



# THE CANADA FARMER.

VOL. XII.—No. 3.  
PUBLISHED MONTHLY.

TORONTO, CANADA, MARCH 15, 1875.

{ \$1.00 Per Annum.  
{ SINGLE COPIES TEN CENTS.

## The Field.

### Barley.

The importance of the barley crop to the Canadian farmer has been steadily growing for many years; and it is probable that the relative value of this cereal will continue to increase as the use of light malt liquors supplants the ardent spirits to which are owing so much poverty and crime. Of late years, the consumption of lager beer in the United States has increased enormously; so, also, here, have increased the sale of other malt liquors. The prime cost of the barley bears so small a proportion to the cost of the beverages made from it that brewers who have attained a reputation will buy none but the very best brands of barley and will willingly pay for extra samples several cents per bushel beyond the market price. Large areas of the Dominion are favorably situated for the growing of this grain. The climate conditions are such that barley attains a perfection unapproached in any other part of the continent. Canada West barley will now sell in New York for 25 to 30 cents per bushel more than New York State barley.

An objection to barley is that it is subject to sudden and violent fluctuations in price. At one time with a full crop the farmer realizes an enormous price; again, with a short crop he has to take a low price. One reason for this is that the market is in the hands of a few men, and when they have grain in hand, they are apt to make the grower smart for the high prices they have to pay when their stocks are light. Still, with all its capriciousness, barley rarely falls below a paving price, and, taken in connection with the fact that it is the least exhaustive grain crop, it is a question whether barley is not the most remunerative of the cereals.

The price of barley will probably continue to be thus uncertain, as long as it is grown mainly for brewing purposes—and this it probably will continue to be. And yet, for feeding purposes, barley is much more valuable than most farmers are aware. It is true that the yield is not so heavy as that of oats; it is also true that it is much less exhaustive to the soil. Of the flesh producing constituents it has a larger proportion than have oats or corn; and there is less straw in proportion to grain from barley than from oats. These are some of many advantages which barley possesses as a feeding crop. When it is generally grown for feeding purposes, the price will not be liable to the vexatious ups and downs to which it is now subject.

Another advantage belonging to barley is that the sections of this continent on which it can be grown in perfection are of limited extent. With one good season, free from drouth, grasshoppers, ch. ch-bugs and all the minor ills that the farmer is heir to, the Western and North-western States can break down the price of corn so that it is more profitable to burn than to ship it; and with wheat, can so over-burden the means of transport that railroad companies become masters of the situation, and can grind the very noses off the faces of the farmers who have been unfortunate enough to have good crops. With barley this cannot happen. Until some genius discovers a means of making good malt from bad barley, Canadian samples will bring fancy prices as compared with the Western article.

The first requisite to success in barley-raising is that the seed-bed shall be fine, rich and in good condition. The soil cannot be too fine for barley. With the object of getting this desirable condition, the land should have been fall-ploughed and submitted to the action of that king of disintegrators, Jack Frost. The fine, fibrous, spreading roots of barley derive nutriment principally from the surface soil, unlike the oat, which sends its penetrating root down and appropriates food entirely beyond the reach of the shallow roots of its congener.

The soil best suited for barley is a rich, clayey or sandy loam, well drained, natural, or artificially. On a stiff clay, a continuance of wet weather is apt to rot the seed in the ground. On light, sandy soil, the heat of June and July are often ruinous to it. Barley will be found to succeed best when taken after some crop which has necessitated frequent stirring of the surface, and which has been liberally manured.

The time to sow barley is as soon as the soil is in fit condition and warm enough to germinate the seed quickly. But no grain stands checking so ill; so, although the best crops are from early sown seed, it is well not to be in too great a hurry. If the young plant be once seriously damaged, the effect will be apparent in the shortness of quantity and inferiority in quality of the crop. An old proverb says that the right time to sow barley is when the leaf of the elm is "as big as a mouse's ear." Those who have faith in old proverbs can go by this sign if they choose. Our choice, with barley, would be to get sowing done as soon as we thought it safe, and let the elm leaf out as soon afterward as it likes.

When the plants are well through the ground, a good rolling is beneficial and will often bring an unhealthy looking crop to a thriving condition.

Of all the grains, it is with barley that it is the best policy to sow perfectly clean seed. Barley buyers are all experts who know just what they want to buy. Clean barley is what they want, and any foreign admixture is sure to lower the price offered. Sow clean, plump seed of the best sort attainable, and get seed that has been grown upon soil of a different nature to your own. The English growers, who raise the best barley in the world, are very careful on this point. The two-rowed is principally grown here, and is considered to be safer and a heavier yielder; but the four and six-rowed sorts will bring the highest prices, and will get the preference by brewers. As barley is very high in price now, all sorts sell readily; but, in a dull time, the two-rowed is apt to hang long after the other sorts have found purchasers.

### Barberry and Buckthorn as Hedge-Plants.

EDITOR CANADA FARMER.—Would you or some of your correspondents give me what information you can on the following subjects, viz. Of what value is the barberry as a hedge plant, as I have heard it is on trial in some parts of Ontario? Is it hardy enough to stand our climate? Is it likely to form a sufficient barrier against cattle and pigs, and which is the best variety for the purpose, as I understand there are different sorts, also the manner of propagating the plants, and planting the hedge? Also what is the buckthorn and where is it to be obtained? Has a fair trial of it been made in Ontario as a hedge plant, and if so with what success? Also what is the name of the wild thorn having several seeds in each of its haws or berries, which is found growing in different parts of Ontario.

Amaranth, North Wellington.

Opinions differ widely about the value of the barberry for hedging. Some maintain that it is destined to be the hedge plant for North America. Others, again, say that it makes a very pretty hedge, but that is all. There is a prejudice against it, too, on account of the alleged blighting influence which it is said to exercise over wheat. There is no proof that the barberry ever causes blight in wheat, and it certainly exists alongside of wheat frequently without blighting it.

It is easily grown from seed or from plants, either of which can be got from nurserymen. If the seed is sown, sow it in drills, and next spring transplant into the hedge-row.

The buckthorn is a native of this continent, Europe and Asia. Its botanical name is *Rhamnus Catharticus*. It is a deciduous shrub growing from 10 to 15 feet high with numerous branches. The leaves are of a dark green color, oval and serrated; nearly opposite each other on the branches. The bark is greyish-brown. The blossoms are

yellowish-green and small, and are succeeded by round black berries which hang till frost. The roots are black and numerous. "Syrup of buckthorn," a cathartic made from the bark and berries, was formerly in repute, but we believe it is not much in vogue now.

The buckthorn, as a hedge plant, has many favorites. It will grow anywhere and will make a thick hedge with very little attention. It need be clipped but once a year, and that at any time. No insects infest it, mice will not girdle it, and it can easily be grown from seed. In a few years it will get thorny enough to turn the most breachy of cattle. We should like to publish the experience of such of our readers as know anything of its merits by experience.

The wild thorn mentioned may be the buckthorn, but we cannot identify it on so slender a description. The buckthorn has four seeds in each berry.

Modern opinion seems to be tending against hedges as fences, both on this continent and in England. To make a good hedge requires skilled labor and skilled treatment, and till the care of hedges is made a separate branch of the agricultural laborers' profession, as it is in England, we do not think that live fences will be properly attended to. Correspondence on the subject of hedge-plants and hedging is invited.

### How to Bring Back a Run-Down Farm.

EDITOR CANADA FARMER.—I am in the habit of buying store cattle every fall. I have to go through a few townships to pick them up. I see a great difference in cattle. There are some four-year-old steers that it is a shame should be seen in Ontario. They should be heavier at two years old.

I know the reason of all this. Farmers plough too much—nearly all their clearings. They want to raise too much grain, and in trying to do it, they raise neither grain nor stock. Their farms are nearly run out. They cannot get seeds to catch on it, for mother soil is worked off the face of it. They grow wheat till they cannot grow it; then oats till oats fail. These farmers grow little hay, no roots; little manure, for their farms are about half-stocked with poor scrubs of cattle that live on straw all winter and run a great chance of not seeing spring at all. There are thousands of acres of our fertile Ontario land that are farmed in this slipshod way.

I am going to throw out a few hints for those that have farms such as I have described. In the first place, any Ontario farmer who has 100 acres of run-out land, should seed the half of his ploughed land with fifteen pounds of red clover and twenty pounds of different grass seeds that will be good for either hay or pasture. This do at once, let the land be clean or not, for you will not get it just right for seeding by the system you are working upon.

Secondly: Summer-fallow five acres every year, and under-drain it at the same time as you fallow. Two hundred rods of drain in five acres will make it dry, unless it is a swamp. The cost is about \$50.00, and you will get it back in two years.

Thirdly: Sow only one acre of wheat where you have been sowing three. Put it in well and in good time, and manure it well. Sow the very best seed, cost what it may. You will have more from one acre than you have raised from three.

Fourthly: Raise three acres of roots. Put them in right, good, clean land, use good seed. Well attended to and well cultivated, you may have two thousand bushels, and that is nothing great. In this way you can get your straw made into manure and you can keep two head of stock for one.

Fifthly: Keep good stock. Breed from thorough-bred bulls, and if there are none near, go a long way to them. Pure males, sheep, cattle or horses, must be bred from, or your stock goes back. They must be well fed, and must have pure water.

Lobo, Ont.

LOBO FARMER.

### The Value of Farm-Yard Manure.

The subject of manures, farm-yard and artificial, is one upon which the CANADA FARMER has had much to say and often. To what we have said, we add an eminently practical treatment of the subject, which was delivered as an essay before the Fettercairn, Scotland, Farmer's Club by Mr. James Mitchell, of Montrose. Until recently, says Mr. Mitchell, the chief, and in many cases the only fertilizer the farmer used was farm-yard manure; and now that this is being to a certain extent superseded by artificial manures, there is just the danger that it may be too much overlooked. Farm-yard manure has its proper place in agriculture, and so has artificial manure. He proposed, in the following remarks, principally to treat the question of urine, its relative value to the solid excrements, and the most effectual manner in which the urine can be economised.

Some agriculturists hold exaggerated opinions as to the value of farm-yard manure, others undervalue it, while some manufacturers and agents of artificial manures only manifest their ignorance by treating farm-yard manure slightly, and decrying it, in season and out of season, on the absurd supposition that by doing this they will induce the farmer to order more artificial manure than he otherwise would. The only valuable ingredients in farm-yard manure are the urine and the solid excrements. The other ingredients are simply straw, &c., which have little or no value in themselves, and simply serve to absorb and keep together the urine and solid excrements.

The approximate value of the urine of the horse, cow, sheep, and pig, is as follows:—Horse, 30s.; cow, 20s.; sheep, 30s.; and pig, 10s. per ton. The approximate per centage of ammonia contained in the urine of these animals is: Horse, 1.6; cow, 0.9; sheep, 1.7; and pig, 0.4. The phosphates contained are trifling, being about 1 per cent. in the horse and pig, about 2 per cent. in the cow, and about 3 per cent. in the sheep. The additional value of the urine of these animals consists of a small percentage of potash and soda salts, &c. Comparing these facts with the approximate composition and value of the solid excrements of the same animals, we find that the solid excrements of the horse are worth 15s. per ton; the cow, 10s.; the sheep, 25s.; and the pig, 6s.; or, in other words, the value of urine is about double that of the solid excrements. In comparing their value, however, it is only fair to say that the value of the solid excrement is principally owing to its being saturated with the urine. Thus it is evident that if anything is to be done in economising the farm yard manures, it must be the urine that is to be considered first.

In considering this subject, a good deal of valuable information can be obtained from the Chinese. We are often apt to consider these Celestials as little better than savages, it is, however, a well-known fact that they are much before us in this matter, as in many others, and there is no doubt that we are the losers by thus disparagingly treating them; and their ideas, or rather ignoring them altogether. It is certain that they are now and have been for hundreds of years in many respects very far advanced in the science of agriculture, and amongst them the excrements, liquid and solid, treated and prepared in various ways, serve almost entirely as their fertilizers. One writer says: "Human urine is, if possible, more husbanded by the Chinese than night-soil for manure; every farm or patch of land for cultivation has a tank, where all substances convertible into manure are carefully deposited, the whole made liquid by adding urine in the proportion required, and invariably applied in that state. The business of collecting urine and night-soil employs an immense number of persons, who deposit tubs in every house in the cities for the reception of the urine of the inmates, which vessels are removed daily with as much care as our farmers remove their honey from the hives."

It may be roughly estimated that the average urine passed by a cattle beast daily is about two gallons, so that in the course of a twelvemonth each cattle beast would pass from three to four tons of urine, the value of which would be from £5 to £6; and, in addition, a proportionate quantity and value of solid excrements, or, in other words, the total excrements, liquid and solid, obtained from a cattle beast in a year would be worth from £8 to £10. Thus, supposing the case of a farmer with an average stock of cattle during the year of 50 head, he would collect from 150 to 200 tons of urine per annum, showing a value of £200 to £300. Of course a very large proportion of this would go direct to the soil during the time the cattle were upon the grass: still it is not over-estimating the value of that which can be collected, taking into account the urine from the horses and other animals on the farm, to say that, provided the whole urine could be collected, the quantity would represent a value, say of £100, or even more. Of course, as it is at present, nothing like the whole of this is lost, a great part being absorbed in the court bedding. In open courts a very large proportion is of necessity lost, being washed away by the rain. In covered courts, however, there is also a large proportion lost by evaporation. Perhaps the most economical plan would be to have the covered courts properly paved, with channels conducting to a tank or reservoir where the urine would collect. These tanks would, of course, then be emptied from time to time, and applied to the soil as required.

Without going very minutely and at length into the details, it would be impossible to give practical hints further upon this matter, but it would be well to state that it would also be a great saving were the courts from time to time to be sprinkled with vitriol. This could be done very simply by means of a common watering-pail. The ammonia fumes caused by evaporation would thereby be fixed, and, as a matter of course, the loss of the most valuable and important ingredient of the urine prevented. The sprinkling the courts with vitriol would also have a very beneficial and important effect, as it would keep the courts much sweeter, and therefore tend to preserve in better health the animals in the court. The vitriol would require to be used only sparingly, and diluted with water before application.

It may also be worth while to state that the fumes arising from the manure in the courts have a peculiar chemical action, which is injurious to the stone and lime, and in course of time would destroy them. The sprinkling of vitriol from time to time on the courts, as above explained, would to a great extent check this. In connection with these remarks, it may be of advantage to bear in mind that, in turning the dungheaps, there must of necessity be a great loss of ammonia by evaporation. This loss can easily be entirely prevented by the use of vitriol sprinkled during the time the heap is being turned.

In conclusion, Mr. Mitchell said that there was poetry to be found even in a manure heap, and so Pope, one of our greatest English poets, could write—

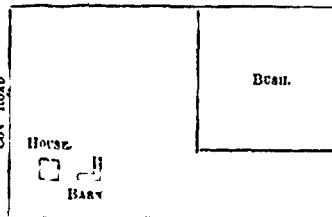
See dylaz vegetables life sustain,  
See life dissolving vegetate again.  
All forms that perish other forms supply;  
By turns they catch the vital breath and die.

### Laying Out a Newly-Cleared Farm.

EDITOR CANADA FARMER:—My land is cleared, but is not yet divided into regular fields. I would like to know how to divide it so as to carry on a good rotation. I sow wheat, barley, oats, peas, turnips and potatoes. I have 110 acres clear, and 34 acres in bush and about square in one corner, the buildings in another corner. The lot is 120 rods wide and 192 rods in length.

FARMER.

Grey Co., Ont.



Will some of our readers who have satisfactorily laid out farms give their ideas on "Farmer's" case. This is one of those cases where the experience of one farmer is of value to the whole fraternity. And most valuable of all is the experience of those who, having laid out their lands years ago, would now lay them out differently if they had to do it over again.

### Improvement of Clayey Soils.

One of the principal defects of clayey soils, especially where they rest upon a subsoil of the same nature, is the excess of water which is held in them. The only effectual way, in a majority of cases, to get rid of this is by thorough underdraining. This draws off by imperceptible degrees all the excess of water, and opens the soil to the free admission of the air, which in its passage through it imparts warmth and such fertilizing gases as it may contain. Open drains or ditches, though less effectual, are useful. In some cases, water furrows, terminating in some ravine or ditch, serve a good purpose. Lime is exceedingly useful as an ameliorator of clayey soils, inducing chemical combinations, the mechanical effect of which is to break up the too great tenacity of the clay, while it adds, at the same time, an element of fertility which may perhaps be wanting. Gypsum, or plaster of Paris, has the same effect in a still more powerful degree. Ashes, coarse vegetable manures, straw, leaves, chips, etc., are also very useful, adding new materials to the soil, and tending to separate its particles and destroy their strong cohesion. Clayey lands must never be ploughed when wet.—*Carolinnian.*

### Started To Be, "On Keeping up Fertility."

EDITOR CANADA FARMER:—I think I could write an article out of my own experience that, if it was of no more value, would fill up a spare corner; so, here goes, on a subject that is most interesting to all farmers. How to keep up the fertility of the soil at least cost.

I have farmed it in Canada for thirty years, and this subject has occupied my attention all along, and I find my farm

becoming richer every year. Still the crops will fail if the season is not propitious in spite of all precautions. It is an endless subject, so I may quit at any time and post the dollar for my year's subscription, and let those who have more will. I find my time almost too short to read all that is written in the CANADA FARMER without adding to the amount to be read.

I am proud to tell you that I have all the CANADA FARMER bound but the last volume, which I have safe and ready for the binder. Go ahead and prosper. There is nothing of more importance to the farmer than the Stock interest. That department of the paper alone is worth the dollar ten times told.

SUBSCRIBER.

Ontario Co., Ont.

We are sorry that our correspondent got off the track when he started out so promisingly to write on keeping up fertility. Cannot he send us what he was about to say on the subject when he altered his mind and began complimenting us? The time occupied in writing out a few details of his experience will be invested profitably to his brother farmers.

### Pithy Turnips.

If we bury turnips in the open ground and leave them there till spring, they come out of the earth quite as good as when left in the soil; but if we put them in a cellar, though that cellar be cool, they get gradually worse and worse, till by spring they are good for nothing. This does not seem to be from any exhaustion of the roots by growth, for the deterioration commences before growth begins; nor is it the result of the evaporation of the juices, for it takes place in quite damp cellars. For practical purposes it does not make much difference why it is. But we wish to call attention to the simple fact as illustrating how very slight may be the causes which make a difference between a good fruit or a good vegetable and a poor article, though perhaps in both cases the variety may be the same.

The cellar is a little dryer, a little warmer, and perhaps a little darker or lighter on the whole than the out-door case; and however these may operate on the differences, they are of course in some way accountable for them. We often wonder why it is that a fruit in one place does remarkably well, while perhaps not fifty miles away the kind is no good at all. There is but a trifling difference in climate and maybe so far as we know none in soil or other circumstances, but still there are surprising differences in the results.

It is often said that our lives hang but by a thread, but it seems that in all things it is about the same. A thread's breadth makes all the difference between success and misfortune.—*Hz.*

### Threshing Beans.

EDITOR CANADA FARMER:—In your issue of Dec. 15th, I noticed a piece giving information about threshing beans, and wishing to hear from any person of experience regarding the same.

In the Province of Quebec, where I reside, we all use the two-horse tread-mill. When we want to thresh beans, we take out the concave, which is in two halves, and take two pieces of board the same width of the concave, cut them the same length, and dress the ends so that they will go into its place. Then tighten them up till they almost touch the cylinder teeth, and fasten them there. The horse-power does not need so much elevation as for threshing grain, so that the beans will not need to be fed into the mill too fast, as they are apt to go away in the straw on account of no teeth being in the wooden concave to loosen the straw. If right managed, none is lost in that way.

I have found this to be the best and quickest way of threshing beans, as there is scarcely any of them gets split, and if there happens to be a few green pods, they slip through without threshing, which leaves a much better sample of beans.

Ormstown, Q.

FARMER.

WHEN SHUFTING PULLEYS from smaller to larger or vice versa, take three times half the difference between the diameter of the pulleys, and the result will be the length of belt to take out or to put in.

THE NEW PYRACANTHA FOR HEDGES.—S. H. Parsons, in his address before the Rural Club of New-York, said that he had experimented fifteen years with the *Crataegus pyracantha alba* for hedges, and he regards it as one of the best plants for this purpose; that it has endured, unharmed, 14 degrees below zero, and is readily distinguished from the old *Pyracantha*, which is not hardy, by its smaller and narrower leaves. These change in winter to bronzed green, but do not drop. It is clothed with strong thorns, is easily cut to a dense hedge, and may be kept down to a foot high for borders, or formed five feet high for farm hedges.

# Grasses and Forage Plants.

## New Forage Plant--Gallega Officialis.

At a meeting of the Cirencester Chamber of Agriculture, Professor Church made a report of his labors during the year. In the report is an account of a new forage plant, upon which, for some time, he had been making experiments, and which had been proposed as a substitute for clover on clover-sick land, and generally as a green fodder plant similar to, but more robust and producing larger growth upon poor soil, than lucerne. It is a leguminous plant, known as *Gallega officinalis*, and though European, is not a native of Great Britain. It is hardy there, as it is in the greater part of Europe. Though it is very enduring, and yields immense cuts of green fodder, it is not, so far as Prof. Church could learn, very much relished by farm stock. The analysis was disappointing on account of the abundance of woody fibre present. The plants analysed were cut on the 10th of June last, the seed examined having been gathered in September, 1872.

Analysis of Gallega Officialis.

	In 100 parts of the		
	Fresh plant	Dry plant	Seed.
Moisture.....	81.9	—	14.9
Oil, &c .....	1.3	6.5	7.0
Flesh formers ..	4.1	22.9	33.2
Sugar, starch, mucilage, and } digestible cellulose.....	6.9	33.8	31.6
Indigestible fibre.....	4.5	24.8	10.4
Ash.....	1.3	7.0	2.9
	100.0	100.0	100.0

## Orchard Grass in Quebec.

A correspondent lately enquired in the *Country Gentleman* whether orchard grass will do well north of lat. 46°. He gets the following reply from Mr. A. P. Ball, of Stanstead Co., Quebec:

In 1872 a friend of mine, residing in Northern Vermont, persuaded me to try orchard grass. I sowed four bushels on four acres of barley. It came up nicely, and after the barley was harvested, it covered the ground completely, as with a heavy green mat. I cut it for hay on the 30th day of June, 1873; it only yielded a ton to the acre. I was satisfied I had used too little seed; it was thin, growing in bunches. It soon started again, and in the fall there was another crop; this I did not cut. The past season (1874) I found a portion of it had been winter-killed, but cut one and a half tons per acre at the first cutting. The autumn being fine and free from rain, I cut a second crop, one ton to the acre. This second crop was removed early enough to permit it again to grow, so that when snow came the ground was again nicely covered, looking from a distance like winter wheat. This is the result of my first trial with orchard grass north of 45°. My second trial in sowing it was in 1873. On nine acres of spring wheat, I sowed at the rate of one bushel per acre, adding also ten pounds of Alsike clover seed per acre. After harvesting the wheat, the grass grew luxuriantly—sufficient, before the close of the season, had I cut it, to have given a good crop of hay. Last season (1874) I cut it twice; the first crop was principally clover; the second had a large proportion of orchard grass. Before the close of the season, it had again made growth enough to cover the ground.

From the little I have tried orchard grass, I think I failed both times in not using enough seed. Two bushels per acre would be none too much, the habit of the plants being to grow in bunches. I think enough seed should be used to grow plants enough to cover the ground. But my friend said, the oftener I cut it the better it would be; next year will be my third one for cutting it, and if it times to improve, I shall of course admit that he is correct in his statements.

The autumn cutting, well cured, makes the very best of feed for calves; they seem to prefer it to any other kind of hay I have ever fed them. The hay made from this grass has been fed to all kinds of stock, and appears to be relished by them as well as either timothy or clover.

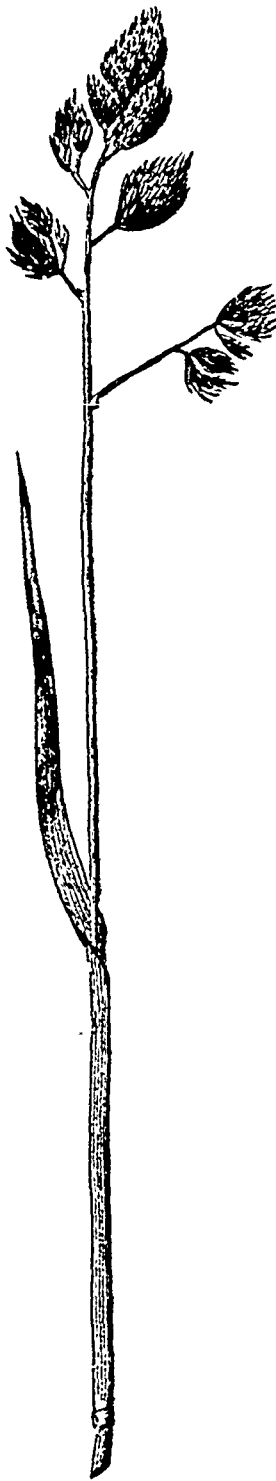
MR. A. W. CHEEVER says:—Early autumn is the best time to sow grass seed, for the grass will get well established in the fall and overcome the annual weeds which start in the spring. He does not like the idea of sowing grain with the grass. He found in his farming that it paid to make a specialty of growing grass instead of making it a second or third object. In order to do this, thorough cultivation was necessary, and the farmer must make a deep or mellow soil and mingle fertilizers very thoroughly with the soil. The ground must be well plowed in the early autumn.

## Orchard Grass.

The grass of which an illustration is given on this page is the orchard grass, *Dactylis glomerata*, a species which is deservedly growing in favor all over the continent. It is a very widely diffused variety, being found in the whole of Europe, parts of Asia and Africa, and on this continent.

It is one of the most valuable grasses, being early, of luxuriant habit, giving good aftermath, and being adaptable to a variety of soils. It generally grows about three feet high; but it has been known to reach five feet. A yield of five and three-quarters tons to the acre has been recorded. Two tons to the acre, on the most fertile soil, may be taken as a very good crop.

It receives its names of Orchard grass from the readiness with which it will grow in the shade, being equalled in this respect only by the Rough-stalked Meadow grass, *Poa trivialis*. It has established its place among the very best of our forage plants. It should be sown early in the spring, and is better sown than with a growing crop; but it will do well if sown on Fall wheat. Some farmers prefer to sow in the fall upon a light snow; and such sowing gives excellent results. If sown alone, not less than two bushels to the acre should be used. Two and a half bushels are better. The weight of the seed is about twelve pounds to the bushel. If sown thinner it is apt to form tufts, which is its natural habit, instead of a good sward. If sowed with other grasses, the proportion of orchard grass will vary according to the end in view.



There are few conditions of soil or climate to which orchard grass will not adapt itself. Though succeeding well in the shade, it stands drought well and will succeed in the open. It is equally at home on light or heavy soil, wet land or dry. As a meadow grass it is earlier than Timothy, and more permanent. For hay, it must be cut very early, before the seed forms. When left to form seed, the stem becomes woody andavorless. As a pasture grass, it is the most valuable of all the grasses. It will stand close and constant cropping, and is much relished by stock. As it blooms simultaneously with red clover, it is well adapted for mixing therewith. In this, again, it is superior to Timothy, which does not mature till after clover has been woody and comparatively worthless.

