31st year in business, and we think we can give satisfaction to all our patrons.

We make our ENTIRE BUSINESS A SPECIALTY. Our stock is packed to carry safely to any part of the world. Orders by post or telegraph will receive as careful attention as if purchasers were personally present. Priced Descriptive Catalogues—48 pages—sent to any address on receipt of a two cent stamp.

Geo. LESLIE & SONS,  
Toronto Nurseries, Leslie P. O.

N. B.—All orders should be sent to us as early a date as possible. The Montreal Telegraph Co have an office on our premises.

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AGED 14 months; color, light roan; very handsome; well proportioned; dam Rasina by Artemus. He took first prize at St. John's, and first at Lobo Exhibitions. Price \$150. Pedigree recorded. Apply to JOHN TUCKEY, Lot 29, con. 4, London, Lobo P.O.

SEE in another column, advertisement about Iowa and Nebraska Lands.

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**VETERINARY SURGEON,**

Graduate of the Toronto Veterinary College. Office—New Arcade, between Dundas street and Market Square. Residence—Richmond street, opposite the old Nursery.

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FOR FATTENING AND BRINGING INTO CONDITION HORSES, COWS, CALVES, SHEEP AND PIGS.

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IS RECOMMENDED AND USED BY FIRST-CLASS BREEDERS.

Stock fed with it have always taken FIRST PRIZES. Milk Cattle produce more milk and butter. It fattens in one-fourth the usual time, and saves food.

Price 25c., and \$1 per Box

A Dollar Box contains 200 feeds.

HUGH MILLER & CO., Agricultural Chemists, 167 King St., East, Toronto.

For sale by Druggists everywhere. Also at the Agricultural Emporium, London. 1-4i

**Great Sale at Chisholm & Co's.**

WHOLE WINTER STOCK REDUCED.

Now for BARGAINS

AT THE STRIKING CLOCK

London, Feb., 1873, 2

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HODGINS & MORAN, Makers, Richmond-st., have now on hand, ready for Spring trade, a most desirable lot of well-finished carriages and buggies. We notice some very neatly finished Family Phaetons, and consider them very cheap. We would advise our friends and the public to call and see their entire stock before buying elsewhere. All the work warranted, and made out of second-growth hickory. 3-3

**WILSON & BASKETT,**  
PRODUCE DEALERS AND COMMISSION MERCHANTS. Office—Corner of King and Oxford Streets, INGERSOLL, Ont.  
JAS. M. WILSON. JNO. BASKETT. 3-1f

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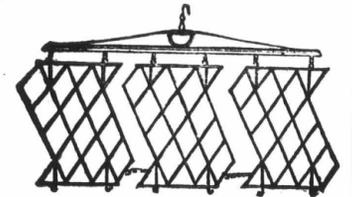
PARTIES inquire how to get up CLUBS. Our answer is—You should send for Price List, and a Club Form will accompany it, with full directions, making a large saving to consumers and remunerating to Club organizers. Send for it at once, to

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52 and 54, Front Street East, Toronto, Ontario.

Local Agents Wanted.

Toronto, April 26, 1872. 5-1f



**HOWARD'S IMPROVED IRON HARROW.**

THIS Harrow is superior to all others, because it is the most complete. It covers 14 feet of land. It leaves the ground finer, works freer, and adapts itself to uneven land. It does not bend, and chokes less than any other Harrow. It is so constructed as to draw either end. The teeth being so set as to tear the ground up to a good depth, or to pass lightly over the surface, as the teeth are beveled on one side. It can be worked with a span or three horses, or it may be unjointed and worked with one or two horses, in one, two or three sections.

They are giving entire satisfaction.

Price of Harrow complete, with three sections, treble-tree, and two coupling trees, \$35.

Price of two sections and one coupling tree, \$22.

Address—THOMAS HOWARD,

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Samples may be seen and orderstaken at the Agricultural Emporium. 71.4e

**London Commercial College**

AND Telegraphic Institute.

THE OLDEST, CHEAPEST AND BEST COLLEGE in the Dominion.

Young Men Fitted for a Business Life.

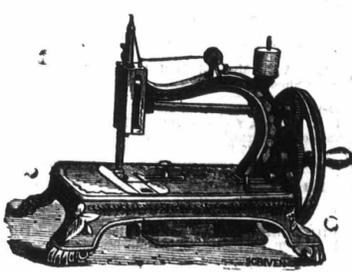
No matter what may be your calling, take a course with us, and you are better fitted to pursue it. No class of men are more imposed upon by lawyers and others than farmers; but if they take a course at our College it will enable them to do their own business, and thus save hundreds of dollars yearly.

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Hand Machine. Price \$25.



No. 1. Plain Top. Price \$32.



MANUFACTURING MACHINE

Price, \$55.

**WILSON LOCKMAN & CO.,**

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**RESTORE YOUR SIGHT.**



Spectacles Bordered Uniform.

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All diseases of the Eye successfully treated by

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