Under chemical analysis orchard grass is found to be superior to nearly all other grasses in albuminous or flesh-forming constituents.

RENOVATING OLD MEADOWS.—Mr. A. B. Allen says, in the *New York Tribune*:—As soon as frost is out of the top of the grass field you wish to renovate, say early in March,

take a heavy, fine, close-set tooth-harrow and go over the field, tearing the top of the turf all to pieces, which is then easily done, as the turf is very tender. Then sow what grass seed you wish to grow, roll the surface and give it a dressing of rotted stable manure, compost, guano or superphosphate, as required, and you will have generally just as good, if not a better growth of grass than you will get otherwise. The advantage of this is threefold; you get a large crop of grass the following July, you save the expense of ploughing, and you save seed in re-stocking the field. If there be small stones in the land, all such should be picked up previous to sowing the grass seed and rolling.

## Getting a Set of Clover.

A paper was read at a meeting of a Maryland Farmers Club, by Mr. E. P. Thomas. The paper brought forth much discussion in the club, and was finally directed to be sent to the *American Farmer* for publication. From the essay as published in that paper we make this extract:

It has been justly remarked that clover is the base of all good husbandry, yet the loss of a set would not make such great odds did not each failure bring us one year nearer our graves. X. A. Willard says: "Life is too short; we cannot afford ever to miss a set of clover." And we need never, if we manage properly. I feel sure of what I say. We have seen enough good stands of clover these three or four past dry seasons to prove my assertion. And those good stands have not been on land carelessly cultivated or sparingly manured.

They have been in almost every instance where barn-yard manure and superphosphates have been used with a liberal hand. Now, what I would advocate is this: that we bring our minds and our acreage down to the level of our means. Instead of investing \$150 in manures for 10 acres, put the whole amount on 5 acres; not all in superphosphates either but vary the material: say, 500 lbs. of Bond's "I X L" at a cost of \$15; 50 bushels oyster shell lime at \$6; 500 lbs. of potash or 50 bushels ashes at \$6; and the remaining \$3 in plaster applied at different times to each acre. The lime, we are to understand, has already been used a year or two previously.

Far greater exertions should be used in properly preparing the seed-bed. Such delicate seeds as wheat and grass seed need a carefully prepared soil, if we expect them to do their prettiest. This is verified by the parable of the sower, in the 4th chapter St. Mark: "And it came to pass as he sowed, some fell by the way-side, and the fowls of the air came and devoured it; and some fell on stony ground where it had not much earth; and some fell among thorns, and the thorns grew up and choked it and it yielded no fruit." But it was only that which fell on the fine rich mellow soil that sprang up and produced an hundred fold.

Now, if we would adopt the course I have indicated above, instead of a failure in a set of clover, or perhaps a partial set, producing from half to one ton per acre, I would almost guarantee a good set with a yield of from two to two and one-half tons per acre, regardless of the season.

If we furnish to young clover suitable nutritious and stimulating food, such as lime and potash have proved themselves to be, we encourage an early and vigorous growth of the clover plants, in the cool moist spring weather, and such a growth I have never known the severest drought to annihilate.

The hay product of the United States has more than trebled in the last thirty years.

CLOVER AND NITROGEN.—Dr. Voelcker has discovered and established the fact, that an immense amount of nitrogenous food accumulates in the soil during the growth of clover, especially in the surface soil; amounting, including that in the clover roots and tops, to three and a half tons of nitrogen per acre; equal to four tons and a third of ammonia. If this be a fact, the wonderful effects of clover, vetch, and similar plants on the soil cease to be mysterious, and the farmer need no longer buy ammonia in his commercial fertilizers, but only add to the soil the lime and other ash elements required, which can be cheaply furnished in available forms.

NEW GRASS.—Says a Southern paper:—After Gen. Sherman made his march to the sea, all in the wide track of waste and desolation that he made with the tramp of his footmen and the iron feet of his cavalry, there sprang up a new and unknown grass from the soil, which the farmers called "Sherman clover." It would grow up in the most unexpected places, and it is said would root out Bermuda grass; and, as a strange similarity, we now hear that after the Franco-Prussian war of 1870-71, in many districts of France a new vegetation sprang up, evidently the result of the invasion. It was believed that this vegetation would become acclimatized, but very few of the species introduced in this way appear likely to continue to flourish. In the departments of Loir and Loir-et-Cher, of 163 German species, at least one-half have already disappeared, and the surviving species diminish in vigor each year. Scarcely five or six species appear to manifest any tendency to become acclimatized. Can any of our naturalists account for it?

## Implements.

### Newly Invented Implements.

Among recently patented inventions designed to lighten the farmer's labors are the following:

A machine for rearing turnips, consisting of a combination of machinery to perform the several operations of hoeing, harrowing, and tinning out turnip plants at one operation while the machine is in motion. The inventor is a Dublin man, named Maccani.

An invention is patented by Mr. Hempsted of Lincolnshire, applicable to machinery for cutting, slicing, and pulping turnips and other roots. It consists in an arrangement of parts whereby (1) the machinery may be quickly fitted to work, either as a cutter, slicer, or pulper as may be desired; (2) the small knives may be fixed to the bar; (3) the mounting and fixing of the pulping knives may be effected.

Mr. C. Courtois, of Paris, has invented an apparatus for clipping or shearing animals, and which he speaks of as being particularly applicable to the shearing of sheep. His invention consists in the employment of blades of steel mounted on one or several centres, and capable of being set without removing the blades, although after much work the blades can be easily removed and sharpened, like ordinary scissors, and be put together again with facility.

An apparatus for drilling manure, and sowing wheat and other grain or seed, has been patented by Mr. Savage of Norfolk. The object in this invention is by one machine and at one traverse over the land to drop first a patch of artificial manure, then to cover this patch with soil, and subsequently to deposit the grain on the top of the patch of manure.

Such of these machines as are adapted for use on this continent will doubtless be introduced here or improved upon speedily.

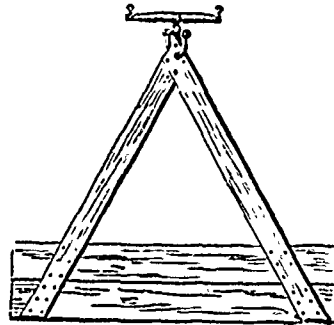
### Harrows and Plankers.

Mr. J. B. Root, a well known Lunenburg market gardener, has a valuable article in the *American Agriculturist*, giving his ideas of the uses of farm tools. We reproduce the portion of his remarks relating to harrows, and the home-made implement known as "the planker."

The harrow, besides being an excellent tool for raking the soil and fitting it for the crop, is equally good for tilling it. With no other implement can we so cheaply and quickly kill the weeds, if we only begin in time. Long before we heard of the Improved Spring Harrow (which is indeed an excellent implement) I could from my own fields see at least a dozen farmers at once, off on the rolling prairies, working their corn with the common square harrow, drawn diagonally. In planting large breadths, the weed seeds in that first planting are sprouted by the time the last is finished, so that our usual method has been to plant the seed at least two inches deep, and as soon as the teams are through planting, to hitch them to the harrows, and begin working the last portions, hills and all, and continue this until the rows can be easily followed. The many teeth of the harrow destroy the newly germinated weed-plants as thoroughly in the hill as in the row, while the deeply rooted corn sprout, from its spindle shape, slips to one side or the other of the teeth, and is not only not injured, but is greatly benefited by the breaking of the crust, and the loosening and aerating of the soil. In this way the crop is kept clean until it is so large that the cultivator can with safety throw soil into the hill, and keep the crop free from weeds, and it is laid aside. In fact, the harrow is just as important to the corn crop as is the cultivator, and the secret of large crops yearly on the same land in the west lies quite as much in the early and constant tillage with one or the other of these implements, as in the fertility of the soil. In like manner the harrow is put upon the potato crop soon after planting, and again just as it is being up, so that the crop is clean, until the double shovel-plough gets into it, and begins hilling. It is only occasionally that a sprout is broken off, and that soon throws up a new shoot. In fact, upon any deep-rooting crop, the number of injured plants is much less than would be supposed. Accidentally I learned to use the harrow broadcast even on melons, cucumbers, and other vines. Having set a green Scammanian to harrowing between the rows of melons, after a driving shower had formed a crust, I was surprised upon my return to find an hour later, to find him working the hills as well as the spaces. But while hurrying over the field to speak to him, I could find but rarely a plant injured, and in consequence allowed him to continue. Since then I have some seasons harrowed as much as fifty acres

of vines in this way, and found that upon deep plantings, just as the seed is sprouting, it is quite as beneficial as to corn; it cleans the crops, loosens the surface, saves expense in tillage, and does not injure the stand on a crop in which seed was planted freely. This looks to be a radical method, and no one should try it largely at first, however well it may succeed with me. I mention it in hopes it may suggest some other crops upon which it may be found profitable to use this good old implement.

For tillage purposes the best-sized harrow teeth are 9 inches long and 3/4 square, projecting 4 1/2 inches below and 2 1/2 above the frame. When set this depth, the back of the harrow, especially on land full of trash and long manure, or very lumpy, is often quite as serviceable as the front or points. But for lumpy lands, and for smoothing all soils after the harrow, for fine seeds, or even field crops, one of the most serviceable and inexpensive tools is "The Planker," as we call it for want of a better name, it being lighter and cheaper than the clod-crusher. For one horse it is made eight feet long, and for two it is twelve to sixteen. It consists of two heavy planks, side by side, fastened together by six inch boards, nailed on as cleats at an angle of 45 degrees, so that they meet in front of the centre. At this point they are firmly nailed or bolted together, and a hole made for the clevis, by which the horse is attached. The line of draft elevates the front edge of this, so that it glides upon the lumps, and the rolling motion given them, together with the weight of the driver, who stands on the back edge, thoroughly fines the soil,



and leaves a compact smooth surface in excellent condition to receive the garden drill. On our western soil, free from large stones, by the use of this we have little occasion for a rake, even for our finest garden crops, except in spots where manure or trash have gathered. If one working of the soil is not sufficient, we again harrow and "plank." Upon corn and other tilled field crops, it leaves the ground in excellent condition to receive the most benefit from the use of the harrow, or any tillage implement, and to show very plainly the traces of the marker. Total cost, 10 to 60 cents. The implement is not patented.

### Gang Ploughs vs. Cultivators.

EDITOR CANADA FARMER:—It has long been felt that the common two-horse cultivator, so extensively used throughout Canada, does not meet the requirements of an implement of that cast. It is an improvement on the old crotch cultivator and harrow, all will admit, but the time has arrived when it, in turn, must stand aside and give place to an implement that will more fully accomplish the work to be done. On first becoming the owner of one of Noxon's large cultivators, I thought I had something about right, but I was disappointed. It had serious faults. It would shun hard places in fall-ploughed land, and was nearly worthless for killing deep-rooted weeds, such as Canada thistles, docks, &c.

Now the gang plough will do the work of the cultivator equally well in all cases, and in some kinds of work better beyond comparison. It cuts the whole surface of the ground, and inverts the soil, thus burying and killing all small weeds. I look upon it as a main dependence in the wholesale destruction of thistles, docks, milkweeds, &c. Not a single spear need be left. This, of course, applies to summer fallow, where the common plough is used only in breaking, the gang plough doing the rest. It will not show hard spots more easily than the common plough. In working up fall-ploughed ground for spring crops, it is invaluable, and, by using after harvest on stubble, turning under about two inches, millions of weed seeds can be destroyed. And there is no better implement than the gang plough to use in the orchard for the shallow surface-culture there needed.

That pattern having three ploughs with tongue attached seems to meet with most favor. Those who contemplate purchasing a cultivator would do well first to try the gang plough.

ELIAS MOTT.

Norwich, Ont.

### The Common Hammer.

This may not be strictly an architectural topic, but it is certainly an essential architectural implement or tool, and the following remarks concerning it, which we find credited to an English author of a book on mechanical topics (G. Richards), will help those who use it to a better appreciation of it, perhaps:

Few people in witnessing the use of a hammer, or in using one themselves, ever think of it as an engine giving out tons of force, concentrating and applying power by functions which, if performed by other mechanism, would involve trains of gearing, levers, or screws; and that such mechanism, if employed instead of hammers, must lack that important function of applying force in any direction that the will may direct.

A simple hand hammer is, in the abstract, one of the most intricate of mechanical agents—that is, its action is more difficult to analyze than that of many complex machines involving trains of mechanism; but our familiarity with hammers makes us overlook this fact, and the hammer has even been denied a place among those mechanical contrivances to which there has been applied the mistaken name of mechanical powers.

Let the reader compare a hammer with a wheel and axle, inclined plane, screw, or lever, as an agent for concentrating and applying power, noting the principles of its action first, and then considering its universal use, and he will conclude that if there is a mechanical device that comprehends distinct principles, that device is the common hammer; it seems, indeed, to be one of those things provided to meet a human necessity, and without which mechanical industry could not be carried on. In the manipulation of nearly every kind of material the hammer is continually necessary in order to exert a force beyond what the hands command, unaided by mechanism to multiply their force. A carpenter in driving a spike requires a force of from one to two tons, a blacksmith requires a force of from five pounds to five tons to meet the requirements of his work; a stonemason applies a force of from one hundred to one thousand pounds in driving the edge of his tools; chipping, calking, in fact nearly all mechanical operations, consist more or less in blows, and blows are but the application of an accumulated force expended throughout a limited distance.—*Rural New Yorker.*

### Old Ploughs.

A plough used by the Emperor Joseph II. of Austria, in 1769, was placed beside a modern plough, in a portion of the Austrian department of Vienna Exposition set apart for the exhibition of the old ploughs of various nations. No better proof could be given of the great advance in the improvement of ploughs which has marked the 100 years which have elapsed since His Imperial Majesty worried himself and his mother earth with that plough.

This venerable plough was composed of the root of a tree, with the stem for a beam, resting on an axle with wheels underneath it of about two and a half feet in diameter; the handles were secured to the knee by holes bored into it, into which the handles were secured; the share was a piece of iron about nine inches long secured to the point by the knee, and then a strip of board about six inches wide was secured near the share. This last contrivance was designed to answer the purpose of a mould-board.

The old English ploughs, though much in advance of this Austrian one, were very awkward and weighty affairs, such as now would not be accepted as a gift by farmers in any civilized country.

HOW TO PREVENT RUSTING.—Boiled linseed oil will keep polished tools from rusting, if it is allowed to dry on them; and when the tool is wanted, turpentine will remove the film which boiled oil will form upon them. Common sperm oil will prevent from rusting for a short period. A coat of copal is frequently applied to polished tools exposed to the weather. Woollen materials are the best for wrappers for metals. Iron and steel goods of all descriptions are kept free from rust by the following:—Dissolve half an ounce of camphor in one pound of hog's lard, take off the scum and mix as much black lead as will give the mixture an iron color. Iron and steel, and machinery of all kinds, rubbed over with this mixture, and left with it on for twenty-four hours, and then rubbed with a linen cloth, will keep clean for months.

HOW TO USE A GRINDSTONE.—Common grindstone spindles, with a crank at one end, are open to the great objection that the stone will never keep round, because every person is inclined, more or less, to follow the motion of his foot with his hand, which causes the pressure on the stone to be unequal. The harder pressure is always applied to the very same part of the stone, and will soon make it uneven, so that it is impossible to grind a tool true. To avoid this, put in place of the crank a small cog wheel on the spindle, say with twelve cogs; have another short spindle, with a crank and a cog wheel of thirteen cogs, to work into the former. The stone will make about .07 of a revolution more than the crank, and the harder pressure of the tool on the stone will change to another place at every turn, and the stone will keep perfectly round, if it is a good one. This is a very simple contrivance, but it will be new to many of our readers.—*Cabinet Maker.*



## Horticulture.

### THE ORCHARD.

#### Grafting and How To Do It.

The proper time to graft is in the early spring, just when the buds of the trees which are to be grafted are swelling, in an average season, say from the middle of April to the beginning of May. The operation may be successfully performed later, even when the foliage is put forth if the scions have been kept in a dormant state. But it is best to have it done early. The scions should have been cut in the fall and packed carefully away in moist sand, damp moss, or sawdust. They should then be put away in some place, a cellar for instance, where they will not be frozen, and will not be subjected to alternations of temperature. They must not be allowed to get dry, or they will become shrivelled. If not provided in the fall, they can be cut in the spring at a time when the wood is not frozen, and packed away in the cellar. Scions of stone fruits should be secured before the sap begins to run. Apples and pears can be cut afterward. Be careful not to select blossom buds. Cut wood of one year's growth.

On small trees not exceeding an inch in diameter, whip-grafting is practised. This is done by making on the stock an oblique upward cut, smooth and sloping. In the centre of this cut make another cut downward, so as to form a slit or receptacle for the scion. Cut the scion, which should be of two or three buds, one bud being near the point of union, obliquely downward, and form a tongue on it to fit exactly into the notch in the cut on the stock. Now place them together, and be careful—this is the essential point—that the inner bark of the scion and of the stock are in contact somewhere. To insure this contact, slightly cross the scion and the stock. If the scion is much smaller than the stock, lay the inner barks together on one side. Having placed them together, cover the place of union with grafting wax, of which more hereafter; or wrap with yarn which has been saturated with melted grafting wax, and then cover with the wax.

With trees and branches more than an inch in diameter, cleft-grafting is the proper mode to pursue. The tree or limb should be sawn squarely off at a place where a clean split can be made. With a thin chisel, or some such tool, split open the stock neatly. Have ready some soft wood wedges, narrower than the stock to be grafted. Drive one of them in the split till it is open a little wider than will receive the scions. Two scions should have been cut to a true wedge shape, leaving the sides which are to be inside slightly thinner than the sides which will be in line with the bark of the stock. This is to insure that the contact will be on the side of the scion where the union will take place. Place one scion on each side of your soft wood wedge which is holding open the cleft. Put the scions in line with the grain of the stock, and then cross slightly to insure contact. Now withdraw the wedge slowly till the scions are held firmly, but not so tightly as to injure them. Then break off the wedge, cover the end and every wound carefully with grafting wax, and the thing is done. Breaking off the soft-wood wedge is more useful on large limbs. In smaller limbs where the squeeze is not great, it can be withdrawn altogether.

In splitting the stock, a tool should be used which will cut the bark as fast as the wood is split, so that a smooth place is made to receive the cutting. The scion should have a bud at the point where it will form a junction with the stock.

If a large tree is to be grafted, take care that the top will be made of the right shape, and be careful that it is not made top-sided. It is best to graft only one side of a tree in a year, leaving the limbs on the other side to produce foliage to sustain the tree and to elaborate the sap during the first year. About the last of July, cut off the young sap-shoots from the grafted limb. The scions will then be able to take all the sap. Then, the next spring, graft the remaining limbs of the tree and cut off sap-shoots as before.

Graft side limbs horizontally. If the cleft is made perpendicularly the upper graft will shade the other. If both grow, and are too close, cut one away.

Have your tools sharp and in perfect order, so that clean, smooth cuts can be made. With a little practice and the

exercise of care and common sense, any person can do his own grafting. By carefully observing the directions we have given, at least three-quarters of the grafts should grow.

Do not graft a tree that is unsound. It is trouble lost to graft a tree that, when cut, is discolored or rotten. A homely-looking tree may be made a thing of beauty and a joy for many years by a judicious sawing off of unbalanced limbs, and grafting. In three years, a worthless variety can be changed for a desirable one.

First class grafting wax can be made as follows:—Take two pounds of resin; half a pint of linseed oil; three quarters of a pound of beeswax. Melt all together, pour into cold water, and work with the hands as you would if it were molasses candy, till it will draw white. This is good for use on apples and pears. For the stone fruits, melt the wax and apply while warm with a brush or small paddle.

Other preparations for grafting wax may be made with the following ingredients: three parts rosin, two tallow, two beeswax; another, a pound and a half of rosin, a quarter of a pound of beeswax, and a quarter of a pound of linseed oil.

#### Apples for Carleton County.

EDITOR CANADA FARMER:—I would like if you or some of your correspondents would give the names of some of the hardiest sort of apple trees. The country here has been flooded with agents, but none of their trees have stood the climate except the Crab tree. I intend planting an orchard in the spring, of about four acres.

County of Carleton, Ont.

SUBSCRIBER.

In the county of Carleton, remote as it is from the influence of the great Lakes, only the hardiest apples will flourish. The following varieties will do well:—Early Harvest, Red Astrachan, Duchess of Oldenburg, Tetofsky, Golden Russet, St. Lawrence, Alexander, Tolman Sweet. Messrs. Leslie & Son, to whom we submitted a list, recommend also:—Fameuse, Swayzie Pomme Gris, Northern Spy, King of Tompkins County, Ribstone Pippin. Pewaukee, Wallbridge and Haas, are spoken of as being very hardy and productive, but we do not know whether they would be precisely suited to Carleton county.

#### Ontario Fruit-growers' Association.

The annual meeting of the Ontario Fruit-growers' Association opened at Hamilton, on Feb. 11, with a large attendance. After formal business, the subject of "How to maintain the fertility of large orchards" was taken up. President Burnet was in favor of stirring the soil and manuring young trees, and to older trees applying ashes. It would be well to thin the blossoms. Dr. Cross thought scraping the bark, thinning out old limbs, and applying carbonaceous manures, as chip-manure and sawdust, were beneficial. Mr. Moyer said black muck was good, as a mulch. Mr. Bowlaugh ploughs strong manure under; his soil is very sandy. Mr. Leslie ploughed annually to keep down weeds, sprinkled with lime and ashes, and scrapes the trees. Mr. Culham was in favor of scraping and washing the limbs with soft soap. Mr. Newton uses leached ashes and keeps the soil stirred. Mr. Cornell used ashes, but did not like scraping. Mr. Caldwell said pruning at the commencement was the most important thing. Trees should be scraped and kept clean. He applies ashes and muck. American trees, he said, are not suited to Canadian climate. Mr. McKay applies barn-yard manure. Mr. Burt thought the scraping should be done after rain. Mr. Wolverton said the presence of moss showed an unhealthy state. He had trees 75 years old and vigorous. He keeps them well thinned. He believed in ashes. Rev. Dr. Read thought pruning too early was a mistake. Turning in pigs helped to destroy insects. Mr. Jones said unfermented manures were not necessary for fruit trees. His idea of pruning was to commence young; prune in winter for wood, in summer for fruit. Compost should be applied in the fall. Mr. Saunders applies gas-lime to the soil, crops with clover and buckwheat and turns it in. Mr. Leo puts a stone under his trees to keep them from sending down tap-roots; takes out the subsoil and replaces it with topsoil. Don't allow people with hard boots on to climb into his trees. Mr. Anderson thought a neglected orchard should not be pruned too severely. Mr. Arnold puts large pieces of soap in the crotches of his trees. The soap melts and runs over the trunk and keeps off insects. Mr. Murray

approved of early pruning and keeping trees small. He kept apple-trees low and flat. Mr. Graham said the secret of success was, to keep the trees clean and free from lice.

Rev. Mr. Burnet spoke of the blight on apple-trees last summer. He had noticed that, if trees were not scraped, there was no blight on them. Mr. Cornell thought the blight was not caused by insects, but by atmospheric changes.

The subject, "Are hardy grapes profitable?" was taken up. Mr. Holton thought the Concord the most profitable, and spoke favorably of Roger's Nos. 4, 9 and 19, also of the Salem, as being early and productive. The Delaware was good for family use. Some seedlings, both red and black, grown by Mr. W. H. Mills, proved excellent. Roger's No. 15 was uncertain in ripening; Roger's No. 43 had hardy vines; but he could not give an opinion as to the wine-yielding qualities of these grapes. The great point here was to get grapes that ripen well. Mr. Caldwell said that the Concord was the favorite, north. Mr. McCallum said the Delaware would hold its own. The Crovelling was his favorite. Mr. Woodley thought the Crovelling earlier and better than Concord. Mr. Leo thought the Concord ahead. Tokollen was the best keeper. In early grapes, he preferred Adirondack and Hartford prolific. Preferred Concord to Roger's kinds. Thought the culture of other fruit preferable to grape-growing. Mr. Hoskins said the market was over-stocked. Mr. Fearman's favorite was Roger's No. 3; No. 4 is very black and hardy; No. 15 is late and brings a good price. Isabella was killed every winter. Allan Hybrid was good, but should be laid down. He used sulphur against mildew. Mr. Jones grows three acres of Hartford, Delaware and Concord; got three cents a pound and made a profit of \$300 an acre. The earliest grape he knew was the Champion or Tolman's seedling. It was ten days earlier than Concord. He found Hartford and Delaware most profitable. The President had found the Tolman seedling the earliest. Col. McGill said that at Oshawa the Salem was good and sold at 10 cents a pound. Roger's No. 3, 4, 9, 15 did well; so did Concord. Isabellas did not ripen well. Mr. Biggar, Wenona, had found great profit in Isabella. Delaware did well, but wanted care. Did not think the market over-stocked. Thought grapes were sent to market carelessly, which was a great mistake. The consumption of grapes was increasing. Not many years ago a gentleman at Grimsby had taken ten days to sell a basket of grapes, and now he sends, during the season, two teams daily to Hamilton with grapes. One acre had yielded him 365 baskets last year, weighing 7,295 lbs, and fetching \$437 50. Mr. Bell thought Hartford most profitable, then Concord, next Delaware. He got 600 pounds of grapes from a piece of ground 100 by 50 feet. Mr. Woodley grew the Eumelan, but Salem was his favorite. He spoke well of Roger's 4, 15, 19. Mr. Lister found 4 kept well, and 15 tolerably hardy.

The subject of the legal size of the apple barrel was discussed by Messrs. Smith, Hoskins, Jones and others. A resolution was passed appointing the President to call upon the Secretary of State, and explain that the Association wanted to have the legal size made to correspond with the Western New York barrel, which contains one hundred "streaked" quarts, or less by a peck than the common four barrel.

A special committee was appointed to secure co-operation in the destruction of the codling moth.

WANTED, A PLUM.—A correspondent wants some CANADA FARMER reader to state whether there is any plum in Canada perfectly hardy, a good and early bearer, and curculio-proof.

AGE OF DECLINE IN ORCHARDS.—A member of the Illinois Horticultural Society, at a late meeting, said he had given much attention to the condition of the older apple orchards, and had come to the conclusion that beyond thirty years of age, the average apple orchard in that region ceased to be profitable. From other sources at the west we had adopted the opinion that forty years was the longest general average. In New York, we have found that apple orchards begin visibly to decline at sixty, some as early as fifty, while a few trees on the borders of gardens, where they receive manure and cultivation, attain an age sometimes of seventy years or even more.

HARDY APPLES.—The Minnesota Horticultural Society recommends, through a committee, the following three apples as worthy of general cultivation, the result of many observations on their endurance of the coldest winters, namely, Duchess of Oldenburg (although killed in some localities), Tetofsky, and Stewart's Sweet (very hardy), while the variety known as the Wealthy, with some objection, was recommended for trial. The following were next in hardiness, namely, Fameuse, a general favorite; Wallbridge, approved as far as known; St. Lawrence, and Tallman Sweet. Pears were badly injured, and none were recommended.

## THE FRUIT GARDEN.

## Grafting Grape-Vines.

Those who wish to graft their vines over with other kinds should remember that winter and not spring is the time for it—and in this the grape is different from most other trees. It is different in this, that in the spring of the year there is such a tremendous pressure upwards by the ascending sap, that the parts of the scion and stock, which to unite must of course touch one another, are forced by the sap apart. When the grafts are put in at this season there is little of this. The severed cells granulate and heal, and when the sap is ready to flow upward strongly, it goes up through its regular channels in the graft without any tendency to break out through the junction.

How to graft grape-vines, admits of many various replies. The best is probably that described years ago in our pages by Samuel Miller, then of Lebanon in this State, who was very successful as a grafter of the grape. He drew away the soil from the stock to be grafted, cut it down about two inches from the surface, then cut with a stout sharp knife a long and narrow wedge-shaped notch in the stock, and shaped the scion as a wedge to fit in the notch in the stock. The lips of the notch are then tied together and the earth drawn in around the hole, leaving the upper eye of the graft above the ground.

We may say that it is very astonishing that grape-grafting is not more generally practiced, and especially since the discovery that the great success of the Concord, Clinton and a few other grapes, is not owing to any extra constitutional hardness, but to the fact that the power to throw out numerous fibrous roots is greater in these kinds. If this be true, and it seems to be really the case, we may have the choicest and the best of grapes by grafting them on these vigorous-rooting stocks.

For once the French seem to have taken a start ahead of us in this matter. They sent an agent to this country last year—a shrewd, observing fellow—and he took in the whole situation at once. The result has been that millions of cuttings of Concord and Clinton cuttings have been sent to France the past year, and in future the vines of that country will be brought to perfection, if not to our own shores, on "American bottoms, of the most substantial character.—*Germantown Telegraph.*

## Grapes for Winter Keeping.

A correspondent writes to the *Rural New Yorker*, dating from Lockport, N. Y.:

Fresh grapes in the family are a wholesome luxury at any season of the year; but it is only within a brief period that this delicious fruit has found its way to any extent upon the table, even in the ripening season. In hundreds of families good grapes, ripe grapes, in their season, are yet unknown. It is an easy task to grow grapes in abundance for family supply, yet how many neglect it. The introduction of new varieties within the last ten or twenty years and the consequent interest created in their culture, has done much to educate the public taste up to an appreciation of their value. In this latitude, from early September to December, we may easily have in succession a family supply of the different varieties, and with a proper selection of sorts this supply may be extended a much longer, or until March or April. I think the time is not far distant when well-regulated families will make it as much a point to lay in their winter supply of grapes as they now do of winter apples. But some of our most popular sorts, which are abundant in market during "grape-season," are perishable and cannot be kept into winter.

Among these, and most widely known, are Hartford Concord and Delaware. Like the summer apples, they are good in their season and perish with their using. Another class, like Iona, Catawba, Diana and Isabella will ripen perfectly and uniformly only in a few favored localities. Some of these sorts are good keepers, but on account of lateness cannot be relied upon by the people at large. What we want, then, is varieties early enough to ripen almost everywhere, and having keeping qualities that may be relied on after the perishable ones are gone. Have we such varieties in cultivation with which to fill this void? I think we have, and that, till something better is introduced, some of the Rogers Hybrids may be safely adopted, as they have been to quite an extent. Although encountering some opposition, these sorts have been steadily gaining in public estimation. At the head of them in quality stands Salom; next among the red varieties, Aga-

wam, and Wilder and Merrimac among the black. These all ripen with me as early as Concord, and are of course available for early market or family supply, and if desired can, with but little care, be packed away for use all through the winter. They are excellent in quality, hardy in vine, requiring no winter protection, heavy and uniform bearers. There are other of Rogers which it may be desirable to grow, but these are the best calculated to fill the void in the particular I have named.

**PROFIT OF QUINCES**—An Olan, who has three-fourths of an acre of quince orchard, from which last year he sold 300 bushels of first-class fruit, spades the ground in spring, and scatters a peck of coal ashes around each tree, applying at the same time a quart of salt, and another quart when the quinces are half grown.

**A NEW USE FOR COAL ASHES**—A New York gardener has succeeded in keeping his currant and gooseberry bushes free from the currant worm by mulching heavily with coal ashes. The ashes also have another value not expected, viz: keeping the ground cool and moist, so that even English gooseberries will bear heavy crops without sign of mildew. We judge also the use of coal ashes would be good for asters which need cool soil also.

## THE FLOWER GARDEN.

## Opuntia Rafinesquiana.

The cut which we give on this page is a representation of the *Opuntia Rafinesquiana*. We reproduce the cut and description from the catalogue of Mr. J. A. Simmers, of Toronto. This, says the catalogue, is "the only species of



Cactus or Indian Fig known as being hardy enough to stand severe winter weather, and ripening its fruit without more protection than a slight covering of straw. It is a native of the northern part of the Mississippi Valley, Illinois, Missouri and Wisconsin; of trailing habit; the leaves have no spines or prickles, like other cactus; the flowers, appearing in July, are bright citron yellow; the oblong fruits are dark red; the latter have rather a pleasant flavor, similar to gooseberries, are perfectly harmless, and much liked by children. The fruit takes a full year to ripen. The plants are propagated by breaking off the slips and inserting them in sandy soil in the open air, where they soon take root. A most valuable plant for rock-work."

## Watering Flowers in Pots.

Many who have the care of window plants seem to think that the operation of watering is one of the simplest items incident to their care, and will hardly thank us for advice on this point, and yet we may safely hazard the assertion that more plants are injured and more fail to reach their greatest perfection from an improper mode of watering than from all other causes combined.

To water the various varieties that their different wants shall all be supplied and no more, is an art acquired by but few, and the credit which some receive for fine collections is often due to the proper observance of this one item.

It should be kept in mind that the duty of the water is to dissolve and convey to the roots of the plants the food which they need; some plants must have a season of comparative rest, and if such are watered liberally during this time they will keep on growing, and the necessary rest is not obtained. When any of my lady friends tell me that they succeed very well with certain classes of plants such as the Fuchsia, Calla, Lobelia and Ivies, and fail with other, I at once set them down as being profuse waterers, who by too much water injure or destroy such plants as will not bear it. On the other hand, there are those who fail with this class of plants and succeed well with others, because their mode of watering does not supply enough for the wants of one class, but is about the proper amount for another.

Many plants are permanently injured by water remaining in the saucer; others often suffer from a bad selection of the soil.

Some of our amateur florists fail with a certain class of plants, of which the Begonia may be taken as a type, because they shower the leaves with cold water, but for this very reason are eminently successful with another class, of which the Camellia will serve as a type.

As a general rule, from which there are few variations, the texture of the leaf may be taken as an index of their power to resist the application of water. Plants having porous, open, or fleshy leaves covered with soft down should be seldom, if ever, mist-sprayed, while those having glossy or hard leaves will do all the better if washed frequently.

Our Ivies, Hoyas, and Cobæas seem to laugh at us after a good dashing, but the Begonias, Coleus, and plants of the same class do not appear to appreciate it.—*Horticult.*

In China a liquor is distilled from the flowers of the Chrysanthemum which is regarded as an elixir vitae, and in the Chinese pharmacopœia a powder of the flowers is prescribed as a cure for drunkenness.

**LIQUID MANURE IN THE GREEN-HOUSE**—Manure is best applied to plants in pots in a liquid form. That obtained from sheep droppings or from cow dung (with a little soot added if it can be had) is preferable to that obtained from chicken or pig manure, guano or even horse droppings; as it is less stimulating and does not cause such an excessive leaf and stem growth, or produce as serious injury if incautiously applied.—*American Garden.*

**PLANT GROWING IN GLAZED POTS**—It is generally believed that plants succeed best in pots which are most porous. Mr. Thomson, of Drumlanrig, entertains, however, a different opinion. More than half the Orchids, stove plants, Ferns, and even hard-wooded plants grown there are in pots which are thickly glazed from top to bottom, and the growth of one and all is wonderfully fine. The fine foliage plants are, indeed, marvels of health and bright color, and many of the Orchids are unequalled in the country. Mr. Thomson informed me that, as the other plants, which are in common clay pots, require shifting, he intends substituting glazed ones, so that very shortly there will be no other kind of pot in use about Drumlanrig but glazed ones. The latter never become green or dirty looking, and all they require to renew their original gloss, when soiled, is a rub with a rough cloth.—*Car. Garden.*

A LADY in Lake City, Fla., has growing in her garden a genuine cork-tree thirty feet high, the bark on which is sufficiently thick to make bottle-corks. There is also in the same garden a genuine black pepper bush, which yields regularly a full crop of berries.

**LILAC DR. LINDLEY**—This is by far the best addition which has been made of late years to our hardy forcing shrubs. Here we have a sort that will in a short time supersede the French production in the way of white lilac, since it sets its buds as small plants and opens freely, while the French plants are large before fit for forcing. We have some plants eighteen inches high, with a dozen clusters of bloom, and if forced in a shady house it comes a good white. When it is more plentiful and the plant gets up to say three feet or so in height, there will be no more showy plant for a greenhouse.—*Florist.*

**FUCHSIAS IN IRELAND**—An English paper speaks of the astounding luxuriance of the old red fuchsia in Ireland, near Carlingford Bay. It assumes the proportions of trees, mounts above the eaves and chimneys, and shades the windows with big clustering sprays of tiny, dark-green leaves, and deep scarlet, waxen bells. Many of these shrubs must be of patriarchal age, for their trunks are gnarled, and tough as oak; but the older they are, the more determined is their perseverance in showering around an exhaustless wealth of hardy grace and color. In one or two instances the dwellings were completely hidden, and turned into bowers, by this quantity beautiful plant or tree.

**GARDEN LABELS**—My experience is that wooden ones are, after all, the best, cheapest, and most enduring. I have some in use now quite five years old, and showing no sign of decay; perhaps the only drawback to them is the white paint so soon gets dirty, then the name is not so legible. My plan is to paint the label well all over, except the place for the name, with two coats of white paint, and when thoroughly dry and fit for use write the name with a heavy lead pencil well into the wood. Fix the label to the stake vertically, with a nail through the middle. When the stake rots, it is easily removed with a strong pruning knife, together with the nail, ready for the fresh stake. For dwarf plants use slips of slate and white paint to write the name in.—*Cor. Journal of Horticulture.*

## THE VEGETABLE GARDEN.

## Getting Rid of Cabbage-Worms.

EDITOR CANADA FARMER:—Please tell me how I can get rid of the green-worms on cabbages and kohlrabi. They were worse than the grasshoppers last year.

W. WAGNER.

Ossowo, Manitoba.

The best way we know to prevent cabbage-worms is to hunt them persistently, to be as constantly vigilant when they are in the chrysalis state. Remember that every one of the chrysalises which develops into the perfect winged state will leave a numerous progeny, watering with soap-suds is useful. And we have heard of a man who raised a good crop, while his neighbors raised none, by dusting finely-sifted buckwheat flour on the cabbages.

## How to Destroy Weeds.

EDITOR CANADA FARMER:—Although weeds are very troublesome, injurious, and hard to exterminate, as everyone knows who undertakes to cultivate a garden, yet I am satisfied, that, if we were to take a different course from that which everywhere obtains, we would find our trouble with the weeds to be chiefly owing to our want of skill in exterminating them; the consequence of plodding on in the old track of our forefathers, instead of stopping to think for ourselves about the matter.

Allow me to suggest a method of treatment, by means of which we will find that the extermination of weeds from our garden beds will become an easy task.

Instead of, as usual, digging up the soil as soon as the frost is out of the ground, let the soil remain unlug until the weeds are fully up; then hoe them down at once, and dig up the soil spade deep. Thus the surface crop of weeds will be destroyed.

After the soil is turned up (and with it, of course, the seeds and roots of the weeds that lay buried a foot or more below the surface), instead of sowing the seeds therein at once—as is now universally done—let it alone, unsown, until the weeds peep up fully; then, without delay, hoe them down, and rake them off the beds; immediately afterwards sow the seeds therein. In a few days thereafter you will have the pleasure of seeing the infant plants above the soil, accompanied with very few weeds; not more of them than will help to shelter the young vegetable shoots, until they obtain strength enough to bear the increasing heat of the sun.

The great advantage of taking off two immature crops of weeds from the beds, before sowing them with the intended seed, will consist in this, namely, that, in the first stage of their growth, the shoots of the seeds sown will not be choked with innumerable weeds; and, having the chief benefit and possession of the soil, they will push up therefrom, strong and vigorous; and consequently their growth will be rapid and unchecked.

After taking off two crops of weeds, as above pointed out, there will be time enough to sow all the requisite garden seeds, (with, perhaps, the exception of onions,) as the extra warmth of the soil and the absence of weeds will facilitate their growth. Then, too, seeds will not perish in the ground from cold, nor will the plants be nipped with the frost, as it often happens when the seeds are sown too early.

Let all concerned make a note of the above suggestion, and fail not to put it into practice in the forthcoming spring.

Let me caution those who aim at exterminating the weeds at present existing, to take care that they do not sow any more of the seeds of those nuisances; which will be sure to be effectually done if fresh dung is put upon or into the soil, also if we do not make it a point not to let a single weed go to seed.

I term weeds, "Nuisances," when, through our negligence, they are allowed to encumber our garden beds, but like everything which God has made, they fulfil some wise design, and are "good" and useful for food or medicine, for man or animals, as we now in part know to be the case, and doubtless before long will discover fully.

Aurora, Ont.

GARDNER.

The *Journal of Horticulture* says: Sawdust is a good thing for earthing celery, placing it between the rows and around the plants after the leaves and stalks have been brought together, pressing the sawdust about them so as to lie compact and insure blanching perfectly.

## Raising and Storing Winter Cabbage.

There is no crop that pays better than cabbages provided one is near a good market where plenty of manure can be obtained. As they are gross-feeding and bulky, there is no use trying to grow them to perfection, unless we have very rich ground or use plenty of manure. If grown at a distance from market, the freight or cartage will more than consume the rental of a piece of land close by market. Perhaps no ground is better to set them on than a piece of sod well enriched. By no means would I set them on ground that had grown a crop of cabbages or turnips the previous year, as they would almost surely be affected with the club root. On sod ground, with healthy plants, this never happens.

The plan which I have lately adopted is as follows:—As early in spring as possible I select my ground, and manure it with forty tons of manure per acre. I then thoroughly plough it, and strike out furrows three feet apart. In these I drop Early Rose potatoes, one foot apart, and cover them with a plough. I now sow radishes over the whole, and harrow them in. These are fit to bunch and sell by the time the potatoes are ready to plough. About the middle of June I hill up the potatoes with a shovel plough, and set at two and a half feet apart plants of Flat Dutch cabbage between the rows. These plants I have raised by sowing the seed in good, clean, rich ground, where there has been neither cabbage nor turnips the previous year. Sow the seed thinly in rows one foot apart, so as to have the plants stocky.

As soon as the potatoes are large enough for market I dig them and sell them. I run a half mold-board plough under the rows of potatoes by making the horse walk on the ridge. I then go through and pick up what potatoes are out, and pick up the vines, placing them between the cabbages. I then run through them twice with the shovel plough, picking up the potatoes each time. Then I uncover and hoe the cabbage. In this way we both dig the potatoes and plough the cabbage at one operation. If the ground becomes hard, I run the subsoil plough between the rows. I also frequently run the shovel plough, as this obviates the necessity of hoeing. If I see the light yellow butterfly near the cabbage I know that the worm will soon appear, and I sow wheat bran over the patch. As soon as they begin nicely to form heads, I drop about a teaspoonful of fine salt in each head. This helps to harden them. If any of the cabbages begin to turn white, I cut them and sell them, as they are apt to burst.

My plan of preserving cabbage for winter is simpler and better than any I have ever seen described. I wish every grower who reads this would try putting up a few heads this fall in the same manner, for I know if they do they will never go back to the old way. I go through the patch, taking two rows at a time, and cut out all the good heads, leaving a few loose leaves on each, and drop them at my left hand. This makes four rows in one. A man then take the first-class heads and pitches them to me. I catch them and place them in rows, two side by side, with two on top and a third one as a cap. I generally place them in heaps of fifty. I serve the second class in the same way. I now take a corn-knife and cut off the stumps with the loose leaves remaining, as also the soft cabbages, which I feed to the cows. I now cover these heaps of heads with about six inches of soil. The line of the heaps ought to extend north and south. In the winter when I wish to get at them I break in the south end with a pick or hoe, put in my hand and draw them out for about two feet, then break down the frost, and thus proceed until they are all out.

The advantages of this system are:—The cabbages keep brighter and better, as there is no stump sticking out to lead in the frost and rain, thus rotting the heart; they are more easily buried; they are more easily gotten out; they are already cut from the stumps, fit to market; we save a great many of the loose leaves for fodder, which by the other plan are entirely lost. The potatoes and radishes ought to pay all expense, leaving the cabbage for profit, which at a low price will bring \$300 per acre.—*New York Cor. Journal of Agriculture.*

## The Horse-Radish Bed.

This, in an amateur's garden, is often a neglected corner. It need not necessarily occupy the best situation in the garden; but it should neither be thrust into a corner nor made under trees, where it is both smothered overhead and impoverished at the roots. Choose a piece of ground moderately open; and, although horse-radish will grow in strong, heavy soil, it will do much better in such as is rather open; for which reason, if the land is very retentive, dig in 8 or 10 inches of rotten vegetable matter from the refuse heap, leaf mold, or old tan; if the latter, it must be such as has been used for fermenting purposes the year before, for, if at all new, it will prove injurious to the roots.

If there be depth enough of soil, dig the ground 2 feet deep; but do not bring too much of the raw under-soil to

the surface—simply loosen it well, and incorporate some of the rotten materials with it. If the ground be light enough naturally, dig in a moderate dressing of manure. Under the old system of growing this root, the crowns only were planted, dropping them into holes made a foot or more in depth; but, when planted in this way, the principal or useful portion of root often becomes forked. A better plan is to open a trench at one end of what we will suppose is the existing bed, as deep as the principal roots have gone, and to take out the whole of the roots, placing all that are fit for use in a corner out of the way; then select the straight whip-thong-like roots for planting; the longer they can be got the better, up to 15 or 18 inches.

In planting, use a stout 1½-inch dibber for making the holes, unless the soil is of more than ordinary depth; make the latter slanting at an angle of about 45°, and into each hole place one of the long roots sufficiently deep to allow the top to be covered about an inch, pressing the soil close to it throughout its length. The holes should be in rows 18 inches apart, and 15 inches asunder; nothing more will be required through the season, except keeping the ground clear of weeds. With good plants in deep soil well manured, roots may be grown in a single season, by this method, as much as 2 or 3 lb weight each. Where horse-radish is thus well grown, half the ground usually employed will be found sufficient. Being a plant that commences to grow early in spring, the sooner it is now planted the better.—*Garden.*

## Soil for Hot Beds.

In starting a hot bed the compost used at first should be composed largely of leaf mold from the forest, mixed with composted manure or the scrapings of the barnyard, for the reason that at short notice this is usually the most available. The preparation of two parts good loam, two parts leaf mold and one part of compost will give a light friable material. This makes a good soil for the principal plants cultivated in hot beds. For sweet potatoes, however, the covering should be much lighter than this; say three parts of leaf mold, one of sharp sand, and one of friable loam, thoroughly mixed together.

The soil, whatever it be, should be passed through a quarter-inch mesh sieve, to remove stalks and other trash; and, once prepared, it should be carefully saved from year to year, adding to it as necessity requires.

This is readily done by piling it, when no longer wanted for the season's work, in a compact conical mound, covering it before cold weather with slough hay, and over this sufficient fresh manure to keep it from freezing deeply. When wanted, the hay and manure may be taken off from one side, and the heap cut down as wanted with the shove.

The initial soil having been procured at whatever cost of time and labor may be necessary, pains should be taken to prepare for its renewal, so that thereafter there shall be no lack of soil for all hot beds or other propagating purposes.

Sod or turf from some loamy pasture or fence row is the easiest and most available basis for compost. Gather as much as possible, and lay up regularly, mixing with it, if procurable, leaf mold, layer for layer. Add barnyard scrapings, keeping the whole moist, not wet, turning from time to time until all is thoroughly mixed, completely decayed and homogeneous. Sift as before directed, and add the siftings to another pile; and thus you may always have compost that will be available, not only for hot beds, but also as the basis for any and all pot plants. If to the heap, while decomposing, is added the wash of the kitchen, it will hasten decay and disintegration, and add to the organic value of the compost heap. Do not be afraid of getting too much. If you have a surplus it will always be available in the special culture of all garden plants.

TRANSPLANTING.—M. B. Batcham says, in the *Ohio Farmer*, that the effect of transplanting on the growth and habits of some kinds of vegetation is remarkable, and needs to be better understood by horticulturists. It is peculiarly noticeable in the form and growth of young evergreen trees in the nursery, causing a more stocky and symmetrical habit. Florists also find it of benefit to the form and flowering of many plants. Various vegetables, as lettuce, cabbage and celery, are especially benefited by one or two removals when young. It is, he declares, hardly possible to have the largest and finest heads of lettuce if the plants are allowed to grow without transplanting, even though otherwise well cultivated.

WHY POTATOES RUN OUT SO SOON.—A Steuben Co., N. Y., farmer is reported as saying: Some one asks why it is that potatoes so soon run out. There are two grand reasons. There are but few potatoes in a hill that are fit for seed. Some are overgrown, coarse, rank, and will not transmit the original quality. Others are undergrown, and not full-developed seed. A potato of medium size, perfect in all its parts, with change of ground, will produce its like, *ad infinitum*. One other reason, cutting potatoes between stem and seed end continually, will demoralize the institution. It requires the stem and seed end to make perfect seed. If cut, cut lengthwise. Single eyes will run out any potato. There is no other seed that will bear mutilation like the potato; and the only wonder is, that it does not run out completely.



## The Breeder and Breeder.

### Short-Horn Breeding and Short-Horn Prices.

The following is an extract from an essay upon cattle-breeding, read at a meeting of the Staindrop Farmers' Club, by Mr. Geo. Holley, of Newcastle-upon-Tyne.

Nothing is so fatal to a herd as a succession of close breeding. Nothing is so difficult to manage as wide crossing; hence my reason for claiming for successful short-horn breeders the genius of an art.

I know a family who have used Booth bulls for upwards of twenty years, and have never made a single mark of any importance, simply because they did not happen to have an eye to beauty of form. I have the acquaintance of a gentleman who is famous for his correct estimation of animal symmetry, and also weight and color, but who missed his way from being at the very head of the short horn kingdom by not having the courage to give his herd a consanguineous cross.

I venture to say that the possession of a herd of fine fashionable short-horns at the present time is not a matter for much congratulation, if taken as a test of ability and sober judgment. As a

proof of wealth, it most assuredly is; but the credit and fame all redound to Bates and Booth, none of the gentlemen who ever followed their footsteps having produced better animals than they did themselves. To originate a good herd from an obscure branch, would be a matter of greater significance than the expenditure of 1,755 guineas for a 15 months heifer, by Sir Curtis Lampton; of 1,700 guineas for a broken-down dam, by Mr. McIntosh. These cattle will die out, and the gentlemen who possess them will probably not be found to have produced anything in size and contour equal to the dams and sires they began with. And hence an extraordinary loss of time and money; for, as Mr. W. H. Sotham says, in the *Mark Lane Express*, the points of an animal must sustain the pedigree, otherwise the pedigree is of no use; and therefore, the man who produces perfection, if from poor ordinary-priced beasts, is much greater and more to be commended than the one who goes to the fancy sales and throws his money, as it were, into the ocean, to be swallowed up and wasted!

It is not difficult, in my opinion, to produce the finest short-horns without a fabulous expenditure of wealth. The economies of animal ordinance are with you. They are always striving with themselves to adopt the purely cylindrical shape, and that is the shape which all the best short-horns wear.

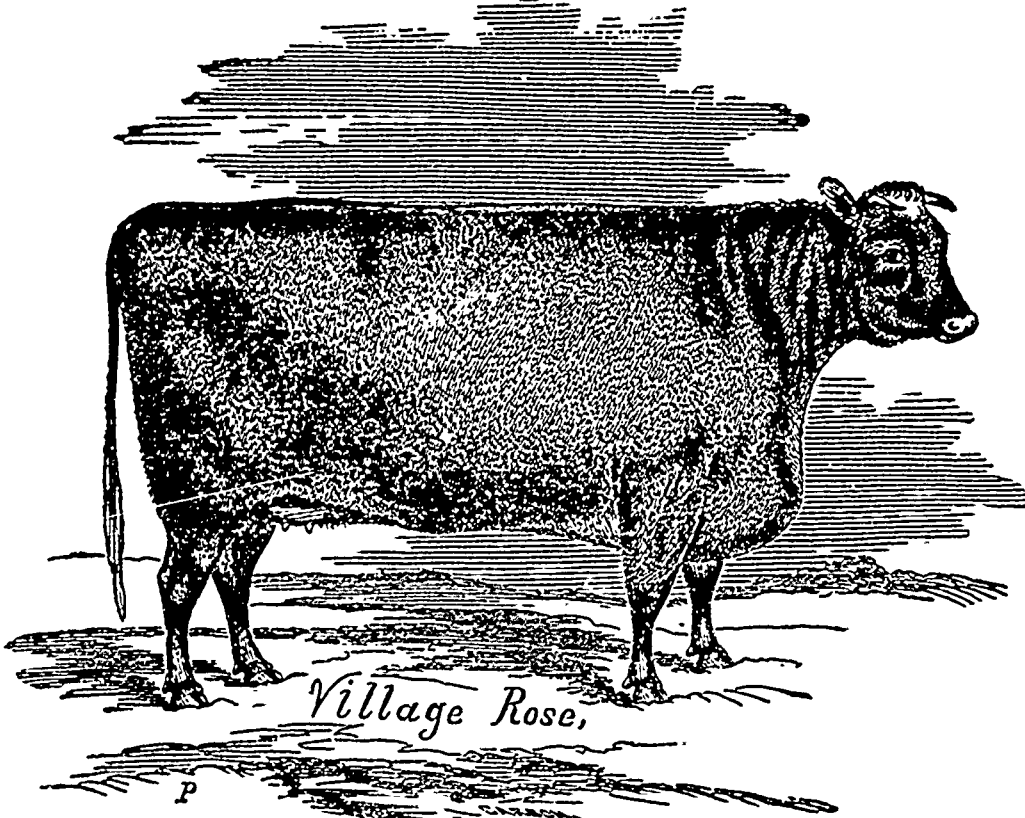
Indeed I have no doubt but there are more within a very short distance at the present moment, who, with leisure on hand and suitable pasturage, could produce in seven crosses, from most Highland Kyloes or the polled Galloway dams, as good a herd as could be found in Great Britain. I will go further than that, and say that with two short-horn bulls at £100 each, and twenty short-horn cows at £40 each—their own choosing—they would be able to distance, in three crosses, two-thirds of the men who are plunging into such marvellously high-priced beasts, always recollecting that form, weight, and quality would have to be the deciding points. In crossing the short-horn male with the Highland or Gallowayshire dams, the change is not so rapid as with the country cows, the cardinal color, black, being more potent and enduring than the transitory reds and mixed shades of short-horn. It therefore does not go out at once, and the horn in the produce (from the Kyloe) is a little elongated, as we see it in many of the Bates tribes now, simply because an essentially long-horned breed and a short-horned breed were introduced together. This, I think, is detrimental to the pure Bates, in our historical point of view, as the appella-

tion "short-horn" does not literally apply. However, as he is justly credited with having produced the originals of the highest-priced animals in the world, perhaps we ought to look back at this juncture and see where he procured his first stocks, and also note a few of the wonderful gradations they have gone through up to the present time.

Mr. Bates was contemporary with Charles Colling, in 1810, but he was not in the ascendant as a breeder of short-horns; and his most memorable purchase was that of *Young Duchess*, for 183 gs., at Mr. Colling's sale in that year. It is said she was a descendant of a Kyloe, but the pedigree we have of her at this time is this: That she, a daughter of Comet, sold at the same time to four gentlemen for 1,000 gs.; that her dam was from the famous bull Favorite, and that she was in calf to a son of Comet. Here was the beginning of close in-and-in or consanguineous breeding at once.

Since that time the breed has run through many generations, with varied success, until last year, at New York Mills, the fame of the *Duchesses* culminated in \$40,000 and \$35,000 respectively being given for 5th and 12th *Duchess of Geneva*. They were bought to come to England; and at the same sale, nine other *Duchess* cows were sold at such high prices that the whole eleven came to £49,750, or an average of £4,522 14s.

The present mania for high-priced cattle can only be called a species of gambling of the most dangerous class. That of the turf does not seem to bear any comparison with it; for, although you may lose eight of a couple of thousand guineas in buying a *Stockwell* or *Newminster*



Short-Horn Heifer "VILLAGE ROSE," the Property of Hon. M. H. COCHRANE, Compton, Quebec.

colt, yet it is quite possible he may win the whole of it back for you in the first race.

I have, I trust, made out pretty clearly that the faculties of the mind required to conduct a famous herd of short-horns through several generations with commercial success, are of a much higher order than what they have generally gained credit for; that it takes a fine man to manage a fine herd well—a man steady and industrious in his habits, with the organs of perception and reflection well developed in his head; in reality, an artist and physiologist, fond of his art and calling, and ardent in his designs to carry them out to a successful issue.

### Short-Horn Heifer, "Village Rose."

"Village Rose," the subject of our illustration, is a red heifer, calved November, 1876, belonging to Hon. M. H. Cochrane, Compton, Q. She was bred by Mr. Stratton, of Burderop, near Swindon, England, and was imported in 1872. She was sired by James 1st (24262); dam April Rose, by Warwick (19120); grandam March Rose, by Young Windsor (17241); g. grandam Christmas Rose, by His Highness (14708); Salthrop Rose 4th, by Lord of the Manor (14836); Salthrop Rose 1st, by Waterloo (11025); Young Moss Rose, by Lottery (4250); Moss Rose, by Phoenix (6290).

She won the first prize at the Yorkshire Society's Meet-

ing in 1871, and first at the Gloucestershire Show at Cheltenham in the same year. In 1872, she was first as a yearling at the Bath and West of England Show at Dorchester, and was second at the Royal Show at Cardiff.

### The Management of Swine.

The hog is often the chief dependence of the poor man. If any system of breeding and feeding will largely increase his weight, and improve the quality of his flesh, at a given age, then it follows that such a plan will confer an immense benefit on a large number of farmers in our State—it being taken for granted that many are willing to acknowledge themselves as belonging to the class conventionally called poor.

The question that naturally arises is, how can this great gain be obtained? In reply it may be said, first, by correct breeding; second, by judicious rearing, third, by common sense management. Secure the services of a healthy, thoroughbred boar, select a strong, thrifty sow, let her be regularly fed, but not made too fat. A sow that has been kept on weak dish-water and potato skins all her life, cannot produce large pigs; or such as will be fit for pork at an early age. Some people imagine that by keeping their breeding sows in a half-starved condition, they improve

the suckling characteristics of the animal. This is one of the many rural notions that fall under the general name of "humbug." The facts are, the cause is mistaken for the result. A sow often gets very thin while the pigs are on her, but it is a very grave error to keep her in such a condition, with the idea of thus improving her breeding qualities.

In raising thoroughbred pigs, or even crosses, it is an object of much moment to get such a breed as will grow rapidly and mature early. For length and depth of body, small head, thin skin and small bones, there are several breeds recommended. In this vicinity the Yorkshire and White Chester stand high, in other parts of the State the Essex and Berkshire take the lead. The hog with long snout, and head narrow between the eyes, is almost invariably a poor, restless, voracious, squealing animal. But what shall be said in reference to many, very many, of the hog-pens of this country? The very name is suggestive of all that is re-

pulsive, and has almost become synonymous with all that is filthy, foul, dirty, nauseous, disgusting and sickening. The bare thought of some of these enclosures (often within nose range of the kitchen or dining-room) is enough to turn the stomach of a city scavenger; and yet in many of those very hog-pens is made and kept an article of food, the value of which, raised annually in the United States, is about one hundred and thirty-nine millions of dollars. Especially do we Yankees need scolding on this subject, for a very large portion of our pork goes through from six to twelve months of live saturation (so to speak) in all that is filthy and malarious, causing the animal to be unhealthy and unwholesome, and his flesh unfit for human food.

Pigs should always be supplied with pure water, even though they have large quantities of slops. They also need fresh air and plenty of sunlight, and if in order to obtain these for a part of the season they do eat a few wind-fall apples, no harm will be done, but a positive advantage gained. No one kind of food is suitable for pigs as a continuous diet. Among many other kinds, sweet apples are excellent. Nearly all kinds of food are better cooked than raw, and should be given warm in the winter. The best of roots are the beet and sweet German turnip. Sucking pigs should always be furnished with a trough separate from their mother, in which they should be fed after they are two weeks old. For fattening hogs, potatoes washed clean and cooked, mashed up with meal, makes harder and better pork than clear meal of either corn, rye, peas or barley.—*Cor. Maine Farmer.*

### Raising Calves with Whey.

EDITOR CANADA FARMER.—Among many valuable suggestions you make on various agricultural topics, I see several theories advanced about raising calves with hay tea as a substitute for milk. I will give the result of my experience in raising calves with whey.

I have made cheese for some years past out of my own dairy of cows, and the subject of raising calves would thrust itself upon my notice every spring, as I am much opposed to killing heifer calves from good cows—so I must needs try by virtue of whey. I generally feed my calves ten days or two weeks on new milk before cheese-making begins. In a dairy of twenty five cows, six or eight calves may get a good deal from the first milk of the cows before it is fit to use. I then take a little shorts, or pea flour, scalded or boiled, and mixed with whey. I feed warm, with a good drink of sweet, warm whey at noon.

Calves relish such fare and thrive on it. I have raised six or eight every year for several years. I have had no trouble, having them always fully up to the average.

More than the half of my heifers come in at two years old, and still grow large enough to be the most profitable dairy cows.

A little extra care and feed in the fall and winter is very necessary, for if calves get run down in the fall from neglect, they are scarcely worth the trouble of wintering. Some oats or provender are very good in the winter after watering.

SUBSCRIBER.

### Flukes in Deers' Livers.

It has been asserted that, on this continent, sheep are not subject to "rot," as the presence of flukes in the liver is called in England. Some veterinarians have denied that the fluke, *distoma hepaticum* or *fasciola hepatica*, exists here at all. A correspondent of *Forest and Stream*, however, has discovered the parasite in the biliary ducts of the deer, and another correspondent writes that he has found it in his own sheep, in which it existed as an accompaniment of the rot, and he has also found it in a flock at Babylon, L. I. He continues:—

Now that it has been found in our native deer, (and I expect it will also be found present in the liver of the antelope as well, and probably in that of the Rocky Mountain sheep,) the fact that it is more widely prevalent among our sheep than has been supposed or admitted, may be accounted for. The disease is of great interest, not only to sportsmen, naturalists, and veterinary surgeons, but to farmers, who are very much concerned in the knowledge that it is indigenous, and their flocks may be subject to it wherever deer, antelope, rabbits, or hares are found, or have recently existed, for all these animals may be bearers of the "flukes." That there is no more deadly disease than that known as the "liver rot" or the "rot" to which sheep are subject, makes it very important for us to know as much as possible of the natural history of the parasite to which the disease is attributed, or by which it is always accompanied. Sportsmen should all be close and accurate observers, for they have many opportunities of gathering valuable facts in natural history. Nevertheless, there are very few who can tell you how many teeth a deer has upon the lower jaw more than the upper, or whether the deer has a gall bladder or not. How few, too, ever search the viscera of the animals they kill for parasites.

### An Unsuccessful Long-Wool Raiser.

Here is the account, by a correspondent of the *Live Stock Journal*, of how he didn't succeed in the raising of mutton sheep. It is astonishing at what diverse results different farmers will reach. The only thing that the correspondent proves is that, at raising mutton sheep, he is not a success. He says:

My experience with the so-called mutton sheep, from 1853 to 1858, was attended with considerable trouble and loss, and I then thought that I would attend to my other farm stock, and make up some of these losses; afterwards the war closed, and wool was low in price, coarse wools were in the ascendancy, and as, for some reason, I still retained a fancy for a nice fat Cotswold or Leicester, I concluded to gather a flock of fifty of them. These I was enabled to get from Canada at a cost of from \$20 to \$75 each, for lambs and ewes. In the lot were some beautiful animals, and all of them gave me great satisfaction.

With this flock we spent much time for two years, and such grand feeders—a few of them seemed capable of eating the produce of a whole farm; and so prolific—from one to three lambs from each ewe, and these so fine—just to see them eat! How easily in imagination we could change our feed to wool or mutton, and then into money! One drawback we must mention, some would die, and then again, we could sell none of them. However, we followed it up for two years, and found the deaths greater than the

births; so one day we concluded to hunt up a drover to buy them. We sold the entire lot, and received \$59.25, and concluded to quit this profitable business. Several car loads were brought into this vicinity, and found ready sale at lower prices, and were in turn sold off at about the same proportion to investment. Many tried raising half-bloods; these must have been very satisfactory, for they soon abandoned it.

I must except one case near me; that flock was bought at the same time as mine, although a smaller flock, and he yet persistently retains it. He seems attached to them, although they have not paid him very well. Their increase and productiveness are strikingly manifested, as that flock contains eleven of all ages, and of both sexes, living last week, although I will not vouch for it to-day. He raised some half-bloods until his ewes became rather old, and this fall he sold them off for nearly \$2 each. I inquired why he did not sell the long-wools with them, and was told they were thrown out, and he had to keep them or break the sale of the others. Many of us have tried keeping these sheep, and failed. When we read communications from the breeders of these wonderful long-wool sheep, it reminds us of our own experience, and we feel as pleasant as possible under the circumstances, but could only wish our enemies to repeat our experiment with long-wools.

### More about the Horning of Cattle.

In the last number of the CANADA FARMER we gave some particulars about the controversy among Scottish farmers on the cruelty or non-cruelty of the practice of cutting off a portion of the horns of cattle to prevent them goring each other. Among other things, we gave the gist of a letter written by Professor Walley against the practice. In the *North British Agriculturist* Mr. Wm. Alexander takes the other side and gives the learned Professor fits. "It is useless," says Mr. Alexander, "to enter into the comparison of this operation with the others the Professor mentions, for it seems to me that the whole question turns upon the cruelty and necessity of it. I may, however, remark that the pain of firing and castration is not so temporary as that of horning properly done. The farmers of this district have nearly all had experience of knobbing cattle, and it is the fact of this last being more difficult of performance, and unquestionably more ineffectual, that has caused the practice to be relinquished in favor of horning. Professor Walley gives a very graphic description of the knobbing of Mr. Thyno's cattle. I propose giving you a description of horning as it is practised in this part of the country, but I will start by saying that the sawing of the horns close to the head, to which Professor Walley's experience seems confined, is unnecessary and very seldom practised here.

"The animal is caught and either held, as Professor Walley describes, or roped, as is Mr. Thyno's custom, and the point of the horn clipped off instantaneously by means of a pair of sharp and powerful shears made for the purpose. This can be done by one man who is accustomed to the work at the rate of one hundred an hour if the cattle are caught for him as fast as he requires. I venture to say that I have seen more cattle horned than Professor Walley has seen knobbed, and I never saw one appear to suffer more than the most momentary pain, and the greater number do not show the slightest appearance of it. If it is about feeding time, the cattle, as a rule, go straight to the turnips, and begin to eat as if nothing had happened. I never knew one lose a meal from the effects of horning. The exposure to the air stops the bleeding in a very short time (we never tie them up), and as to the inflammation, I take upon me to say that inflammation after the operation of horning as I have described it is unknown.

"An experienced eye would at once detect it, if an animal were suffering pain or any other symptom of it. I may here say that the removal of an inch or two of the sensitive part of the horn is quite sufficient, and as effectual as the removal of the whole of it. The animal at once finds that he cannot gore another without hurting himself, and he gives up the practice at once, and even though the stump of the horn becomes quite callous in a very short time, he never seems to revert to it. Professor Walley must know that the instantaneous cutting of even a sensitive part is productive of very little pain, though the boring of it by a gimlet is a very different affair. I may mention that it is only to court cattle that horning is applied. No one thinks of horning an ox that is ready to be tied up. I have seen an ox that had got rid of a knob set to and gore every one that came near him. An ox once horned, as I have said, gives up the practice for ever.

"I deny emphatically that horning properly performed is to be classed with the cutting of dogs' ears, and the other cruelties which Professor Walley enumerates. It is an easy thing for him to make a sweeping condemnation like this, and it sounds very fine, and is calculated to secure the applause of people who know nothing practically of the subject, among whom I am afraid I must class many of the laymen in the shape of editors of newspapers, &c., he mentions. The farmers here are tolerably wide awake to their own interests, and I don't think you would find them doing anything to injure their stock for an imaginary benefit. If, as Professor Walley seems to admit, it

increased the value of the stock, that is a strong argument in its favor. I may conclude by stating, as the result of my experience, that cattle actually thrive better after their horns have been cut. It would require a thorough remodelling of all the farm-teachings in this district if the isolating system were to be carried out; and would be quite impossible to turn out anything like the number of cattle at present sent into the market."

### Retention of Afterbirth.

An enquiry through the *Country Gentleman* for a medicine which would prevent the retention of the afterbirth by cows, gets replies to the effect following:

If the cow is in a thrifty condition, neither too fat nor too lean, she will seldom be subject to this infirmity. In order to prevent it, I have known farmers that have fed on hay only, to feed moderately with oats for awhile before calving, to increase the thrift of the animal. Wheat bran mash is also an excellent feed, healing, cooling and strengthening in its effect. Another one I have seen practised, and which to many will no doubt appear very simple, is to wash the back with the most unking, rubbing the whole extent of the loins. It has proved very successful as far as I have known. Whether this new milk, so rubbed in, operates as a laxative, others can judge as well as myself. The rubbing no doubt strengthens the loins. Be careful not to allow the cow to take cold drinks for forty-eight hours after calving; if the water is up to blood heat no matter. By all means take the chill off.

Another correspondent says:—I believe in the old adage, that an ounce of prevention is worth a pound of cure. The treatment which I have practised with my own cows for some years with perfect success, is to feed two quarts of rye, boiled, per day, for about a week before calving. The rye needs boiling until it swells about double its ordinary size. I have had no trouble in this direction since I adopted the above system.

Another.—If the inquirer will milk his cows as soon as convenient after calving, and give them this milk to drink, he will have no more trouble from his cows' retaining their afterbirth. The best preventive is a good warm stable at night and in stormy weather, with two quarts of meal and two of bran per day, for three weeks previous to calving. I consider one bushel of grain fed before calving worth two fed after.

Still another:—For three weeks or more before calving, give the cow a full table-spoonful of wood ashes in 2 quarts of wheat bran, per day. This has been my practice for three years, and has never failed.

And yet another:—Juniper berries, 3 oz.; gentian, ½ oz.; bayberries, 2 oz.; gum myrrh, ½ oz.; nitro 1 oz.; asafoetida, ½ oz.; anise seed, 1 oz.; well pounded together and given in a quart of ale, made warm by the addition of one quart of hot pennyroyal tea. I have never given the ale, but used the pennyroyal tea, and only in one instance did I have to administer the second dose. If the cow is not relieved of the afterbirth in twenty-four hours after calving, I give her the medicine, and it not relieved in twenty-four hours more, I repeat the dose. The milk will be fit for use at the expiration of the usual time after calving, say six or ten days, according to the views and tastes of the consumer.

TURNIPS FOR COWS.—You are right in saying that turnips are good for cows. From two Red River cows, (calved last June, and are in calf again,) I got an average, during this winter, of seven pounds of butter per week, and one week nine and a half pounds. I gave turnips and bran after milking.—*W. Wagner, Ossawa, Manitoba.*

AN APPETIZER FOR OXEN.—A correspondent of the *Massachusetts Ploughman* asked for something that would make his oxen eat well. Another correspondent says:—Give about one table-spoonful of saltpetre to each ox four times in seven days, with a little scalded meal every day, a plenty of good hay and a plenty of time to eat; also lessen the load and drive carefully.

COMPARATIVE VALUE OF HAY AND CORN.—Experiments carefully made indicate that eighty pounds of good hay is equal to sixty-four of corn; or, to place the matter in another light, if a ton of hay has a feeding value represented by 1,250, then that of a ton of corn meal will be represented by 1,600. Taking these figures as a guide, when a ton of good hay is worth \$25, the equivalent feeding value of one ton of corn-meal is \$25.

TO PREVENT SOWS LYING ON PIGS.—A correspondent writes:—My plan of a pen for sows to farrow in is generally eight feet by twelve. And in order to keep the sow from lying on her pigs, I take a two-inch auger and bore a hole twelve inches from the wall on each end, and ten inches from the floor, and insert a strong pole about two and one-half or three inches thick, shoving down each end so it fits tight, as the sow will invariably try to take it out of her way in making her bed. It should be fastened in so she cannot move it, and she will now make her bed against the pole, it being the nearest she can get to the wall, and do you be sure that the space is not packed full of straw or about the time she has her pigs, so that the pigs when farrowed can have room to walk around their mother and not get overlaid. The pigs will soon learn to nestle in this place, and feel secure from harm. This arrangement, when carried out, would save a large percentage of young pigs to the farmer.

## Veterinary.

### Diseases of the Osseous System in Horses.

#### Ringbone.

This serious disease of the bony structure is exceedingly prevalent amongst the horses on this continent, and many an animal is rendered comparatively valueless from becoming affected with it.

Ringbone, as its name implies, is a ring of bony matter (exostosis) extending around the lower part of the limb, attacking the lower part of the large pastern bone, or the upper part of the small pastern bone, and involving the articulation below the fetlock, which is usually designated the pastern joint. In this disease, the same changes go on as in spavin, and, therefore, as well as the abnormal bony deposit, there is frequently ulceration (caries) of the articular surfaces of the bones, and osseous matter is thrown out both in and around the joint, until the articulation assumes one solid mass. Occasionally, the exostosis extends downwards into the foot, involving the coffin bone, and materially affecting the natural condition of both the sensitive and insensitive structures of the foot.

Ringbone may either affect the fore or hind limbs, and, in the most of cases, causes lameness, although exceptional cases are occasionally met with when ringbones have attained a considerable size without producing lameness, and apparently interfering but little with the animal's action.

The causes of ringbone, like those of spavin, are predisposing and exciting, and, so long as horses and mares affected with ringbones are kept for breeding purposes, this disease will prove a source of trouble and of loss to the breeder. Of course, there are exceptional cases, as, for instance, a good strong, well-formed animal may become afflicted with ringbone, the result of some well-marked exciting cause, as a sprain or other injury, and still may be perfectly safe for breeding purposes.

Horses with very upright pasterns have also a tendency to ringbone.

Percival, in writing of ringbone, says that form as well as breed is concerned in the production of ringbone. A coarse, or half-bred, fleshy or bony-legged horse, with short and upright pasterns, is, we have observed, the ordinary subject of this disease, and there exist satisfactory reasons why we should expect him to be so. The pastern or coffin bones constitute the nethermost parts, the pedicels, of the columns of bones composing the limbs; and, being so, they receive the entire weight and force transmitted from above. The pastern, when long and oblique in position, receives the superincumbent weight in such a direct line that, bending towards the ground with the fetlock, nothing like jar or concussion follows. The very reverse of this, however, is likely to happen every time the foot of a limb, having a short and upright pastern comes to the ground. In it, instead of the weight descending obliquely upon the sesamoids, and the fetlock bending therewith, it descends direct, or nearly so, upon the pastern, making this bone entirely dependent upon the bone beneath it, the coffin bone, for counteractive spring and, should anything occur to destroy or diminish this spring, or to throw more weight, or to throw weight more suddenly, upon the coffin bone than it can counteract, jaundice of the whole apparatus ensues, and an effort of nature to strengthen the parts, by investing them with callus and ossification, is likely to be the ultimate result. For we would view ringbone, disease though it most assuredly must be called, as frequently, in young horses, a resource nature seems invariably to fly to, whenever the (pastern) bone and joints are found unequal to the exertions or effort required of them.

The exciting causes are such as arise from hard and fast work, and especially in young horses before the bones and joints are sufficiently matured. Severe sprains may prove a cause, and also the great strain thrown upon the hind limbs, in particular when horses are forcibly backed when attached to a heavy load.

Ringbone, we believe, is sometimes the result, in very young colts, of being allowed to travel a considerable distance upon the hard road, day after day, as is the custom in some parts of Canada; of working the mare at all kinds of work during the greater part of the time she is suckling

her foal, the little animal frequently being compelled to travel miles every day. Such exertion must necessarily tell upon the upright pastern bones, and, more especially, if the system is weak from a want of a proper supply of nutritive milk.

A severe puncture to the foot sometimes proves the primary cause, either from direct injury, or from the continued strain thrown upon the sound limb when an animal is unable to bear the due proportion of weight upon the injured foot.

Ringbone is easily recognised as a hard bony enlargement, immediately above the hoof encasing the whole of the pastern joint, or it may be confined to one side. Lameness is generally present, which is most noticeable at starting and is easily increased by flexing the joint forcibly. When situated on the fore limb, and when both limbs are affected, the horse travels as if he was suffering from laminitis. He places his heel to the ground first.

In cases of long standing, in the hind limb, the nutrition of the whole limb is impaired causing a wasting or atrophy of the muscles of the haunch.

Ringbone is incurable in so far as restoring the part affected to their natural condition, but, if the treatment relieves the lameness, it is usually considered that a cure is effected. In its treatment, the patient should have complete rest, and, in an early stage, hot or cold water applications are beneficial, followed by blisters, or the actual cautery as recommended for spavin.

On this continent, a great many nostrums are recommended and operations practised for the removal of ring bones by a class of practitioners who pretend to perform wonderful and miraculous cures by using severe caustic preparations, and performing the operation which is called, "cutting out the feeder," whereupon the ringbone is said to die. The operation consists in cutting into the little pad situated at the back of the fetlock joint. This theory is an exceedingly plausible one to one not conversant with the structure of the limb, or the nature of the disease, but the operation is an absurdity, as any person can readily comprehend if he only takes a little time and trouble to investigate into the nature of the complaint.

#### Warts on Cow's Teats.

EDITOR CANADA FARMER:—Can you or any of your correspondents inform me the best method for removing warts from cows' teats. I have a cow whose teats are completely covered with large, long warts, forming one solid mass. D. B.

If the warts have well-defined necks, cut them off with scissors and touch the places with lunar caustic (nitrate of silver). Or, if horse-hair or silk thread be tied tightly around them, they will fall off in a few days. If without well defined necks, wet them and touch with lunar caustic. In a few days, cut off the dead, blackened parts, and touch again. If the places be sore after the warts are removed, moisten the surfaces with tincture of aloes and myrrh; and if ulceration set in, wash with a solution of sulphate of zinc of the strength of one drachm to a pint of water.

The presence of warts shows a disorganized state of the system. When the cause of them is removed, they will disappear of themselves. They may proceed either from a lack or a redundancy of vital force. Where warts are present in such numbers as our correspondent mentions, it will be best to try to obliterate them a few at a time.

#### Film on Eye of Colt—Veterinary Works.

EDITOR CANADA FARMER:—Will you give me the best method for removing film from the eye of a horse? And will you mention some of the best veterinary works. Barkerville, B. C. W. B.

A film on the eye, or opacity of the cornea, is due to an effusion between the layers of that transparent membrane, the result of some injury to the eye, causing irritation and inflammation. Generally, when the inflammation subsides, the effusion gradually becomes absorbed; and its removal may be expedited by touching the eye every second day with an eye wash composed of:—nitrate of silver, ten grains; distilled water, two ounces; to be applied by means of a small feather or camel's hair brush.

The best works on veterinary practice are Percival's, Williams', and Gamgee's. These are expensive works, ranging from \$15 to \$20. Among cheaper works are Blane's, Youatt on Veterinary Materia Medica, Finlay Dun's Materia Medica, Morton's Pharmacy, Dadd's Horse Doctor, and Dadd's Cattle Doctor.

#### Worms and Bots.

EDITOR CANADA FARMER:—Please state what you recommend to give to horses for worms and for bots. I have seen my horses pass both of them. Ellerslie, Ont. SUBSCRIBER.

Turpentine is a very good remedy for worms in horses, but must be cautiously administered. It may be given in doses of one and a half ounces, and should be mixed with five or six ounces of raw linseed oil, and the same quantity of tepid water. The drench should be well shaken immediately before given, as if the turpentine is not mixed with the other ingredients it is apt to injure the mouth and throat. Two doses may be given at an interval of two days, and, three days afterwards, administer an aloetic purge. It is also advantageous to change the food for a few days.

In cases where the animal seems debilitated, a course of tonics has a beneficial effect in restoring the system, and hereby causing the removal of worms.

The same remedies will sometimes expedite the removal of bots, but it is questionable if we possess any drug that will cause the removal of bots, at certain stages, without proving injurious to the horse, so firmly do these parasites hold on to the coats of the stomach. Bots are not very harmful to horses, and do not cause so many complaints, etc., as is sometimes attributed to them.

#### Colt with Diseased Ear.

EDITOR CANADA FARMER:—I have a colt that has inside its ear a lump the size of a marble. It breaks and runs, and then heals up. Can you tell me what will take it away. Angus, Ont. A. T.

The colt appears to be affected with a fistula, due to some irritant. The parts should be well opened, and injected with a strong astringent. In all probability a cure cannot be effected without an operation, and we would recommend you to consult a qualified veterinary surgeon.

#### Mango in Pigs.

To a correspondent whose pigs were troubled with mango, the *Live Stock Journal* says:—

Mango is supposed by many to be merely a roughening of the skin, like chapping of the hands or face in human beings, arising from uncleanness, or some carelessness; but this is a mistake. It is caused by a minute parasitical insect known as *acarus*, under the skin, hence washing will not rid the insect, or cure the pig. This same disease attacks our domestic poultry, and is known as the "scab" leg, or "scurvy" leg, scales of large size forming on the legs and feet, these underlaid with a yellowish substance resembling corn meal.

In combating this disorder, cleanliness is first, for too much heating food, with scanty water, and a dirty pen, invite the insects. When an animal is suspected of having the mango, remove it from the rest, and commence by applying to the skin a mixture of flower of sulphur and fresh lard. If the animal be constipated, which often results from feverishness induced by the presence of the mites, give from a teaspoonful to a tablespoonful of the sulphur in a feed of slop. This will gently open the bowels, besides working through the pores of the skin, and as it does, will materially assist in destroying the parasites. A strong solution or decoction of tobacco juice is a very good remedy, but is not superior to the other. If the disease has been of very long standing, mercurial ointment is sometimes used; but as this is poisonous, we would not recommend its use. Where an animal has become impatient to the influence of sulphur, I think it best to remove him from his suffering, unless he is very valuable; and very valuable ones rarely, if ever, get it, for they receive such good treatment, that they seldom or never contract it. As a preventive, the utmost cleanliness, and a free use of whitewash in the pens and yards, and proper feeding at regular intervals, are recommended.

Mango is infectious, and very soon spreads through the entire herd if the animal is not removed. Some claim it to be hereditary, but this is not proved.

DESTROYING LICE ON CATTLE.—To remove lice from cattle, make a salve of fresh lard ground up with fine sulphur (one ounce of sulphur to four ounces of lard), and raw linseed oil mixed with kerosene oil in the proportion of four parts of linseed to one of kerosene. These should be rubbed from between the ears all along the backbone to the root of the tail, about twice a week. Two applications are generally sufficient. They are not in any degree hurtful if they are rubbed on the cattle. Lice which have been placed in contact with a small quantity of either of these mixtures were immediately killed, while mercurial ointment and carbolic acid failed to kill them in several hours.



# The Apiary.

## Questions about Bee-Keeping.

In its report of the recent meeting of the North-eastern Bee-keepers' Association at Utica, N.Y., the *Herald* of that city says:

One of the most interesting exercises of the convention was the "question drawer," which was expounded by Mr. Van Duzen, with the aid of Capt. Hetherington and Mr. L. C. Root. These questions and replies are of such particular value to the bee-keeper that we print this part of the proceedings verbatim.

Q. Can broods be raised successfully in March and April? A. It is best to have no brood started until the weather is sufficiently warm and settled to enable them to start a full brood. The presence of a sufficient amount of pollen must be assured.

Q. What effect has the shape and size of the hive on freezing or on the amount of honey stored? A. Very little, provided they have plenty of accessible room and the proper temperature is maintained in the hive.

Q. The best mode of caring for bees after they are sent out in spring and before the honey harvest? A. Feed and keep warm.

Q. Will bees store enough more honey in boxes with communications from box to box to pay the extra trouble than to have the boxes separate? A. Yes, in small boxes, but not in large.

Q. How many swarms should be kept in one yard? A. This depends upon the quantity of honey-producing plants, from fifty to 100 swarms.

Q. What is the best size of the brood department? A. Let it vary according to the quantity of bees.

Q. About what amount of honey is sold in New York city, yearly? A. About 400,000 pounds.

Q. What is the most suitable package to put extracted honey in for market? A. This depends upon the market in which it is to be sold. In some cases it sells best in bulk or by the pound net weight; in other cases in glass jars.

Q. What is proper the space for a single box? A. Two to two and a fourth inches.

Q. How near to the ground ought hives to be placed during the summer? A. Four or five inches.

Q. Will using the extractor on comb containing eggs or larvae produce any injury; if so, at what time most? A. There is no injury, unless larvae are thrown from the cells by too rapid motion.

Q. Is it advisable to undertake to Italianize your apiary when you are surrounded by black bees? A. It certainly is, if in a locality that produces much white honey.

Q. How long from the time the egg is deposited in a worker cell before it cannot be changed to a queen cell? A. Would not use it earlier than the third day after hatching.

Q. If a queen's wing is clipped about half off by a trusty, experienced hand, is there any injury; if any, what, and in what way? A. There is no injury.

Q. Making an examination of my stocks in January, I found some stocks from which the honey was leaking. What is the reason? A. This condition is found only in hives that have been so exposed to the cold as to crack the combs with frost—or in hives that are so poorly ventilated as to retain the moisture and sour the honey.

## Will Bee-Keeping Pay.

We cannot reasonably expect people to go into any kind of business in this utilitarian age, unless it can be shown that it is fairly remunerative. Bee-keeping is so without doubt. Indeed, some experienced apiarists claim for it a superiority to most rural pursuits in this respect. Thus, Mr. Qamby, one of the highest authorities on this subject, made the following remarks at a farmers' meeting recently held in Utica, N. Y.:

The leading principle will predominate here. Is money to be made by it? Suppose a man has no bees to start with, but has a knowledge of the business. He can earn at ordinary farming \$1,000 in the summer season. He wants bees; 100 hives are all he can care for. Suppose they cost him \$400. He wants hives and fixings costing \$100 more. Here is \$1,400 invested. The interest of this amounts to \$10. He must raise that, and the \$200 he could have earned on the farm, to get even. Take a season such as the present has been, ten miles south of the Mohawk, where one man had the control of \$170 hives, and obtained near 17,000 pounds surplus. Call it 16,000, six thousand box honey and ten thousand extracted. The first, at 25 cents, amounts to \$1,500. Ten thousand extracted, at 15 cents, amounts to \$1,500. The man starting with \$1,400 capital, would realize at this rate, over \$1,700. More than \$1,400 above what his wages, for a few months, would have been, and no interest on the capital invested. "But," says one, "he has not paid for his stock, and may not do it another year." But he has it

on hand, and it is not depreciated in value. Possibly it has increased. He can sell or try another year. If a profit of \$1,400 is thought too much in one season for an investment of \$1,000, let him put one-half aside, for a poor season, and say he has only \$700. It is not so very bad even that. I would say here that L. C. Root, of Mohawk, Herkimer county, has realized over 10,000 pounds of surplus from one hundred stocks, the past season, besides some increase in number. I could give details in regard to smaller apiaries, that would go still further to show that bee-keeping is more remunerative than many other pursuits.

How I WINTER.—"I have kept bees twelve years and never lost a colony by dysentery. I winter in a cellar, warm and dry, from forty to fifty-five degrees. Put in the bees before they get chilled with the cold. Cellar has a furnace, and is well finished. I brought thirty-five colonies through last winter, all right. Bees all around me died of dysentery. They put them in too late, and do not keep the temperature even.—*Cor. Ex.*

IN SWARMING, the queen is not always foremost; it is frequently, or rather generally, not till after the departure of a considerable number of workers that she makes her appearance; and when she does come, it is with a timid irresolute air, as if she were borne along, almost against her will, by the torrent that streams out of the hive—for she often turns on the threshold, as if about to re-enter, and in fact frequently does so, but cannot long resist the opposing crowd.—*February.*

How to SHIP HONEY.—Place two rows of boxes together with three or four boxes in each row, or enough to make a fifty-pound package; then you can measure and cut two end pieces of lumber an inch thick, and bottom and top boards half an inch thick, and long enough to nail on the edge of the end pieces. Nail a cleat, two by six inches long, in the centre of each end piece, by which to lift the case, and then nail it together, placing the boxes in and tacking a strip one inch wide on the edge of the top and bottom, and on the ends of the end pieces, letting it project only about half an inch over the honey boxes, to hold them in place, and yet not hide the honey and glass from view, as railroad men will handle honey more carefully when the honey and glass are in plain sight. Box honey is often broken, and its sale is injured by being moved by inexperienced draymen after it has arrived here in safety; hence the commission merchant to whom it is consigned should be notified of about the time it will arrive, and let him have it removed to his own store by his own cartman. Some may suppose we are unnecessarily explicit, but those who have suffered serious loss will appreciate our words of caution.—*Bee Keepers' Magazine.*

# The Poultry Yard.

## The Domestic Goose.

The origin of the domestic goose is conceded by all naturalists to be from the grey-lag, or common wild goose, a bird unknown on this continent, but common in some parts of the centre and south of Europe, Northern Africa, Asia Minor, and Asia itself, also Northern India, but at the present day, comparatively rare in Great Britain. Its length the grey-lag is almost three feet from the tip of the bill to the extremity of the short tail. Its extent of wings about three feet, which, however, do not reach to the extremity of the tail. The weight of the largest birds is about ten pounds. The color of the plumage is grey, varying in some parts to greyish brown, the rump and belly white, the tail greyish brown and white, the bill orange, the nail at the tip of the upper mandible white. The color of the young birds is darker than that of the adults. Next in size to the grey-lag is the bean goose, by far the most abundant British wild goose, and one so closely resembling the grey-lag that it is only distinguishable on careful examination. It is common in all the northern parts of Europe and Asia, in Nova Zembla, Greenland and other northern regions, but not in America. The bean goose is not unfrequently taken by many for the grey-lag: the following description may therefore be useful in distinguishing between the two varieties. The bill is longer, of orange color, with the base and nail black; the plumage mostly grey, but browner than in the grey-lag, the rump brown. The wings extend beyond the tail. Two other wild species of geese known in Great Britain, but exceedingly rare, are the pink-footed and white-fronted geese, but as neither of these are claimed by naturalists as the origin of the domestic goose, we will not trouble our readers with any description of them, farther than to say the pink-footed goose has a very short bill, is very prolific, breeding in great numbers in the Hebrides; and the white-fronted

goose has a very conspicuous white space on its forehead, from which it derives its name. Its plumage is mostly grey, and it is only about twenty-seven inches in its utmost length. It is not improbable therefore that the grey-lag and bean goose had one but still more ancient progenitor, and possibly the two latter also.

Geese require little trouble or expense, as they will support themselves roaming about the fields; they must have free access to water, and when this is the case they are easily reared and rendered profitable, the great object in their being kept. Two or three geese are quite enough with a gander, and they should always be mated in the fall of the year, otherwise the gander may not take up with them before the laying season begins. In this respect they are very exceptionable. It is seldom a goose lays till after a year old, hence the desirability of keeping old geese for breeding stock. The hen will lay from thirteen to fifteen eggs, after which she begins to feather the nest for sitting. Thirty days is the usual time for a goose to sit; after being hatched the goslings should be kept warm, and well fed at first with bread crumbs, hard-boiled egg and a little green food. When strong enough let them out on a grass run and they will grow fast. The goose lives and retains her breeding powers until an advanced age, some say to at least forty years, while others maintain double that length of time. Whether the ganders would remain equally vigorous is somewhat uncertain. Geese are excellent guards to a poultry yard, for should any intruder come to the pens at night, or should a fox or other wild animal be prowling about, their clamour is sure to be such as will give timely warning that something is amiss. We cannot but remember that it was to this quality Rome owed its preservation from the onslaught of the Gauls, the cackling of some geese confined in the Capitol putting the Romans on their guard in time to repulse the attack of the invaders; for which good service the geese of the Capitol were declared to be sacred and ever afterwards treated with profound respect. Geese should always be shut up and fed liberally for a while before killing. If kept quiet in a partially darkened place they will very soon become reconciled to the plan and lay on flesh rapidly. Some difficulty is experienced in separating the young geese from the ganders, nor is their any rule to be laid down as a guide in this matter. The experienced ear will, however, soon become accustomed to the sound of the voice, and the peculiar long call of the goose compared with the short quack call of the gander. Having thus treated generally of the domestic goose and its origin, we shall in our next paper speak of the more important breeds of this species.

THERE WERE EXPORTED from the Dominion into the United States, in 1874, 3,321,545 dozen of eggs.

HARDY FOWLS.—The most hardy and robust fowls, says Dr. Dickle, before the Pennsylvania Poultry Association, are Dominiques and Plymouth Rocks; after those come the Brahmas, light and dark, and the Cochins. All are easy to raise.

THE PROVERB, "What is worth doing at all, is worth doing well," will nowhere apply better than to the care of poultry. Without constant attention and thoroughness, success need not be expected. Some kinds of business may be occasionally slighted without doing serious harm, but in this employment one mishap may blast the hopes of a whole season.

A CHOLERA REMEDY is named by a correspondent of the *American Rural Home* as follows:—"This disease is very easily treated as follows,—for 50 fowls take two quarts of wheat bran and stir into a pot of boiling water; add one teaspoonful of saleratus, one ditto of black pepper; stir it all together, and place it where all the fowls can get some—the hotter the better.

THE NUMBER OF EGGS IN A HEN.—A curious point of inquiry among zoologists has been for a long time, How many eggs are there in the ovary of a hen? To determine this, a German naturalist, a short time since, instituted some careful investigations, the result of which showed the ovary of a hen to contain about 600 embryo eggs. He also found that some twenty of these are matured the first year, about 120 during the second year, 135 during the third, 114 during the fourth, and during the fifth, sixth, seventh, and eighth years, the number decreases by twenty annually, and consequently following that after the fourth, or at most the fifth year, hens are no longer profitable as layers, unless it may be in exceptional instances.



## The Dairy.

### Cheese Making on a Small Scale.

EDITOR CANADA FARMER:—Can you give me information how to make cheese on a small scale, and tell me where I can get the necessary implements for a small farm of 100 acres?

Oswego, Manitoba.

W. WAGNER.

There is no reason why a great many of our Canadian farmers should not make their own cheese, especially those in districts which are so sparsely settled as to forbid the institution of cheese factories. Cheese is full of nutriment and, though somewhat hard of digestion to a stomach unused to it and demoralized by a long course of pork and potatoes varied by potatoes and pork, is much preferable, as the main item of a meal, to hog-meat in any shape. It will be found that the stomach will accommodate itself to the assimilation of cheese just as it will measurably to a long-continued diet of pork. The directions here given will enable the farmer or his Gudewife, with a little practice, to make cheese that will be uniformly wholesome, though not remarkably constant in appearance and quality. The various niceties which enter into the manufacture of cheese, as it is now made by the factories, are a life-long study; but the fact need not deter farmers from making cheese for their own use, and thus reducing the outgoings, though not adding to the incomings of the farm.

First, there will be the rennet to prepare. An old-fashioned and good way of doing this is—Hang the stomach of a newly-killed calf, in a cool and dry place, for about five days. Do not wash it, as the gastric juices would be weakened thereby. After hanging turn it inside out and take off the curds with the hands. Then fill it with salt in which a little saltpetre has been mixed, and put it in a vessel such as a stone jar, pouring on a teaspoonful of vinegar and putting on a handful of salt. Then cover it closely. After six weeks, take a piece four inches square, place it in a bottle with a pint of water and half a pint of proof spirits, and stop carefully. The spirit will evaporate quickly unless the bottle is well stopped. Shake well before using. A tablespoonful is enough for a quart of milk. If a well cured rennet can be procured, it will be so much the less trouble to be undergone. In that case cut a piece about the size of three fingers, and, before using, soak it for a dozen hours or more in warm water, which water is afterwards mixed with the milk.

The next step will be to provide a vessel for holding the milk. Probably the most easily got will be a large wash-tub, and, if unpainted in the inside, it will be thoroughly well-suited for the job. If the surplus milk from several days' milking is saved, it must be kept in a cold place to prevent the cream rising. If enough vessels are at hand, each day's surplus should be kept separate till enough is accumulated. When there is enough, and before the oldest begins to turn, transfer it to the large vessel, taking account of the number of gallons put in, for by this the quantity of rennet has to be regulated; and a pound of cheese should be got from each gallon or so of milk.

Take out a portion of the milk and put it in a vessel which can be placed inside another vessel, just as a carpenter's glue pot is constructed, the outside one to contain water. Put the vessels on the stove to heat. The object of using two vessels is to prevent the milk from being burnt at the bottom. When the milk is hot, empty it into the cold milk in the large vessel; take out some more, heat it, and so proceed until the temperature of the whole has been raised to 85 degrees. Then add enough rennet, the exact quantity of which will be found by experiment, to coagulate the milk in about 40 minutes. If it coagulates much sooner, use less rennet next time; if it takes longer, use more. When the milk is coagulated, raise the curd gently on the sifter. If it easily parts, the mass is ready for setting with the curd-knife, a long thin-bladed wooden implement. Cut the curd into two-inch squares, and let it remain for about ten minutes, break it up carefully with the hands, taking care not to squeeze it.

Now heat on the stove some of the whey, in the same manner in which the milk was treated in the first instance. While this is going on, keep breaking up the curd by gently lifting until the particles are about as large as a

child's marble. When, by the continual addition of the warm whey, the temperature of the whole has been raised to 98 degrees, it may be left at rest for half an hour. Then it should be stirred so that the particles will not adhere; and the stirring should be continued until the curd is firm. Take up a handful and press it together. If, on opening the hand, it readily falls apart, it is ready to be drained. Dip off as much of the whey as possible, first placing over the curd a cloth strainer. Then place the strainer over a box, in the sides and bottom of which holes have been made. Dip the curd into the strainer and allow the whey to drain off. When drained, break up the curd and return it to the tub for salting. The proportion of salt will vary according to taste; about an ounce of salt to every two and a-half pounds of curd will probably do. Mix thoroughly so as to diffuse the salt over the whole mass, and then place the cheese in the press.

All of our Canadian farmers have ingenuity enough to make a press. The hoop can be any size which fancy may dictate. Ten inches in diameter and a foot or so high is a good size. A follower must be made, and a lever contrived to force it down. The lever should be 12 or 14 feet long, and so made that heavy weights, such as large stones, can be placed on its end.

Let the cheese remain about three hours in the press. Then turn it and apply pressure again, in which stage leave it for several hours. On taking out the cheese, rub it over with a little fresh butter, and place it on the shelf to ripen.

The implements used are such as can be procured at any country store, or can be made at home. It is scarcely necessary to add that it will not pay to make cheese at home if there is a factory within reach.

### Canada in the Dairy and in the Market.

At the recent convention at Belleville of the Ontario Dairymen's Association, an address was given by Prof. J. T. Bell, of Albert University, on the subject of "Canada in the Dairy and in the Market." He commenced by referring to the early history of the dairy in the Province of Ontario, and noting the steady advance of this interest. The Canadians, he said, were ready to adopt any improvement that promised to be economical and practical for the manufacture of the business. He said the number of factories in and about Belleville last year was forty, but they were increasing, and all were going on in the most prosperous manner. He gave a detailed account of the introduction of the factory system in the eastern section of the Province, tracing the history down to the present time. The cheese shipped from Belleville station of the Grand Trunk Railway during the year 1873 was 59,714 boxes, containing net 3,935,112 pounds, bearing an average price of 11½ cents per pound, and representing a value of \$442,760. The shipments of the year 1874 have been returned at 36,454 boxes, and the net amount is 3,866,076 pounds, an apparent falling off of 2,230 boxes and 69,046 pounds. But the decrease of the Belleville shipments is not occasioned by a falling off of the total quantity made in the surrounding district, which on the contrary has considerably increased, because many of the factories which used to send their cheese to Belleville for shipment, now forward it from Brighton, Colborne, Picton, Napanee, and other stations and ports in their own immediate vicinity. In proof he cited the statement of the amount of cheese shipped from all points by Mr. Watkins, which amounted to 71,266 boxes weighing net 4,861,571 pounds. Mr. Watkins is not the only dealer who purchases cheese in that section.

The total quantity of cheese produced in the tract of country of which Belleville is the centre, is not less than 100,000 boxes. This amount at 11½ cents per pound, and taking the average box as weighing net 78 pounds, both of which estimates are rather under than over the truth, will give \$916,500 as the money value of the cheese product of the area of country lying between Cobourg and Kingston. In the western section of the Province the quantity shipped from Ingersoll was 55,867 boxes, containing net 6,697,626 pounds; value, at 11½ cents, amounts to \$786,971. To this must be added the quantity shipped from Stratford, Woodstock, Oxford, London, and other stations along both lines of railway to Sarnia and Goderich, which he estimated was at least equal to that last named, and would bring the value of the product of Western Ontario up to \$1,500,000. He valued the cheese product of Eastern Ontario and that of the western part of the Province at \$3,000,000 for the year 1874. The exports of Canadian cheese in 1873 were put at 20,000,000 pounds, which indicates a rapid development of this industry, an increase of five hundred per cent. during the five years

preceding, both in value and quantity. The consumption of cheese in Canada was not stated, but has been variously estimated at from 5,000,000 to 10,000,000 pounds. This would give the present product of cheese made in Canada at about 30,000,000 pounds.

He presented some statistics giving the amount of cheese required in Britain, and estimated that the total quantity of exports from this country and the United States could be increased to 600,000,000 pounds. The inference was that there could be no fear of over-production in this class of goods. Holland and Belgium now supply England with large quantities of cheese. The Dutch cheese is mostly poor, being largely made of skimmed milk, and Canada has nothing to fear from her competition in this class of goods. The real competition is from the United States. He thought that Canada should endeavor to make a uniform product of good and useful cheese without attempting to compete with English fancy cheese. Canada cheese has obtained a good reputation in the English markets, and every effort should be made to retain that reputation.

He said the most approved breeds of dairy stock in Canada were the short-horn and Ayrshires. He eulogized the Ayrshire, believing that, for all purposes, it was the best breed for the dairy and the best adapted to the climate and soils of the Province. The treatment of dairy stock was very fully considered. Cows, in many respects, should come under the same law of treatment as that recognized with human beings. They show pleasure toward those who treat them kindly, and enmity toward those who misuse them. The cow should be regarded as the source of milk supply, and those who wish to get the best returns must supply a sufficient amount of nutritious food. Stock should not be allowed to drink from stagnant pools, and in all cases where running streams were wanting, wells should be substituted for supplying water. A few patrons of a factory by neglecting to supply water to their stock may destroy the reputation of a factory, even though the majority of those delivering milk are well provided with water on their farms.

In fall, or at any time when grass begins to fail, the cows should have a supplement of other food, corn fodder, linseed cake, cotton, seed or rape cake, bean meal, bran or corn-meal, as most convenient or as most within the reach of the farmer. A bran mash mixed with a pint of flax-seed was recommended as an excellent food for removing constipation.

He referred at some length to the relations between farm and factory. It is the duty of the farmer to supply the best material possible to the factory. The factory must use that material to the best advantage. It is the duty of the factory manager to adopt the best methods. He must be familiar with what the markets demand, and what is the best flavor and texture of a cheese. But he should not be made to shoulder faults that plainly belong to the farmer. About Belleville the factories seemed to be on a stiff, and each was boasting in regard to the small amount of milk required to make a pound of cheese. He did not believe any good came from the strife. It led to deceit. The strife should be to make a good quality, and see the honest returns of each factory tell its own story. In the matter of pastures, it was incumbent on farmers to rid their lands from bad weeds.

He said Hon. Robert Reed, of Belleville, had affirmed that the grasses of Canada were more nutritious than those of England, and from a comparison of the quality of the two sections that idea was favored. He thought there was great necessity for improving the butter product of Canada. Butter is now scarce and high, owing to the spread of cheese factories and the consequent absorption of cream, going in this direction. Butter now commands 16 to 18 cents per pound. Mutton and beef are much higher now than they were a few years ago. The exports of butter from Canada the past year he put at 10,000,000 pounds; in 1872 the quantity was nearly double. He thought butter factories should be established on the same plan as in the States. The manufacture of milk-sugar was recommended. Milk-sugar had many valuable qualities as a food. It does not ferment or sour on the stomach. It was made by evaporating or boiling the whey in pans over which willow twigs are placed. The sugar crystallizes on these twigs; they are then removed and washed in water, when the sugar is prepared for market.

BORDEN'S CONDENSED MILK factory in Orango County uses fourteen thousand quarts of milk daily, and pays out twenty-seven thousand dollars monthly. This condensing of milk for export might be introduced into Canada to advantage. The cost of apparatus, on a large scale, is great, but the profits also are great.

THE RIGHT TEMPERATURE FOR MILK—A correspondent of the *Practical Farmer* says: "I have learned anything by experience in relation to this subject it is the following: 1st. Milk set and kept at a temperature of 40 deg., will not sour, and the cream will become thick before it is fit to skim. 2d. Milk set at a temperature of 70 to 72 deg., will become sour and thick in twenty-four hours, and before the cream has had time to rise. I regard these two points as established, just as certainly as water will freeze at 32 deg. or boil at 212 deg. In making the case, it would seem reasonable, or probable, that a medium or a temperature of 55 or 56 deg. would be as near right as we can get; although 5 deg. higher or lower will not produce any disastrous result."

**CANVASSING AGENTS WANTED.**—First-class men, of good address, steady, and pushing, to canvass for the CANADA FARMER. Address, stating employment, previous engagements, age and references, Publishers of the CANADA FARMER, Toronto.

Secretaries of Agricultural Societies throughout the country will confer a favor by sending us the date and place for holding the Agricultural Shows for 1875. We shall also be glad to receive notices of Agricultural meetings, sales of stock, and other items of information suited to these columns.

The Agricultural matter published in the WEEKLY GLOBE is entirely different from that which appears in THE CANADA FARMER. The Editorial staff of THE CANADA FARMER is quite distinct from that of THE GLOBE.

## The Canada Farmer

TORONTO, CANADA, MARCH 15, 1875.

### Work for the Month.

By the time this number of the CANADA FARMER reaches its readers, all plans for the coming campaign should have been matured. What is unsettled should now be thought over, and the plan of action decided upon immediately.

Now is a good time to secure farm-help. Those farmers first in the field after labor will get their pick; while the more dilatory will have to put up with an inferior article. Secure good help, even at the cost of a few dollars a month more pay. The best article is the cheapest in this line, as well as in other commodities.

Implements should be gone over and re-painted, repaired and oiled in the bearings and on the bright surfaces. Neglect now may cause delay at a critical time; one hour of leisure well bestowed may save several days of precious time hereafter.

The snow has been so deep as to have prevented the doing of much of the hauling usually done in the winter. This hauling has now to be done, and it will effectually prevent time from hanging heavily on the hands of most farmers. The summer's fire-wood should be hauled, cut up and stacked under cover. Manure should be drawn out and placed ready for scattering.

Unless unusually genial weather should soon set in, the vast amount of snow to be thawed will render the opening of spring late this year, and its opening will probably be accompanied with more than commonly violent floods. Farmers owning lands liable to overflow will do well to spare no precautions to guard against loss of material or stock. The immense losses of bridges, fences, stock and other property in the Southern States at the beginning of this month constitute a warning which it would be folly to forget.

No opportunity should be lost of keeping fences up to their work. Nothing is so sure a sign of a thrifty, intelligent farmer, as efficient, strong and tidy fences. Nothing is a more certain indication of a "screw loose" than neglect in this direction. Let spring find the fences so perfect that breaching cattle will find themselves on the right side, whether they will or no.

Out-door painting may be done on quiet days; but there is danger that the appearance of the work will be damaged by the proverbial March winds or April showers. The horse and cattle stables should be whitewashed throughout.

The cellars should be unbanked, cleaned out thoroughly, and whitewashed. Many a seemingly-mysterious disease has had its origin in a filthy cellar.

As soon as the ground is visible, go round and rake out all drains, culverts, etc. Let off all standing water that it is possible to provide an exit for. The removal of a shovelful of earth may let off water, which if left standing will kill a bushel of wheat.

Do not be in too great a hurry to turn stock out to pasture; it is better to feed in the yards until the pastures are sufficiently flush to afford a good bite. In the case of an animal that does not appear to be thriving, it may be better to turn it out to pick at the grass as early as possible.

It is a bad practice to begin ploughing while the land is

too wet. It will be better to wait until it gets into good condition; then go-ahead.

Seed potatoes should be gone over, and selected again. Choose medium-sized, perfect specimens. Rub off the growing sprouts. The vitality of seeds of all sorts should be tested by sprouting a few in the house.

The horses will want careful looking after now. Long confinement and irregular exercise will have told upon them. They should have their food increased gradually by way of preparing them for hard work. They may be inclined to be weak and feverish; they require a change of food. Give a few carrots daily. If not obtainable, give a bran mash every two or three days, well steamed. Rub them down well after labor; and, if exposed to draughts, blanket them.

Cattle which have been brought so far through winter in good condition should not be allowed to fall off now. Let them have abundance of food, and of good quality. The working oxen should be brought into good working condition. Cattle, especially young cattle, are subject to be overrun with lice at this season—an indication in the first instance of neglect and low condition. Card and brush well, and rub in mercurial ointment (unguentum) mixed with four times its bulk of lard, behind the horns and down the spine. Repeat this two or three times at intervals of eight days or so, as the ointment does not kill the nits which hatch out, and reproduce themselves, unless killed soon after hatching.

Breeding ewes will want the most careful attention. Separate them from the rest of the flock. Give them well-ventilated, roomy sheds with plenty of good hay.

Orchard trees that have been girdled by mice or rabbits should be earthed up above the girdling; or a plaster of cow-dung and clay or clayey-loam should be placed on with a cloth. Scions may be cut when the wood is not frozen, and packed away as described elsewhere. Toward the middle of April, grafting may be done, if the season be an average one. Spread manure bountifully under the trees. Scrape loose bark and moss from old trees.

The hens should be stimulated into laying eggs while the price is high. If early chickens are wanted, hens must be set now. Do not set more than 8 or 10 eggs at this time; that is as many as a hen can keep warm on cold nights.

And, amid all this looking after his stock and property, let not the farmer neglect his own health and that of his family. We do not believe in amateur doctoring where the services of a medical man can be obtained. But we do believe in the exercise of common sense in endeavoring to retain the health with which Providence has blessed us. Therefore, it is advisable, as the spring opens, to use care in the matter of diet, introducing as much variety as possible, and relying more and more upon fruit and vegetables. A few uncooked apples every day would save many a "biliousness." Especially, let the children have their full swing at the apples if there be plenty on hand. Morning is the best time of the day in which to eat fruit, but it is better to eat it in the evening than not at all.

You can benefit those of your neighbors who do not take the CANADA FARMER, by mentioning this journal to them with such words of commendation as you may consider it entitled to.

### The Necessity for Higher Agricultural Education.

The subject of agricultural education is one which is assuming great prominence, as well in the Dominion as in the United States and Europe. It is clear that the farmer of the future will be an educated man. The farmer of the present day feels that, under the present system, or, rather total lack of system of education for farm-life, the maximum of prosperity which it is possible to reach has been attained. He sees that, while other businesses and professions are developing and carrying up with them those who devote their energies to their practice, farming is standing still for lack of farmers competent to grapple with the many-sided problem of scientific cultivation. He sees clearly too the reason why the farmer is in danger of losing caste—he has not been educated for his profession. The lawyer has been studying law from his youth up. The clergyman has devoted himself to theology since his school-days. The doctor has spent the midnight oil in medical studies. The architect, the builder, the draper, the butcher, the baker, aye, and the candle-stick maker, have been put to learn their trades as soon as they left school; and the

studies of all these classes at school have been such as to fit them for their prospective station in life.

How is it with such of the farmers' sons as are intended to follow their fathers' profession? On leaving school, they are set to do work, about the why and the wherefore of which they are told nothing. Habits of inquiry are not encouraged. The youth learns how to perform farm operations, but acquires no knowledge of the subtle forces of nature with which he of all men ought to be familiar. He runs in the same groove in which his father ran—unless he gets disgusted and quits the farm with contempt.

Every thinking farmer in the Dominion has realized the fact that something must be done to keep the farming profession from falling astern in the race of development. And this conviction is the result of calm and deliberate reflection—not the issue of a volcanic outbreak like that which railroad extortions and tariff robberies provoked two years ago, in the Western States—nor of the deep growling, presaging the imminent storm, in which the English farmers are now indulging about tenant-right. The Dominion is happily exempt from any of these evils. The record of our farmers is one of progress—satisfactory progress, except, as above detailed, with respect to the anticipated status of their sons in the coming generation.

The cause of the danger that threatens the social condition of the farmer is apparent—he does not know enough. The way to remove the evil is equally clear—he must learn more. The coming farmer must be educated for his profession; and his education must commence, as does that of a boy intended for any other profession, as soon as it is decided that he is to become a farmer.

Farmers' sons that are intended for farming must be indoctrinated with farm-learning early in their lives. Farming is a life-long study. In childhood, the boy should be receiving impressions that will afterwards mature. The rudiments of Botany, Agricultural Chemistry, Animal Physiology, Geology, Entomology, should be instilled into him while the mind is still plastic. As his intellect matures, he should gradually extend his knowledge of the sciences of which the coming farmer must have some familiarity. He should learn, by actual experience, how each operation of the farm is performed, so that not only will he be able to do everything himself, if needed, but that he will know when he is getting a day's work for a day's pay from his hired help; and he will want to know what work will pay for its cost directly, what indirectly, and in what direction money spent is so much money thrown into the gutter.

Can all this knowledge be acquired at home on the farm? We say that it cannot, for the simple reason that the average farmer of the present day does not possess the learning that will be wanted by his sons, and therefore cannot impart it to them. It is clear that the science of farming must be taught at institutions specially devoted to the task—in other words, at Schools of Agriculture.

If being granted that technical education will be indispensable in the future, the question arises, How can it be furnished most economically and efficiently? We have the experience of other countries to guide us. In Germany, Great Britain and the United States, this same problem is being worked out. But in not one of these three cases can an exact parallel be drawn with the Dominion. The German Colleges of Agriculture are intensely scientific, and, though the results arrived at by their thorough courses of experiments are invaluable to Germany and to the world, it is plain to us that similar institutions would not answer the wants of the Dominion. Neither would the type of the English College at Cirencester be adapted for our wants at present. In the first place, it is too expensive, and, secondly, the mass of Canadian farmers now, and must for years to come, perform actual manual labor. We want no institution that will unfit our farmers' sons, physically, for their future life. As our resources develop, the number of gentlemen-farmers will increase, and the number of farmers who have to work themselves will diminish. But we must not supply a race of gentleman-farmers before the country is ready for them.

The United States Agricultural Colleges, if the agricultural press of the country may be believed, are, nearly all of them, unutterable frauds, that are doing more mischief to farmers and farming than years will suffice to repair. The course of study at some of them inevitably unfits the student for farm life and disgusts him with farming.

As a consequence, persons who have gone through the course and are now farmers are about as plentiful as white-blackbirds. Instead of becoming farmers, the students become professional men, (inferior ones, beyond doubt,) and go into already-overcrowded trades requiring no special knowledge of anything. Clearly, the typical American Agricultural College can be profitably dispensed with on this side of the line.

What we want is a school where the sons of poor as well as of rich parents can learn as much of the several sciences pertaining to agriculture as the state of the art will allow—keeping always in advance, but not so far ahead as to be out of sight; where, with a groundwork of English literature and as much else as the student may happen to possess, he may go and attain sound practical knowledge of things which will be useful to him in after life; where he will see and learn to practise agriculture in its most advanced style; where a certain amount of physical labour is compulsory, and where poorer students have the option of doing more than their allowance, by way of contributing to their expenses. The school should embrace every department of farming and gardening, so that those who intend to be general farmers may get a practical knowledge of the art of agriculture in all its branches; and that those who intend to devote themselves to the dairy, the breeding of fine stock, horticulture, or other specialty, may learn all there is to be known on the particular subject of which they take up the study.

The school should conduct experiments of a class that farmers, single-handed, cannot carry out—such as testing immediate and after effects of fertilizers, the most profitable rotation, the desirableness of new varieties, the amount of feed of every kind required to make a pound of meat, and a host of other things. Everything that is done should be recorded, and the results attained should be published from year to year for criticism by, and for the benefit of, the community. In this matter of experiments alone, a well-managed institution would be of immense benefit to the farming interests.

We have, in the Ontario School of Agriculture, the promise of an institution which, to a great extent, will fulfil all reasonable requirements. We say *the promise*, for the re-organization of that institution is of so recent a date that the elaborate programme laid down for its guidance by the Provincial Farm Commission may be said to be still on its trial. The history in other countries of these institutions shows that they require the watchful eye of the public to be constantly upon them to prevent their drifting into asylums for theorists and manufactories of everything but a race of farmers adapted for our Dominion.

#### The Emigration of English Laborers.

The movement toward combination by the English laborers, under the guidance of Joseph Arch, has already resulted in a marked amelioration of their lot. Their wages have been substantially increased, some of the overcrowding has been abolished, and educational facilities are more generally enjoyed. These advantages have not been secured without much agitation and some ill-feeling. The farmers seem to be especially bitter against those members of the Laborers' Union, who look upon emigration as the most effective relief for their troubles. "Demagogue," "Traitor," "Invidious," and the like, are a few of the pet names which are slung at the emigration-advocates. Here is a specimen-brick from the proceedings of the London Farmers' Club. Mr. Herbert Little is the spokesman:

"Actuated more, apparently, by silly spite than by higher motives, the present policy of the union seems to be that of wholesale deportation of agricultural laborers to foreign lands. A more dangerous game could scarcely be played, or one less likely to fulfil the intentions of its promoters. Far better would it be to encourage migration to the fullest extent from overstocked country districts to those home centres of manufacturing industry where labor is already at a premium. There is the danger that if within reach of their native soil they may at any time be deluded into the idea that after all they were as happy and well off there, and that they may feel a desire to return. But get them well out of their native land, argue their present advisers, and not only is there little fear of their return to trouble us, but those who are left behind immediately become worthier wages. But this consequence by no means necessarily follows, while the great impetus given to emi-

gration may be succeeded by a reflux or paralysis which may entirely upset the calculations of the emigrants' friends. There is even danger that a reaction may set in against emigration altogether, if the hordes of unskilled rustics who are now being shipped off almost against their inclination, should fail to find in the countries to which they are exiled the blessings promised by their unscrupulous advisers. Already America complains of a surfeit of unskilled and even of expert workmen, and it is far from improbable that the time is at hand when the re-emigration of large bodies of men from the United States to this country may counterbalance all the efforts of the union for the depopulation of our rural districts. A far stronger power than any wielded by farmers' or laborers' unions will, in the long run, regulate with inexorable precision the interchange, and determine the localization of human labor. I allude to the simple law of supply and demand."

There is a yet more simple law than the law of supply and demand upon which the speaker hung his argument; and that more simple law is the law of self-preservation. Self-preservation put it into the laborers' heads to form a Union like unto the Trades Unions. Nobody acquainted with the facts and unprejudiced will deny that, previous to Arch's movement, the condition of English farm-laborers, except of a few fancy samples kept on hand for show purposes, was as bad as it could be. The most wooden-headed of Tories will admit that the state of things was not good. The men have now found out that it is their own fault if they remain in their servile condition.

The Union was established in the teeth of the most strenuous opposition, above-board and under-hand, from landlords, Established Church clergymen, and tenant-farmers. Denunciation and prophecies of evil, at this day, will only strengthen its hands.

English farmers will do well to recognize the fact that, in future, it will not be they, but the men themselves, who will decide whether the labor-market be overstocked or not, whether the remedy applied shall be emigration, and whether that emigration shall be to other parts of England, or beyond the sea. The Union may be, at present, under a cloud, or it may not be, according to the stand-point from which it is regarded. It may be taken for a certainty, however, that it will continue to exist, and, with some unavoidable ups-and-downs, to increase in importance.

#### On the Use of Paris Green.

Experiments have been and are being made, with the view of deciding whether the use of Paris green, for the purpose of destroying insects injurious to vegetation, is dangerous to human life. As usual, doctors disagree, and it is hard to decide from their evidence whether or not mineral poisons can be taken up by tuberous plants in quantities sufficient to be traceable.

Experiments made upon beets by direction of the Potomac Fruit Growers' Association show that Paris green (arsenite of copper) can be taken up unchanged. Traces both of arsenic and copper were found in beets that had been treated with Paris green in water, in the manner that has been found most efficacious with potatoes infested with the Colorado beetle. It does not follow that, because beets will take up mineral poisons, potatoes will also take them up. We believe that no chemist has yet found any trace of arsenic or copper in the tubers of potatoes that have had Paris green applied to them; but that the haulm and leaves will take up the poison, there appears to be no doubt.

It follows, then, that the use of Paris green is excessively dangerous, for the reason that some crop may follow potatoes treated with it that will take up the poison which has been applied to them. This is a serious affair, for, without the aid of poison, the Colorado beetle is so numerous an enemy, and so tenacious of life, as to be almost irresistible. It seems that, if the beetles are to be poisoned, we must look for some vegetable poison that will be as successful as Paris green, and is not capable of being taken up by plants in an unchanged state.

It is quite time that a check were put upon the use of Paris green, whether it can be taken up by plants or not; for we observe that some of our neighbours over the line are so enamoured of the poison that they propose to squirt a solution of it over their apple-trees, when in bearing, for the purpose of "scooping" the cankerworm. Now, there is no doubt that the cavity at the stem of the apple would hold enough Paris green to render the fruit an undesirable tenant for one's stomach. We think the proposer of this reckless squirting about of dangerous poisons deserves to be held up to execration.

#### The Pea-Bug.—*Bruchus Pisi*.

A short time since, we were in the store of one of our Toronto seedsmen, and were shown some peas infested with the destructive pea-bug or weevil, the *Bruchus pisi* of Linnæus. This insect has proved so formidable an enemy in the United States as to have caused the discontinuance of the cultivation of peas in large districts; and of late years it has been a serious scourge in Ontario. A few particulars about it will be timely.

Its name, *Bruchus*, signifies a devourer. The weevil tribe of *Bruchidae* are distinguished by an oval and slightly convex body; the head is bent downward, which, when the insect is at rest, hides its broad snout; the wing cases do not reach to the end of the abdomen; the hind legs are thick and often notched; the antennae are short, straight and notched within.

The larvæ eat the inside of the peas when green, often leaving little but the hull untouched, although generally the germ is left untouched. Hence these "buggy peas" will, most of them, grow. The larvæ arrive at full size by the time the pea becomes dry, when it bores a round hole from the centre, which it has eaten hollow to the hull of the pea. In the hollow the larvæ become pupæ, and, by early spring, again change to beetles—the perfect state. These beetles eat through the thin hull of the pea and escape.

The remedy usually employed is to put the affected peas in hot water for a minute for two before planting, when the insect will be killed. Deane recommends that the peas be kept in tight vessels over one year before planting. Another remedy said to be efficacious is, as soon as the pea is dry enough to harvest, to place them in a barrel for seed in a tight vessel, in which place two ounces of pulverized camphor to the bushel, or a table-spoonful of sulphuric ether to a similar quantity. In a few hours, or a day or two at most, the bugs will be found to be dead.

Any measures against insect pests, to be really effective, must be done in concert by whole communities. It is disheartening for the farmer who takes the trouble of clearing his feed from insect pests, to have his neighbours plant a colony of pea-weevils to ravage his crop as well as their own.

"Does wood form from the bark?"—"Yes," said President Clark, of the Massachusetts Agricultural College, "for the bark of an elm was quartered and slipped aside in May, the wood was covered with a sheet of tin, and the bark replaced and covered with waxed cloths. The section was cut this fall, and shown. The tin was covered with a wood deposit laid on from the bark. Sap goes up in the wood to be utilized in the leaves and comes down in the bark."

THE PRESIDENT of the Kansas Agricultural College complains that not one graduate of that institution has become a farmer since 1867. And the *Germania Telegraph* has not heard of it, if the Pennsylvania College has turned out a practical farmer. The example of these institutions will be invaluable to Canada. Though we may be undecided in the exact path to pursue, we can not be wrong in avoiding the course pursued by these two of the many unsuccessful American Agricultural colleges.

WILL some one of the better-informed of our American exchanges seize and knock on the head a paragraph which is going the rounds of the United States' press, and which commences:—"An agricultural paper, published at Ontario, Canada," etc.? It is a rather small matter to mention, but if a Canadian journal were to talk of a paper published at Massachusetts, or at Illinois, it would forthwith be held up to ridicule by some smart American journal set for having mistaken Massachusetts for a city in the State of Boston, or Illinois for a city in the State of Chicago.

WITH RESPECT to the anticipated introduction of the Colorado beetle into England, and the scare now in existence on that account, the *Nova Scotia Journal of Agriculture* thinks that the fears are groundless. Our contemporary speaks positively that it knows of Colorado beetles having gone to England in produce, and yet they have not succeeded in establishing themselves; and in Nova Scotia, a great potato growing country, with facilities for importing the insect in produce as freely as Germany or England, no Colorado beetle has ever been seen. Thus it ascribes to the coolness of the climate. The warmer and drier parts of Europe may suit the 10-line beetle, but, our contemporary conjectures, England will not.



## Systematic Farm-Work.

Subjected to the rules and regulations to be observed and kept by the employees at the farm of Mr. Wilson, of Rhode Island, a copy of which rules was procured by the *New England Farmer* and published. Everybody will admit the necessity of system in the carrying on of a large farm. There is really nothing in this long list of rules which a really good employee would not do voluntarily. Therefore it is for the interest of the good workman that strict rules should be laid down; for their observance will be irksome only to those who would have shirked the duty had the rules not existed. It will be observed that Mr. Wilson's rules not only bind the men and the foreman, but bind himself to pay for over-time labor:—

1. There must be a place for every tool and implement used in the barn, and when it is not in use it must be kept in its place.

2. Every tool and implement after use must be cleaned and put in its proper place, in readiness for use when wanted.

3. When anything has been broken, it must be immediately reported to the Foreman, with full explanations as to how the breaking occurred, who will at once see to repairs or replacement.

All damage done to any property, that cannot be satisfactorily accounted for, will be divided among, and charged to, the employees directly connected with it.

I expect accidents to occur; but the only true way to prevent new ones, is to fully understand old ones, so as to provide against these occurrences. It is therefore made the duty of the employees to know what happens or is done in the barn, and on the premises, and to report the same whenever called upon by the person in charge.

4. The steam and water pipes must be closely looked after, to prevent freezing, and to have them ready for use when wanted.

5. The stalls must be thoroughly cleaned every day; the feeding floors and stairs, walls and ceilings, kept neat and clean, and the urine trenches kept supplied with peat or loam, and cleaned out when necessary.

The stalls must be freely ventilated in summer, and on all suitable days in other seasons of the year.

6. Manure droppel in the yard must be gathered and put in the manure heap every morning and evening.

"Manure is the backbone of farming." Save it.

7. Great care must be taken to save the bedding used under the animals for their comfort. No more should be used than is necessary, and when wet, but sound, it must be dried for use again.

8. In dealing with and handling horses and cattle, avoid all noise, loud talk, and the exhibition of every appearance of excitement, fear and anger. Teach them what you want, without abuse or thrashing, which is strictly forbidden.

9. In milking, avoid talking, except quietly to the animal; milk quickly and thoroughly; be sure you get all the milk, and measure and register correctly the quantity given by each cow, and when required, send it to the dairy room separately.

10. In going to and from pasture, avoid hurrying the cows, and as far as possible prevent voluntary running.

11. Great judgment is required to feed horses and cattle properly. It is about as bad to give too much feed as too little. Young stock should be so fed as to be kept in a healthy and growing condition, and in good order, not fat.

Those at maturity should be kept in a healthy and thriving condition, and not in a fattening one; and this is especially true of cows in calf or giving milk. These results are best secured by regularity in watering and feeding, by close attention to the quality and quantity of food, to frequent change in kind, by cleanliness, and by frequent carding and brushing.

To secure accuracy in feeding, all food used will be weighed or accurately measured according to the directions of the Foreman, and this, with the kind for each day, will be given in writing, by the Foreman, and posted in the barn.

12. See that there is always plenty of water in the "watering places," ready for the stock, large and small, to drink, and that the weaker are not kept away from them by the stronger cattle.

13. Smoking in the barns and barn-yards will not be allowed on any consideration whatever.

Security from fire makes this rule imperative.

Smoking at the "noon hour" may be enjoyed in other places indicated by the Foreman.

14. The horses, harnesses, carriages, waggons, carts and all the tools and implements of whatever kind, kept for use in and about the buildings at Rumford, are placed under the control of the chief superintendent; and in my absence, those kept at the other places are in like manner placed under his charge and direction, to be used as and when he may order; and he will be held responsible therefor.

15. Teamsters are especially enjoined to promptly report to the Foreman any repairs required in their waggons, carts, harness, chains and tools and implements, so that no delay shall be made in having them repaired and ready for use.

"A stitch in time saves nine."

When the weather is such that teams cannot go out, clean and oil the harness, look to the nuts and bolts on the wains, and tighten those requiring it.

In cleaning and oiling harness, all of it should be unhooked, and thoroughly examined and cleaned.

16. At the close of winter, when blankets and robes are no longer wanted, they must be thoroughly and properly cleaned, dried and repaired, whenever necessary, and put away with camphor, in a tight box, to protect them from moths and vermin, so as to be ready for use the following fall and winter.

17. The proper time to repair farming tools and implements of all kinds is in the season when they are not required for use.

The Foreman will therefore see to it that his mowing machines, reapers, hay rakes, scythe snaths, rakes, forks, hoes, ploughs, chains, waggons and carts are thoroughly repaired and painted whenever necessary, in the winter season.

Have the sleds and ice tools got in order in the fall season.

18. The farm-teamsters are required to have their teams in readiness to start for their field of labor when the whistle sounds in the morning.

The proper place for the teamster on the road is beside his cattle, caring for and encouraging them in their labor.

In going to distant fields, the noon-feed must be carried to the field.

In the heat of summer the time for turning out of the teams for rest, and food, and for commencing work, will be regulated day by day, by the Foreman, according to the weather, and while the teams are cooling and feeding, the teamsters will be directed by him what to do.

19. During the hay and grain harvest it may be frequently necessary for the men to do extra work in order to save the crops. It is expected that such service will be cheerfully performed, as it will never be called for when unnecessary, and it will be fully paid for in all cases.

20. The clinkers and ashes at the several mills and works, and the manure at the barns and hog pens, must not be allowed to accumulate at those places.

The clinkers must be used as far as possible in repairing the private roads of the farm and works; the ashes carted to the fields where wanted, and the manure to the compost heaps; and the Foreman will see that sufficient teams and men are detailed to keep all of this work promptly done.

21. All my employees are hired and well paid for active, prompt and efficient services, and for taking care of property wherever it may be, and for nothing else, in their several departments, and while the Foreman is strictly enjoined to prohibit idleness and carelessness among the laborers, and to make deductions from their wages for these faults, whenever necessary, he is especially requested to report any laborer deserving of promotion and advance of pay.

Mr. ARTHUR JENNER-FUST has been appointed to the care of the Agricultural Department of the St. Francis College at Richmond, Q. Mr. Jenner-Fust's knowledge of Agriculture is highly spoken of, having been acquired on some of the great farms in England where the art is scientifically practised. To the advantage of a thorough acquaintance with English farming, he adds the experience acquired in a sixteen years' residence in this country, during which time also he has been engaged in agricultural pursuits.

A SUGGESTION is made that farmers should have their names painted on their front gates. Such a course would save many a walk from the road to the house, and much trouble in answering the call of strangers who have mistaken the house.

HERE is an item from a British paper, showing how badly it is possible for a ploughman to be treated in Perthshire:—Before Sheriff Barclay, at Perth, James Munro, a farm servant, sued his employer, Mr. Young, farmer, for damages for breach of contract in not providing him with a habitable house. Plaintiff said that in winter the floor of his house was flooded, and daylight was seen through the roof. When he asked for repairs, all that was done was to place some straw on the roof to hide a hole. He had to leave his employer's service on account of the building being uninhabitable. The pursuer's wife stated that snow drifted through the roof into a room where her mother-in-law, who was ninety years of age, had to live. The sheriff, after hearing witnesses, found that the ploughman was justified in leaving his work, and awarded him £7 compensation, with £3 costs.

THE agitation for tenant-right among the Scotch and English farmers is in earnest this time, especially with the former. The mention in the Queen's Speech at the opening of Parliament, that a measure will be submitted for "improving the law as to agricultural tenancies," though foreshadowing a measure to be brought forward by a government representing land-owners more especially, gives hope that an attempt is to be made to settle this vexed question. The English agricultural press is out-spoken on the matter. One of the most influential journals says:—"We anxiously await a full disclosure of the way in which it is proposed to legislate on behalf of the tenant-farmer. We hope there will be no timid, partial Bill introduced, but such a one as will meet with the approval of the British farmer, and conduce to the advancement of British agriculture. We insist on obtaining a comprehensive, honest tenant-right measure, and we shall neither rest nor be thankful until it is secured."

HERE is a lesson for those who would unnecessarily divide and sub-divide fields with permanent fences in the following anecdote told by Mr. Mechi:—A surprising and significant conversation took place some three or four years ago between myself and a very intelligent farmer who told me that he had been having some land improved near Exeter. Knowing Devonshire and its small fields, I inquired on that point. "Oh!" he said, "have thrown six fields into one." I naturally asked how large the field was now, and to my astonishment he replied, "6 acres." He seemed equally astonished at my astonishment, and said, "Why my neighbour, Sir Thomas Dyke Acland has 172 miles of fences on his estate in the parish of Erccadlyst." Several thoughts passed through my mind at that moment, and among them, "Well might agriculture be an affair of small profit." A clergyman in Devonshire once wrote to me some years since that there were 33 fields on his glebe of 37 acres! Surely the iron wheel hurdles will some day within the next 100 years reach Devonshire. What can be the use of so many fences except as shelter and animal restraint?

THE average English farmer, as his character is understood on this side of the water, is certainly not a "larky" individual. And Government statistics are about the last thing out of which we should attempt to extract merriment. But the *London Farmer* gives some instances which either show that the character of the English farmer is misunderstood when we suppose him to be a dignified sort of man, or else show that there are still in existence some specimens of crass ignorance who will object to furnish figures for returns from which they themselves would reap benefit. "Farmers," says the *Farmer*, "should be above making fun of agricultural returns. They are meant to afford information of a very practical kind, and should be dealt with as simply as seriously. It is, however, evident from the report just issued by the Inland Revenue Department that these returns are far from being as trustworthy as they should be. We are told that in one case a farmer occupying a farm of about 50 acres made last year a return of upwards of 300 acres, including 10 acres of hops, and also returned 1000 pigs—a statement evidently as untrue as the other portion of his return. In another case referred to a return was sent in so full of 'disgusting epithets' that the officer who received it destroyed it as unfit to be seen."



## Agricultural Intelligence.

### The Aberdeen and London Meat Trade.

The great proportion of the prime cattle fed in the North of Scotland for the London market now reach the metropolises in the shape of dead meat. It is found that the loss in weight of a live animal during transit from Aberdeen to London equalled a good profit on the carcass, and that the meat killed at Aberdeen will keep for several days longer without tainting, than meat killed after a harassing rail journey. The trade of supplying the cities of the Northern States with beef slaughtered in Texas is assuming large proportions. The animals are killed and the meat is packed in refrigerator cars and despatched northward daily. We shall see the day when the English markets will be supplied with meat killed on this side of the Atlantic, as it is now supplied with cereals and dairy products.

### Scotch vs. English Agriculture.

Mr. A. McNeel Cair, in a letter to the *Farmer*, comparing Scotch with English Agriculture, makes out a poor case for the latter. He shows that, with a finer climate and more fertile land, England, when judged by the Scottish standard, falls short in the production of stock, to the extent of a million and a-half of cattle, and seventeen million and a-half of sheep. The reason assigned for this is that, in England, of the total area under grass, ten million acres are under natural grasses, and but two and a-half million under cultivated grasses, clover etc.; while of the two and a-half million acres under grass in Scotland, near one-half is under cultivated grasses. The old pastures of England will make fatter beef and sweeter butter, but will not feed, acre for acre, as many months as if the land were regularly cleaned, renovated and enriched by manures.

### Nursery Swindlers.

The United States are flooded with sham nursery agents, who will doubtless favor us with a call when their more profitable fields are run dry. Among the favorite swindles this year are:—The Hulless Oats, now introduced as a new variety, in reality having been tried and found to be of no value 40 years ago; the Angers quince and Tetofski apple, the former an old and not valuable variety, the latter not as new as the poddlers represent it, being easily obtainable from any nurseryman; the Runnerless strawberry, which is a rank humbug; the Utah Hybrid cluster cherry, another of the same stripe. Wandering nurserymen should not be patronized by any one who does not prefer to be cheated. There are plenty of responsible men in the trade, whose seeds and plants may be relied on as true to name, and to possess the qualities ascribed to them.

### The Short-Horn Society of Great Britain

The Short-horn Society of Great Britain has been duly constituted under the Presidency of the Duke of Devonshire, and with Lord Penrhyn as Vice-President. The Secretary is not yet appointed. The whole editorial work of the *Herd-Book* will be put into the hands of an "Editorial Committee," who are to carry on its preparation and publication, and there is no intention of resigning the work to any one person, however competent he may be. The well-known auctioneer, Mr. John Thornton, was recommended to be put in sole charge of the *Herd Book*, but an objection was made against him and sustained on account of his profession. He is admitted to be better qualified for the post of editor of the *Herd Book* than any other single individual, and some of the English agricultural journals seem to consider the objection made against him to have been nonsensical. However, it is allowed that the "Editorial Committee" has been well-selected.

The *Mark Lane Express* has the following remarks about the conducting of the Society, and its standing with respect to Short-horns bred on this continent, and in Australia and other British possessions.

It is proposed to associate the *Herd-Book* with a periodical or monthly note-book, announcing the births and deaths of pedigree stock—a business, again, calling for the exercise of no particular talent. This would be something on the

plan of Thornton's circular, which is itself a publication after the manner of certain other auctioneers, estate and house agents, with sales coming on or villas to let. The advantage of the Short-horn Society going into the publishing trade and keeping back its occasional "Intelligence" for its own Magazine is to be questioned, as the result of this kind of thing so far is not very encouraging. A society established some few years since came gradually to be associated, by means of shareholders, with a special publication, the exclusiveness of which it is said led to very disastrous consequences, for the society was shown not long since to be in a state of insolvency, whatever may be the condition of the companion company. We speak very disinterestedly here, as we do not care so much for these startling announcements of how the cow has been mated and the calf dropped; but every volume of the *Herd-Book*, like the *Stud-Book*, might give complete lists of pure-bred stock sent abroad, as well as an obituary, embracing the interim from the last issue of the work.

And this brings us to another more important point, which is, Should pedigree Short-horns bred abroad or in our colonies be eligible for entry in the *Herd Book*? At the first blush of it, remembering how the American is essentially the English Short-horn, and how occasionally the blood comes back to us, there would look to be all warranty for such admission. On the other hand, there would be continual and almost unavoidable danger incurred in the way of identity and authenticity; as it would be safer to have, say American and Australian supplements bound up with, but kept carefully distinct from, the English matter in each volume. Any such appendix would not only be welcome alike here and there, but do much to extend the circulation of the book. As to confining the subscription list to actual breeders of Short-horn cattle, we are bound to say that we cannot see any reason whatever for any such extraordinary condition. Any fear as to the Society being thus swamped by outsiders is surely of the vainest, and people are already beginning to ask whether they are qualified as about to establish herds, or as having bred Short-horns, and so forth—somehow difficult points over which to arrive at a satisfactory definition. So long as there be nothing against a man's character he should be as free to join the Short-horn Society as he is eligible for the Royal Agricultural Society, where he receives his Journals on precisely similar terms.

Considering the great interest which it represents, and the absolute call for its establishment, it is wholesome to see the Short-horn Society in such good keeping. For a long period the pursuit has suffered much from mere clique or party or trade influence; as there is nothing which the Council has still more jealously to guard against than its name or property being handled as an instrument for other than its own legitimate object. All such precedent has been broken through, and a new epoch in the history of the Short-horn dates from the issue of the new volume of the *Herd Book*.

### Coming Short-Horn Sales.

Subjoined is a list of Short-Horn sales, the dates of which have been fixed:—

March 24, William Stewart, Dixon, Ill., 99 head.  
 March 31, M. H. Cochran, Hillhurst, Q.  
 March 31, Wm. Rhodes, Burlington, Wis.  
 April 7, C. C. Parkes, Waukegan, Ill., 126 head.  
 April 8, Elliott & Kent, at Dexter Park, Chicago, Ill., 65 head.  
 April 9th, J. H. Kissinger & Co., at Dexter Park, Chicago, Ill., 45 head.  
 April 14, S. W. Jacobs, West Liberty Iowa, 99 head.  
 April 15, M. Briggs, Kellogg station, Ia.  
 April 27, J. H. Pickrell and T. M. Taylor, at Decatur, Ill., 45 head.  
 April 29, W. R. Duncan, Wm. N. Smith, C. N. Nichols, and others, at Bloomington, Ill., 120 head.  
 April 29, J. H. Spears & Son, at Bloomington, Ill., 40 head.  
 April 30, Mr. Black, Springfield Ill.  
 May 15 to 22, at Dexter Park, Chicago, from the herds of J. H. Davis, Kentucky, J. P. Sanborn and Avery & Murphy, Michigan, J. R. Shelly, Illinois.  
 May 27, C. Lowder, Indianapolis.  
 May 28, Meredith & Son, Cambridge City, Ind.  
 June 8, S. Bond, Abingdon, Ill.  
 July 21, B. F. Vanmeter, Stockplace, near Winchester, Ky.  
 July 22, The Ashwood and Edgewood herds of Jas. G. Rinnard and D. H. Cunningham & Co. of Kentucky.  
 Oct. 20, B. P. Goff, Winchester, Ky.  
 Oct. 22, J. W. Prewitt, Winchester, Ky.

**BERKSHIRE-BREEDING.**—In the *Live Stock Record*, J. B. Overton gives the following statement:—"My Berkshire sow, Betsey Bacon (bred by J. A. Howerton, Paris, Ky., from imported sire and dam), had on the 1st of December, 1873, eleven pigs, and raised them all. On June 13th, 1874, she had nine pigs and raised all, and on the 20th of December, 1874, she again had eleven pigs, all of which are still living. In one year and twenty days this sow has produced thirty-one pigs, all by my boar, Roger Bacon (from the stock of Maj. W. Halley Smith). This hog was fattened and sold last November. He was two years old at that time, and weighed 535 lbs. Now let us calculate the value of those thirty-one pigs. The first litter of eleven sold for \$137 06. The second litter of nine, two of which were sold for \$17 50, and the rest are worth by weight \$95 for pork. The last litter of eleven are worth \$110. Add up these amounts, and you will find that Betsey Bacon has produced thirty-one pigs in one year and twenty days, which are worth at the lowest calculation \$362 56."

### New Granges of Patrons of Husbandry.

Since the last issue of the CANADA FARMER, the following new Granges have been organized in the Dominion:—

#### Division Grange.

6. TRAFALGAR.—Hiram Albertson, Master; Matthew Clements, Secretary, Trafalgar

#### Subordinate Granges.

103. THISTLE.—Alex. Forsyth, Master, Darrell; Geo. Oliver, Secretary, Darrell.  
 104. RIDGE TREE.—John Dallas, Master, Widder Station; Peter McCallum, Secretary, Widder Station.  
 105. SYLVAN.—Alex. Tod, Master, Sylvan; John T. Colton, Secretary, Sylvan.  
 106. FAVORITE.—James Ferguson, Master, Strathroy; Walter Brett, Secretary, Strathroy.  
 107. LASKAY.—John Ireland, Master, Laskay; David Wood, Secretary, Laskay.  
 108. CENTRAL.—Andrew Orvis, Master, Whitby; Wm. H. Orvis, Secretary, Whitby.  
 109. MERTON.—N. J. Campbell, Master, Nelson; Joe McCarlie, Secretary, Nelson.  
 110. PRIDE OF THE WEST.—James Bryans, Master, Kirkton; Robert Deatty, Secretary, Kirkton.  
 111. HOPE.—Alex. Locking, Jr., Master, Clifford.  
 112. CARRICK.—Wm. Anderson, Master, Belmore; David R. Green, Secretary, Belmore.  
 113. CEDAR SPRING.—Wm. Anderson, Master, Lucknow; M. McDonald, Secretary, Lucknow.  
 114. EXCELSIOR.—G. E. Harris, Master, Ingersoll; Wesley E. Scott, Secretary, Ingersoll.  
 115. FAIRVIEW.—N. McColman, Master, Clarksburg; Arch. Campbell, Secretary, Clarksburg.  
 116. ENTERPRISE.—Andrew Shore, Master, Thornbury; John Atkins, Secretary, Thornbury.  
 117. NORTH DORCHESTER.—Simon Wholey, Master, Avon; Edward Hegler, Secretary, Avon.  
 118. WILTON.—James Lewis, Master, Wilton; Jeremiah Snider, Secretary, Wilton.  
 119. NEWPORT.—Alonzo Benedict, Master, Newport; Wilmot Swaisland, Secretary, Brantford.  
 120. ACACIA.—P. S. Van Wagner, Master, Stony Creek; F. M. Carpenter, Secretary, Stony Creek.  
 121. GORE.—Francis Sleightholm, Master, Humber; Wm. Foster, Secretary, Humber.  
 122. DERRY WEST.—George Rutledge, Master, Derry West; Luther Cheyne, Secretary, Brantford.

**BRANTON FAIR.**—The 28th day of April has been decided upon as the day for the holding of the Fair of the County of Peel Agricultural Society.

**\$20,000 COW.**—Mr. A. J. Alexander's \$20,000 cow, 9th Duchess of Airdrie, passed through Lexington, Ky., lately, on her way to Mr. G. M. Bedford's, to breed to the 14th Duke of Thorndale.

**SALE OF STATESMAN.**—Mr. James Russell, Richmond Hill, Ont., has sold to Mr. D. D. McRae, Jones Co., Ia., the red bull calf, Statesman, by imp. Inkerman (31414), out of imp. Buchan Lassie 2nd.

**THE WINNINGS** of the get of Lexington, for 1874, are \$51,739 33. Australia, \$50,314 67. Planet, \$4,956 66. Leamington, \$31,535. Vandal (now dead), \$30,902. War Dance, \$27,508 33. Asteroid, \$21,343 33. Total for the seven horses, \$258,299 32.

**HOW LONG WILL A EWE LIVE?**—On the estate of Durris there is a crofter who has had a cross-bred ewe in his possession for fifteen years. The ewe is now sixteen years old, and has borne thirty lambs—three times singles, nine times doubles, and three times triplets.—*Aberdeen Free Press*.

**THE ENTRIES** for the Birmingham Short-Horn Show, held on March 3, were most extraordinary, and show the importance which the typical breed of English cattle has attained. 398 animals were entered, more than double the number expected. The great features in the organization of this show are that all the animals must be eligible for entry in the *Herd Book*, and be for absolute sale by auction, without any further reserve than 20 guineas, excepting in Class 6, where the reserve must not exceed 50 guineas. Particulars of the show have not yet come to hand.

**BLENHEIM ORANGE APPLES**, grown last season in an orchard at Perryfield, Surrey, England, weighed when gathered 19 and 22 ozs. each, and fifty on the same tree were each over 1 lb. Mr. Richardson, the gardener at Perryfield, informs us (*Garden*) that the productiveness of the orchard in question is remarkable, the trees every season for twenty years being loaded with fruit, even when scarcely any exists in the neighborhood. They are planted on a bed of clay in which there are here and there small nodules of iron-stone and flint, and are top-dressed every other year with stable-dung. Provide good shelter—an important point—says Mr. Richardson, manure well, and prune every year, and plenty of fruit will be the result.

## Ontario Poultry Society's Show.

The Ontario Poultry Society held their first annual exhibition at Guelph on March 2 and 3. Notwithstanding the severity of the weather, the show was a great success. The number of entries was very large, comprising Dorkings, 16; Cochins, 47; Brahmas, 47; Spanish, 8; Leghorns, 8; Plymouth Rocks, 8; Games, 31; Polands, 30; Hamburgs, 46; Houdans, 9; Bantams, 24; turkeys, 21; geese, 16; ducks, 19; pigeons, 41; canaries 18. There were besides these several classes in which there are only a few entries, and the entries for the special prizes were numerous. There were about 500 entries altogether.

The judges were:—On fowls, Messrs. Forsyth, of Toronto; Griffiths, of Byron; Butterfield, of Sandwich; and Goldie, of Guelph. On pigeons and song birds, Messrs. Howard, of Toronto, and Doel, of Chester.

Entries were made from Quebec, and from Buffalo, Detroit, and other places in the United States. The show of canaries, sky larks and other song birds was interesting. Among the song birds were an English gold-finch and a blackbird.

The principal prize winners were:—For fowl, Messrs. Jarvis, Bogue Rooks, of London; H. M. Thomas, W. M. Campbell, Brooklin; J. W. Dean, Oakville; J. Aldons, P. Breiding, Berlin; C. Matthews, Brougham; D. Allen, R. McMillan, Galt; T. Gale, A. Frazer, Quebec; Wright & Butterfield, Sandwich; F. Sturdy, A. A. Suddaby, H. Sallows, J. Craig, J. W. Moyes, J. Dobbie, J. Goldie, T. Cordy, C. Heat, A. West, Guelph; J. Fullerton, Strathroy; J. Main, Trafalgar; J. B. Johnson, Toronto. For turkeys, J. W. Russell, Hornby; T. S. Henry, Oshawa; J. Main, G. S. Simpson, L. G. Jarvis, J. Cowan, T. S. Henry, J. Goldie. For ducks, J. Bogue, F. Sturdy, D. Allen, J. Main, L. G. Jarvis. For pigeons, J. B. Johnson, D. A. Hofheims, Buffalo; H. Bogue, H. M. Thomas, T. S. Henry, J. W. Dean H. B. Alley, London; J. Woodley, Quebec. For canaries, J. Inglis, J. McBride, W. A. Suddaby, J. Kehler, Guelph. For English sky-lark, R. McMillan. For European blackbird, H. Anderson, Guelph.

## American Berkshire Swine Breeders' Association.

A meeting of breeders of Berkshire swine was lately held at Springfield, Ill.,—the Hon. A. M. Garland occupying the chair,—at which the following preamble and resolutions were adopted:—

The undersigned, breeders of Berkshire swine, recognizing the importance of a trustworthy record that shall be accepted as a final authority in all cases of pedigrees, and deserving to be received as authority in all questions of pedigree, and desiring to secure the influence and co-operation of those who feel a general interest in zealously guarding the purity of their stock,—do hereby unite in founding an association for the publication of a Berkshire Swine Record. Therefore, be it

*Resolved*, That this organization be styled the American Berkshire Swine Breeders' Association; and that the object be the publication of an authorized Berkshire Swine Record, as set forth in the foregoing preamble.

*Resolved*, That a cordial and hearty invitation be extended to breeders in this and foreign countries to co-operate in making a thorough and official pedigree record.

The officers for the year 1875 are:—T. M. Caldwell, Williamsville, President; A. M. Garland, Springfield, Secretary; Phil W. Springer, Treasurer.

An executive committee was appointed to draft a constitution and by laws for the Association.

## The Polled Herd Book.

Mr. Ramsay, Banff, editor and proprietor of this book, has issued the third volume. It contains a register of 1093 animals, of which 912 are of the Aberdeen or Angus breed, and 187 of the Galloway variety. The Angus cattle consist of 670 cows and heifers, and 242 bulls, while the Galloways are made up of 123 cows and heifers, and 59 bulls. The importance of a carefully kept pedigree to breeders cannot be over-estimated. We are glad to notice a growing feeling among breeders of polled cattle in favor of regularly-recorded pedigrees. The growth of this feeling is pleasantly manifested by the fact that in the volume just published a considerable number of entries are made from herds hitherto unrepresented in any such record. Polled cattle have been rising in value for some years, and there is no doubt they have not yet reached either their maximum price or numbers.—*North British Agriculturist*.

A BULLOCK WAS SLAUGHTERED in Philadelphia lately, whose live weight was 2,720 lbs., and which, when slaughtered, was 1,920 lbs., being 76 lbs. to the 100. This sets the *Practical Farmer* to looking up the records of heavy steers killed in Pennsylvania, and the following is the result: The one raised by Jacob Snyder, of Mercer Co.,

weighed alive 3,860 lbs. and 2,782 lbs. of dressed beef. John Hunter, of the 24th Ward, Philadelphia, raised and fed a Short-horn heifer which weighed alive 1,420 lbs.; net weight 994 lbs., making 70 lbs. to the 100. The "Winger Steer," fed in Lancaster Co., Pa., and killed in Philadelphia by Ridey & Crook in 1868, weighed alive 3,360 lbs., dressed weight 2,630 lbs. The "Seymour Steer," killed by John Ridey in 1860, weighed alive 3,380 lbs., dressed 2,455 lbs. He girthed 10 feet. The ox "Pennsylvania," slaughtered in Philadelphia in 1841, weighed alive 3,350 lbs., dead weight 2,388 lbs. The two mammoth oxen, fattened by Edwin Tonkin, Gloucester Co., N.J., weighed, one 3,042 lbs., the other 3,040 lbs. The "Ayrault Cattle," fattened by George Ayrault, near Poughkeepsie, N.Y., slaughtered in 1870, weighed, one pair, Nos. 3 and 4, 6,846 lbs., net weight, 4,537 lbs.

## Mr. J. Gardner's Short-horn Sale.

The prices realized at the sale on March 3 of Mr. J. Gardner's Short-horns, at Britannia, Ont., were not large, which may be ascribed to the severity of the weather and the partially blockaded state of the roads keeping buyers from attending. The following are the names of the cattle sold, their buyers and prices:—

Reese and c. o., S. J. Pearson, Meadowvale, Ont.	8150
Daisy and b. c., J. & D. Keppel, Bardolph, Ill.	225
France, same	170
L. and c. c., J. B. Craig, Edmonton, Ont.	235
Lady Maid, same	272
Monie, J. & D. Keppel	235
Gladstone, J. & D. Keppel	200
Champion, same	55
Dumblin, J. Clarkson	40
Canadian Lad, S. J. Pearson	95

HER MAJESTY THE QUEEN has intimated her willingness to become Patroness of the Short-horn Society.

SEED GRAIN of very superior quality can now be procured from Mr. William Rennie, Toronto, whose present stock should meet with a ready sale.

HON. M. H. COCHRANE, Compton, Q., has sold the Short-horns, Nellie Gwynne, Rosa Lily, and Rosa Lily 2d, to Benj. Sumner, Woodstock, Conn.

THE MARE "Clara G." that was sold in '72 for \$15,000, fell and fractured her leg, the other day while trotting at Barnum's Hippodrome.

MR. J. R. CRAIG, Edmonton, Ont., has sent a cable telegram to Sir W. C. Travelev, Newcastle, England, to secure Acomb J., a sister on dam's side of Waterloo J., recently sold at his sale.

DR. CUNNINGHAM, a well-known Kentucky Short-horn breeder, died at Hedges Station, Clark Co., that State, on March 2. The sale of his stock, announced for July, will not be postponed on account of his death.

THE IOWA Agricultural Society, in offering premiums for pedigrees on Short-Horns, is following the lead of English societies, by whom blood is taken into account in awarding prizes.

THE DAIRY-FARMERS of Wigtownshire have challenged the Somersetshire farmers to enter into competition with them on the quality of their cheese, the match to be for \$100 a side. The match will come off at the Fair at Stamford on September 15 and 16.

TENTH DUCHESS OF GENEVA.—The Earl of Bective's Tenth Duchess of Geneva, purchased at the New York Mills sale in 1873, has dropped a heifer calf by 2d Duke of Tregunter. She produced a bull calf soon after her arrival in England in 1873.

PUNISHMENT FOR DILUTING MILK.—A man convicted in an English court of selling adulterated milk was not only fined, but was sentenced to have an advertisement published at his expense, stating that he had been convicted of the offence.

A COW WITH A WOODEN LEG.—An English country paper records the following fact:—A young cow on the farm of Mr. Wilson, in Barrowdale, Cumberland, recently broke her leg. It was amputated, and a wooden leg supplied, and she is now stumping about and doing well.

THRASHING MACHINES were invented as long ago as 1732. The principle of the early machine was similar to thrashing with flails. The present form of drum, with spikes revolving in a concave having similar spikes, was invented in 1785, although previous to 1854 wooden rods were used instead of spikes.

CONSIDERABLE ALARM is being shown in England at the prospect of the importation of Colorado beetles. Switzerland, Austria, France, Belgium and Prussia have prohibited the importation of American potatoes. It is probable that, if introduced at all into Europe, the Colorado beetle will be taken by something else than potatoes, for the tubers themselves could scarcely carry them.

THE LATE DUKE OF MONTROSE.—The death of this venerable man is announced at Cannes in the south of France, in the 76th year of his age. Nearly twenty years back the Duke laid the foundation of a Short-horn herd at Buchanan Castle; and May Morn, from Mr. Cator's New Year's Morn, won as a two-year-old at the Battersea Royal meeting; as the stock was for a time very successful in the ring. Both blood was chiefly in fashion at Buchanan, where, however, the Ayrshires found milk for the family.

THE MESSRS. GROOM, of Clark Co., Ky., have gone to England to hunt for Bates' cattle

\$3,805 FOR ONE SHEEP.—At the great sheep sales at Melbourne, in Australia, Lincoln, Leicesters and Merinos brought high prices, viz.: Lincoln rams ranged from \$118 to \$190. The Leicester ewes averaged \$114 60. 150 Merino rams sold at prices ranging from \$168 to \$425. The first 26 averaged \$282 40. The head of this Merino family, "Sir Thomas," sold for \$3,805. So reports the *Melbourne Mercury*.

EXPORT OF HORSES FROM FRANCE.—Horses were exported from France, in the first nine months of 1874, to the value of \$3,000,000. They included 5,217 mares, 536 stallions, and 11,959 geldings. The exports for the corresponding period in the two previous years were: 1873. Mares, 4,957; stallions, 616; geldings, 12,990. 1872. Mares, 4,265; stallions, 992; geldings, 7,126. They are exported principally to England, Belgium, and Germany.

HON. M. L. DUNLAP, of Illinois, a well-known agricultural writer, died since our last issue. He was in former years a constant contributor to the *Western Rural*, the *Prairie Farmer*, and other leading agricultural papers. At the time of his death he was conducting the agricultural department of the *Chicago Tribune*, in which position he has been succeeded by Mr. Jonathan Periam, a gentleman especially qualified, by forty years of farming experience in the west, for the task.

THE JAPANESE PERSIMMON is being introduced into California. General Capron, formerly Commissioner of Agriculture, and since for several years residing in Japan, states that "the persimmon is the best of all the native fruits of that country, and well worthy of introduction into California." The tree is described as finely shaped, having a rich, dark green foliage, and is an ornament anywhere. It comes into bearing from seed in Japan in from six to eight years.

MICHIGAN PEACH CROP.—"R. A. L.," South Haven, Mich., writes us that, apparently, that district is not going to break its record of nineteen successive peach-crops, notwithstanding the unprecedentedly cold weather and the fact that elsewhere peaches are reported killed almost universally. "From fifty to seventy thousand more fruit trees will be set out this spring in this vicinity, which is a good indication of our faith in the future of fruit."

CATALOGUES have come to hand of the Short-horn sales of Hon. M. H. Cochrane, Compton, Q., on March 31; the Glenfold herd, C. C. Parkes & Co., at Waukegan, Ill., on April 7; the Hopton herd, of H. Chandos-Pole-Gell, Esq., of Wirksworth, Derbyshire; the Heybridge herd, of J. W. Phillips, of Heybridge, Staffordshire; the Aylesby herd, of the late Wm. Torr, Esq., of Great Grimby, Lincolnshire, on Sept. 2; and the Linden herd of H. Reazin, Esq., Feneion, Ont., on March 17th.

SOMETHING OF A FARMER.—The Bloomington, Ill., *Pantagraph* say four years ago Jacob Ziegler went from Normal into Dewitt county, and rented Judge Davis' 1,700 acre farm, near Clinton. His worldly possessions at that time consisted of eleven head of horses, a few family utensils, and about \$500 in money. This year he has raised 18,000 bushels of corn, has 235 head of cattle, 30 head of horses, and about 400 hogs, showing in all stock on hand amounting to at least \$100,000. The *Pantagraph* intimates that Mr. Ziegler made his money by minding his own business.

THE South Huron Agricultural Society, at their annual meeting, had submitted to them a careful and able statement prepared by their Secretary, Mr. H. Love, showing the progress being made in their portion of the county. The question of the rapid destruction of the timber receives notice, and the opinion is expressed that the general and local governments will soon have to take the matter in hand, with a view to encouraging the planting and growing of trees. Crops, except hay, were good. The development of the dairy interest is astonishing. The importations of live stock into the county have had a marked and beneficial effect.

SHEEP A MONTH UNDER A SNOW-WREATH.—During a snow-storm in February a Cheviot ewe, belonging to Mr. Elliot of Hindhope, Scotland, was imprisoned in the snow for a month. Notwithstanding this long imprisonment, the ewe when recovered was alive. Mr. Cran, Mains of Lesmurdie, Aberdeenshire, had a considerable number of sheep covered up with snow on New Year's Day, and a few of them were smothered. One sheep was below the wreath for 20 days. The thaw relieved it from its imprisonment, when it came out and joined the flock. The poor animal was minus the wool from the greater part of its hind-quarters, which it had eaten off.

NURSERY CATALOGUES, ETC.—We have received catalogues and price-lists from the following firms and persons: George Keith, Toronto, garden, agricultural and flower seeds; H. E. Hooker & Bro., Rochester, N.Y., trees, vines, roses, stocks, etc.; James Fleming, New York, flower, vegetable and agricultural seeds, implements, etc.; Bush, Son & Meissner, Saint Lewis, grape list; Wm. Morton & Son, Allen's Corners, Me., evergreens; F. K. Phoenix, Bloomington, Ill., greenhouse and bedding plants; Geo. J. Child, London, Ont., garden, agricultural and flower seeds, implements, etc.; E. Y. Teas & Co., Richmond, Ind., roses, greenhouse and bedding plants; James Vick, Rochester, N.Y., No. 2 of the *Floral Guide*; Storrs, Harrison & Co., Painesville, O., fruit trees, seeds, plants, etc.

## Seeds.

### New Variety of Rhubarb.

The *Rheumobile*, a native of India, has just been introduced into England. Dr. Hooker describes it thus.—The individual plants of *Rheumobile* are upwards of a yard high, and form conical towers of the most delicate straw-colored shining semi-transparent concave imbricating bracts, the upper of which have pink edges; the large bright glossy shining green radical leaves, with red petioles and nerves, forming a broad base to the whole. On turning up the bracts the beautiful membranous fragile pink stipules are seen like red tissue paper, and within these again the short branched panicles of insignificant green flowers. The root is very long, often many feet, and winds among the rocks; it is as thick as the arm, and bright yellow inside. After flowering, the stem lengthens, the bracts separate one from another, become coarse red-brown, withered and torn; finally, as the fruit ripens they fall away, leaving a ragged-looking stem covered with panicles of deep brown pendulous fruits. In the winter these naked black stems, projecting from the beetling cliffs, or towering above the snow, are in dismal keeping with the surrounding desolation of the season.

### Spring Wheat.

EDITOR CANADA FARMER.—At the present time, when farmers devote a good deal of anxious consideration to the question of "What can we grow with the greatest amount of profit?" and, as hitherto, spring wheat has been a leading cereal, and must still continue to be extensively cultivated, I append a few ideas in reference to our experience in this locality. We have tried several varieties of spring wheat in this township, and each variety has its admirers, owing to the different soils, so that where one kind of wheat might flourish another might entirely fail.

The Ohio is considered about the best variety, and on high and dry land gives perhaps the largest return of any, but, when sown on low or damp soil, it is very liable to be injured by rust or blight. It delights in a rich mellow soil.

The Fife ranks next in order, and, for general cultivation, is safer than any other. It yields well, and is generally preferred by millers. The straw is stiff and does not rust.

The Red Chaff seems to be gaining friends, and, with the same cultivation, gives the best yield. The grain is coarser than either the Ohio or Fife, but it seems to improve every year, so that, in a year or two, it may be equal to the others. The straw is not as stiff as that of the Fife, but it stands well, and does not rust, and is well suited to low or swampy land. But in a few years it may lose its productiveness, so that by the time it is acclimated we may want another change, which brings the suggestion that it is the land that is run out and not the wheat.

If we would return to the soil what is required to produce wheat, we would not require to change our seed so often; and where turnips are raised to a considerable extent (unless artificial fertilizers are used), it is impossible to raise a first-class crop of wheat. We want more and better manure; to raise more clover and not sell it; cleaner cultivation and mixed farming—not, when one crop is high, discard all others for that one. Wheat is low at present, too low to pay the expenses of production. Still it will not pay to give it up.

Instead of going to extremes, we should sow only where we are sure the soil is in proper order for an extra crop. Get it in in the best possible manner, and raise a part of everything that the land will produce to advantage. We shall then have more time to attend to them properly, would be less affected by rise or fall, and, by a proper rotation, keep up the fertility of the soil.

Erie, Ont.

ZENAS.

**PERMANENCE OF VITAL POWER.**—In clearing away the refuse from the ancient silver mines of Laurium, Greece, a large number of seeds of a papaveracea of the *Clavium* genus were found, which must have been buried there for at least fifteen hundred years. Exposed to the beneficent influence of the sun's ray, they rapidly took root, flourished, budded and blossomed, their yellow corollas being beautiful in the extreme. This interesting flower, unknown

to modern science, is particularly and frequently described in the writings of Pliny and Dioscorides, and is thus again resuscitated, after having disappeared from the surface of the globe for more than fifteen centuries.

### Silver-Hulled Buckwheat.—Mammoth Squash.

EDITOR CANADA FARMER.—In the spring of 1873 I purchased one-fourth of a pound of silver-hulled buckwheat, and sowed it in drills and raised 67 lbs. Of this last season, I sowed one and a quarter bushel on about two acres of the poorest land I have, and half of it ploughed only once. I threshed fifty bushels, good measure, beside five bushels at least which my fowls eat. I have not had any floured yet, but the appearance of it convinces me that it will make more flour per bushel and yield more per acre than common sorts. It will weigh three or four lbs more per bushel.

I also purchased a packet of Mammoth Squash or pumpkin seeds, which I planted in 1873, of which two stems only came to maturity growing two pumpkins weighing about 50 lbs each, with the appearance of a squash and flavor of a pumpkin, and superior to the common. As the land was in a poor condition I determined to try them again, and with a better chance, which I did. From six stems I took twenty that weighed 1,761 lbs. The land occupied was about two square rods. I don't know of any crop on well manured land that will produce the same amount of food for cattle in the fall.

FRANCIS PECK.

Prince Edward Co., Ont.

### Fultz and Diehl Wheat.

EDITOR CANADA FARMER.—One of my newspapers has in it an account of the growing, under experiments at the Wisconsin Agricultural College, of the Fultz and Diehl wheats. The Fultz yielded 35 bushels, and the Diehl nearly 32 bushels. As we are invited to give our experience, I presume the invitation will extend to asking our brother-farmers for their experience through the CANADA FARMER. I should like to know something of these wheats from some farmer who has had experience with them.

YOUNG ONTARIO FARMER.

### The Extra Early Vermont.

EDITOR CANADA FARMER.—I notice some letters in the February number about the above (swindle I call it). Like other illots, I was fool enough to give seventy-five cents a pound for some last year. When they came up, they were early Rose and nothing else. I am quite sure of it. Am I the only one that was "sold?"

Lambton Co., Ont.

VICTIM.

**BEST ENGLISH POTATOES.**—A correspondent of the *Flora World* selects as the six best varieties of potatoes now fashionable in England—Mvatt's Ashleaf, Beaconfield King of Potatoes (yellow flesh), Waterloo Kidney, Late American Rose, and Rixton Pippin.

"PROPER" WHEAT is the name of a California variety which is said to be attracting attention there because of its early maturity, great productiveness and the excellent quality of the flour made from it. It is said to have brought \$1.60 in the San Francisco market, when the best other varieties were selling at \$1.50 and \$1.53.

**CELERY.**—The *Garden* says that experimental trials at Chiswick last season shew that out of some hundred so-called varieties of Celery not more than a dozen are distinct; and that these trials in question and the special Celery prizes competed for at South Kensington in November, shewed that the best red Celery is Major Clarke's or Leicester Red, and the best white, Sandringham or Incomparable Dwarf White.

**SEEDLESS WATERMELONS.**—The Sutter, Cal., *Banner* says: We are informed by Mr. William Mawson, one of the champion watermelon growers of Sutter County, of a novel way of producing seedless watermelons. When the vine begins to bear he lets the first watermelon on each branch grow undisturbed, but covers the branch up with dirt, from the first melon to the second one, or within six inches or more from the end of the vine will be a seedless watermelon, the melon nearest the body of the vine having kept all the seed.

**SIDNEY BLUE AND CARPENTER'S SEEDLING.**—A *Country Gentleman* correspondent says of these two new potatoes. "The Sidney Blue came to me last spring from Australia, via Washington Territory. In color it resembles the much lauded Compton, which it far surpassed in yield and quality with me last season. Its form is more round and presents a much smoother appearance than the Compton. Carpenter's seedling is a very long, smooth, rose-colored potato, sent out last spring from Orange County, N. Y. I failed to discover anything extraordinary about it, but my trial was rather unfavorable, as I failed entirely in getting a crop of Early Rose, planted in the same field with it, I therefore report it worthy of further trial.

## Correspondence.

**KNOTTING.**—A. S., Cayuga, Ont.—Thanks for your suggestions. We shall probably take up the subject again.

**GRAFTING.**—S. A. H., Kendall, Ont.—Full directions for grafting will be found in another place in this issue.

**FREE GRANT LANDS.**—J. Brown, St. Louis.—Apply for information and pamphlets about the Free Grant Lands to Secretary Immigration Department, Toronto.

**MACHINE FOR ASSORTING POTATOES.**—J. W., Malton, Ont.—The machine for assorting potatoes, mentioned in the January number of the CANADA FARMER, is, we believe, an American invention. We do not know the address of the makers. They should advertise themselves.

**QUANTITY OF CHEESE AND BUTTER FROM MILK.**—L. Graham, Matilda, Ont.—One pound of butter from twenty pounds of milk is a good yield. One from twenty-five is a good average.—One pound of cheese from ten pounds of milk is the average make.

**IMPROVED SHEEP SHEARS.**—Several correspondents have inquired about the new shears of which we gave an illustration in our January number. They are an English invention not yet introduced here. We should judge that the demand for them will be great when they become known on this continent.

**BEST DURHAM BULL CALF AT ONTARIO PROVINCIAL EXHIBITION.**—Reader, Mariposa, Ont.—The first prize of \$20 for the best bull under one year old at the last Provincial Exhibition, was awarded to Barrall and Johnston for Doctor Mara, red and a little white, nine months, 27 days old, bred by exhibitors; sire Doctor (633), dam Mara by the Priest (743).

**BLACK SPANISH AND DARK BRAHMS.**—DURHAM SEW.—We have an inquiry from a Toronto reader for the address of some brooder of Black Spanish and Dark Brahma for improving farm poultry, not for exhibition. Our advertising columns are open to those who have the fowls inquired for. The same correspondent wants to know where he can get a Berkshire sow. The same answer is applicable.

**BREEDING MINKS.**—A. M. D., Larknow, Ont.—The WEEKLY GLOBE of Feb. 12 had a long article on breeding minks. We understand that the experience of those who have bred minks demonstrates that the animals cannot profitably be bred for their fur alone. The instances where their breeding has been profitable are found to be where they are bred to be sold alive as curiosities, or for the starting of other minkeries.

**HOPS.**—SETS WANTED.—We have lost nearly half of our plantation of hops through rust and lice and cannot get any roots in this Province, as the plantations from which we got our roots have entirely died out, and our own do not produce runners to any extent. Will some one who has them for sale in Ontario advertise the fact through the CANADA FARMER?—E. E., Cumberland Bay, Queen's Co., N. B.

**APPLYING SALT.**—J. G. R., West Zorra, Ontario.—For winter-wheat, sow salt broadcast on the soil, just before the wheat; for spring crops, either very early in the spring as soon as the land is ploughed, or late in the fall on newly ploughed land. The quantity that will be most beneficial depends so much on the quality of the land that it cannot be answered, and must be discovered by experience. A barrel to the acre we should reckon on.

**CATTLE IN BARN BASEMENT.**—I contemplate turning my cattle loose into the base next story of my barn, which is at present 30x50 feet. This story is at present taken up by the manure from the stables in second story. I also propose feeding them and watering them in said enclosure, as I have a never failing spring of water near at hand, which I intend conveying in pipes so that the stock can have constant access thereto. 1st. Will the place be too damp? 2nd. Would it be better to let them out to the open air in winter season? 3rd. Shall I require to have it ventilated?—Thos. A. McDonald, Durham, N. S.

1. If the basement is damp it will be objectionable. If well drained, it will not. 2. The cattle will be better for being let out in the day time in mild weather. 3. The place must be ventilated or the cattle will not thrive.



## Miscellaneous.

### Finding Water—A Simple Well Auger.

The continued prevalence of empty cisterns and dry wells prompts me to give your readers my experience in water finding, which, not being patented, costs them nothing but the perusal.

About fifteen years ago I came to Chatsworth, Ill., then a railroad station with but one house. The country was thinly settled, and the season had been unusually dry. We had but one well at the station, and that scarcely supplied sufficient water for drinking. Water must be had, and I had not the remotest idea how deep I would have to go to find it. All the methods of boring I had ever witnessed were decidedly too expensive to suit the condition of my finances, and digging without knowing how deep I would have to go was risking more than I cared to invest in such a lottery. In this dilemma, I concluded to try a plan of my own. I accordingly made a pod auger that would bore a hole about two inches in diameter. On the upper end of the shank of this auger I made an eye that would receive a half inch hook, then taking several rods of half inch round iron, I shrank hexagon nuts on them at intervals of about two feet, to prevent my hands from slipping, while pulling the auger up. I then made a handle about two feet long, that could readily be fastened anywhere on the rods, and with an eye turned on one end of each rod, and a hook on the other, I was prepared to go to boring.

With this apparatus I bored to a depth of sixty-four feet in one day, when I found a good vein of water. The last three or four feet, however, consumed nearly one-half of this time, as I found a kind of hard pan directly over the water, which would not slip on the auger, but adhered to it so tenaciously that I could only bring up an inch or two of it at a time.

I subsequently tried in other places, but failed to find water any nearer the surface of the ground, but I was prepared to go to digging with some degree of assurance that my labor would not be thrown away.

Since then I have always kept an auger of this kind, and as hundreds of farmers can testify, it is a water witch that can always be relied upon. Any blacksmith who knows how to make a pod auger can get up a rig of this kind at a trifling expense, and it will be the most profitable investment, for a small one, that he can possibly make, as it costs but little to keep it in order, and almost any farmer would be willing to pay fifty cents or a dollar for the use of it to find water, before commencing to dig a well.

When boring with an auger of this kind, a man should never stop until he gets as deep as he intends to go, as surface water may come in and interfere with his work. And when he strikes a vein of water he should be particular to notice how quickly it rises, as a good vein will rise almost instantly, while water that comes up slowly is not worth digging to. While boring, there should always be about six inches of water kept in the hole, but if too much water is used, it will create slush, and render the auger hard to pull out. If, while unhooking the rods, one should be accidentally dropped in the hole, it can be recovered by bending one of the hooks to one side, which will enable it to catch on a corner of the lost rod, and bring it up, or, what is better, a short rod, with the hook bent in this manner, might always accompany the auger, to be used in case of necessity, and thus save bending the rods. Such an accident, however, can only occur through carelessness, as the rods cannot possibly unhook while in the hole.—*Cor. Western Rural.*

### Vegetable Philosophy.

Each seed, bud or young plant is an individual living being. As it passes through its periods of youth, maturity and reproduction, it must be fed and nourished to sustain its development. Some of the essential conditions of perfect development are beyond our control, such as the composition of the air and life, the history and physiology of the plants which are subject to the fixed and immutable laws of the Creator. Others can be modified and controlled by it, such as the porosity, wetness, dryness or composition of the soil; also the seed, and the season, and the manner of cultivation and harvesting. It is to these latter only that the agriculturist can, with advantage, devote his attention. All plants receive their nourishment of food through two channels: First, through their leaves from the atmosphere; second, through their roots from the soil in which they grow. In general terms the leaves absorb all the carbon (in the form of carbonic acid gas) that is found in the plant, also part of the ammonia, but very little, if any, water. On the other hand, the roots

absorb all other elements, of which are lime, magnesia, potash, soda, chlorine, sulphur, (sulphuric acid), phosphorus (phosphoric acid), silicic acid (sand), oxide of iron, alumina, nitric acid of ammonia, and few others in minute quantities. It is evident from the conditions of the case that we cannot modify or improve on nature, by attempting to feed the plant through its leaves. For this nature has abundantly provided. But the channel or medium of the roots is entirely under our control. From 9-10ths to 99-100ths of the bulk and weight of plants come originally from the carbonic acid of the air, and from the water of the soil. Both these go off as gases when the plant is burned. The ash or mineral matter left came only from the soil. The ash of wheat (grain) is only two per cent. of the original, perfectly dry.

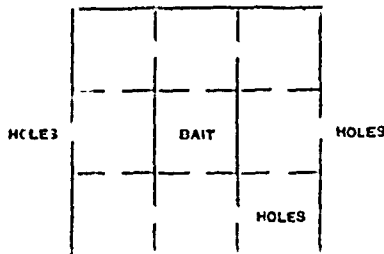
	Per cent.
Of wheat straw.....	5
Of clover hay.....	6
Of rice.....	1/4 of 1
Of corn (grain)....	1 1/2

And this very small proportion of mineral matter is absolutely essential to the growth of the plant. You may sprout grain floating on the surface of pure water in a glass or in a bed of pure sand, but it cannot thrive or grow. But if you add to the water (or sand) all the elements of the ash, as given above, it will rapidly revive, flourish and arrive at maturity in the usual season. If a single important element, however, is omitted, such as magnesia, potash, sulphuric or phosphoric acid, the plant is unable to mature and re-produce itself. This has been proved. In general terms, then, any application made to the soil, with a view of increasing the yield of the crop, may be considered a fertilizer.—*Dr. A. N. Pratt, before Washington University.*

### A Vermin Trap.

An easily made and efficient vermin trap will be appreciated by every farmer. A correspondent of the *Country Gentleman* gives the accompanying figure, and explains it thus:—

I make a box two feet square, four inches deep, and divide it into nine equal parts, as shown in the illustration. I put a cover on it with hinges, and make holes as marked;



then put in some chaff and something to entice the rats or mice into the box. Anyone using it will soon have the whole of the mice visiting the establishment. I have taken from one to thirty-three at a time in this way. It will be seen that the mice have to pass through three boxes before reaching the centre one, where the bait is placed. It is by far the most effectual way of exterminating mice that I have ever seen tried. When the box is made on a larger scale it is good for a rat trap. Mice and rats will often run into the box when disturbed in other places. When one wishes to kill the mice in the box, he has only to plug the two holes and carry the box to a clear open place. It is fun for boys with a dog.

### Driving Fence Posts.

A neighbor told me how to make a board fence rapidly and cheaply last year. He and his hired man went to the field where the fence posts, with ends slightly sharpened, were lying along the line of the proposed fence. One man stood on a platform two and a half feet high, and with heavy mallet drove the posts as the other held them in position. Eighty posts were thus put down three feet deep in one afternoon. The ground was free from large stones, and the time selected was just after frost had left the ground in the spring. The posts were white oak, and did not split by being driven. The ground was so soft that severe pounding was not necessary, and doubtless softer wood might have been used. The fence stood firmer than where holes had been dug and the posts regularly set.

It is possible this method could be adopted on soils where there is some stone by working a crow bar down through the soft earth to the required depth, shoving aside the stones before the post is driven down. Two stakes driven down side by side, with room for rails between, and wired at top, make an excellent and cheap temporary fence; and a post driven or set three feet, with a stake beside and wired to it to hold the rails, make a fence both cheap and durable; by driving the stake into the ground twelve to fifteen inches, only one wire will be needed, and that at or near the top. Such a fence takes little room, and by using old rails and pieces of rails need cost but little money. It is less liable to sag than the ordinary board fence made in the usual way.—*Cor. New York Times.*

### How Malt is Made.

The grain is first taken up by an elevator run by steam, and is poured into a weighing bin, from which it passes through an automatic arrangement, where the chaff, light heads, dust, etc., are carried off by the air, after which the good grain passes over a sieve, which separates any other foreign matter which may remain. It is then carried to the storage room by a conveyancer. The grain is now ready for the steeping or soaking tubs in the basement, where it remains from twenty-four to forty-eight hours, according to the grain and temperature.

After being sufficiently steeped the grain is removed to the different floors by an elevator, and spread out so as to give it time to sprout before being placed in the kilns. It is necessary in the manufacture of malt to have the grain sprout in order that the sugar may be extracted, from which the alcoholic properties are derived. After the sprouting process the grain is placed in the kilns, which have to be kept at a certain temperature, and the malt stirred up or turned over several times to prevent its being overheated. It requires from fifteen to sixteen days to convert the barley into malt ready for the manufacture of beer.—*Baltimore Sun.*

### Fish-Culture.

Last month, the American Fishculturist's Association held a meeting, at New York. Many interesting and valuable facts were elicited during the discussions which took place. The progress of the art was shown to be most satisfactory.

Mr. Wilnot, of Newcastle, Ont., who was appointed Canadian delegate to the meeting, read an interesting collated statement from reports which he had submitted to the Canadian Legislature on the subject of fish culture. He divided his statement into three parts. First, he insisted on the enactment of judicious protective laws; then he answered the question which he said was frequently asked by the sceptical, as to why fish should be produced by artificial means instead of allowing them to breed in the natural way; and lastly he pointed out the way in which the artificial process obviated the numerous difficulties which beset the natural breeding of fish.

After referring to the general importance of pisciculture, he strongly urged the necessity of Legislatures making laws for their protection during certain seasons of the year, especially during the close or spawning season. The sea fisheries, he said, did not require the same protection as those inland. On the subject of artificial and natural breeding of fish, he took the salmon as an example, pointed out the way in which the spawn was deposited in the natural process, shewed the various ways in which the eggs were destroyed, such as failure in impregnation, attacks by fish insects, aquatic birds, &c., and contended that not more than one per cent ever came to be mature fish. On the other hand, he shewed that from the care taken in the artificial process, and the way in which the eggs were protected from danger of all kinds, the percentage was more than seventy-five or eighty per cent.

A BOY HISTORIAN says: "Toads is like frogs, but more dignity, and when you come to think of it, frogs is watter."

IT IS STATED by those who say they know, that one pair of rats with their progeny, will produce in three years no less a number than 646,848. At this rate of multiplication it would seem strange that we do not see more of them; but they hide and work in the dark. Brick drains are their chosen haunts. Skirting boards, bricks of fire-places, under the flooring, and between the rafters, are their places for breeding.

MANUFACTURE OF SUPERPHOSPHATE.—The *Baltimore Trade Review* gives a description of the manufacture of superphosphates by Lorents & Rittler, in that city. They make from 15,000 to 16,000 tons per annum, using bones from South America, and from the Charleston, S. C., Bone Deposits, mixed with sulphuric acid, sulphate and muriate of potash, Stassfurt salts and karnit. These are mixed and dried by machinery, pulverized and put up in bags for shipment. In the manufacture of their ammoniated superphosphate, they use large quantities of dried and finely pulverized flesh, obtained in the large abattoirs of Baltimore and the neighboring cities.

THE EUCALYPTUS IN CALIFORNIA.—The city trustees of Sacramento, California, have ordered an expenditure of three hundred dollars in the purchase and setting out of Eucalyptus trees on Tenth and R streets in that city. The order was made upon the recommendation of the Board of Health as an experiment to test the power of the tree as a preventive against chills and fever. If successful, the trees are to be introduced into Sacramento on a larger scale. If the result be as anticipated there are other sections of the State which will doubtless follow the example of Sacramento. Much has been said about the rapidity of growth of these trees, but the most extraordinary statement yet made is by a writer in the *New Age*, who avers that there are Eucalyptus trees in Orange, Los Angeles county, set out only a year ago last March, which now measure twenty-three inches in diameter at the base.



Poisonous Wall-Paper.

Dr. Kedzie, of the Michigan Agricultural College, showed us last summer, when visiting that institution, a large collection which he had made of specimens of wall-paper of different shades and patterns, colored with arsenic, which gives a remarkably delicate and agreeable shade, and hence the eagerness with which these colors are sought.

One of the cases of poisoning was that of a young daughter of a gentleman formerly a State Senator. The room in which she slept was covered with poisonous paper, the ground of which was stone color with bands of bright green.

The only sure way of detecting this poison is by chemical tests, although a practiced eye will often do so from the color. A bright grass green may always be suspected.

Cement for Walls and Cisterns.

With one pint of quicklime or good (new) cement, we use from one to two parts of coarse, sharp sand, to make a stiff paste. This for quality depends on the freshness of the lime or cement, which requires less sand in proportion to its strength.

Finely pulverized soft brick, mixed with about equal parts of wood ashes and a little water in a basin, is put on the surface of a cement-laid or grouted floor of a dwelling house, with a trowel, and worked up to a finish that much resembles a glaze on pottery.

We wish it were possible to impress our masons with the fact that thin joints make the best walls, and require the least quantities of water and cement, both of which are chemically stronger and better for being mixed for the purpose.

The Sense of Smell in Insects.

Fernand Papillon, in Popular Science Monthly, says: Entomologists maintain that scent is very delicate in most insects, and rely on plausible conjectures on this subject, but they do not as yet know what the seat of the sense of smell in insects is.

"HOW MANY PEOPLE," says Jeremy Taylor, "are busy in this world gathering together a handful of thorns to sit upon?"

EVERY NATURE must have the sub-soil ploughing of sorrow, before it can recognize either its present poverty or possible wealth.

CASTOR OIL AMONG THE CHINESE.—A writer states that castor oil has so little effect on Chinese intestines that the Celestials use it habitually in cookery.

NO STABLE IS FIT FOR USE, or economical, unless provision is made for draining the urine from it as soon as it falls.

ATTENTION is directed to the advertisement of Ellwanger & Barry, nurserymen, Rochester, N. Y. They are large and successful growers of fruit and ornamental trees, shrubs and plants.

Don't fail to read the advertisement of T. C. Maxwell & Brothers, Geneva, N. Y. They are reliable men, and have a large stock of the best of Trees, Plants, etc. It will pay you to correspond with them.

"WHERE IS the hoe, Sambo?" "Wid the rake, massa." "Well, where is the rake?" "Wid the hoe." "But where are both?" "Why, bof togeder, massa; you pears to be bery 'ticular this morning."

IN SOUTH AMERICA and Australia it is stated that the immersion of hides twenty-four hours in a two per cent. solution of carbolic acid, and subsequently drying them, has been successfully substituted for the more tedious and expensive process of salting.

WALNUT-TREES sometimes attain prodigious size and great age. An Italian architect mentions having seen at St. Nicholas, in Lorraine, a single plank of the wood of the walnut twenty-five feet wide, upon which the Emperor, Frederick III., had given a sumptuous banquet.

PURIFYING CIDER BARRELS.—A correspondent of the Boston Cultivator accomplishes it this way:—I cleansed a cask that had boiled cider in it; it is as sweet as a new one. I put about two quarts of lime in it and filled it with water and let it stand 24 hours, then turned it out and rinsed thoroughly with water.

TESTING THE VALUE OF ROOTS.—The following anecdote was told at a meeting of the Elmira, N. Y., Farmers' Club, by a member who thought roots did not amount to much: "I knew of a controversy between two neighbors in Pennsylvania on the merits of flat turnips, which they mutually agreed to settle by a test, and to make it interesting, they made a wager of one hundred dollars.

THE SNAKE AND CAT.—There is something wholly significant, writes an American naturalist, in the gleam of the snake's eye—it is a look generally of the most malicious nature. Cats have the same look when irritated. At such times there is a ray of vicious intelligence in the eyes of both cat and snake, and that they are both of them animated by a deadly purpose is soon perceived, should any creature be in their power.

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