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# THE CANADA FARMER

VOL. I. No. 6.

TORONTO, CANADA, JUNE 15, 1869.

NEW SERIES.

## The Field.

### Haymaking.

What is the use of saying anything upon this trite and well-worn subject? we think many will ask; but the truth is, it is a matter of fact that farmers generally understand comparatively little about it yet. But few of them have yet got so far as to study the science of their profession, and until that is thoroughly understood, they will continue to go astray in matters of practice.

Now, there is as much difference in the times of maturity of the several varieties of grasses as there is in varieties of grain.

The object of making grass into hay ought to be, to cut and save it at such times, and in such a manner as will ensure the saving and retention of all the nutritious qualities it contains, at the time when they are most fully developed. Clover should be cut when in full bloom, and cured without an undue exposure to the heat of the sun. To make a really good article of clover hay, nice, sweet and green, it should be cut at the right time, when the plant is full of saccharine juices, and those juices retained in the hay by curing it in a proper manner, which is best attained by shaking out the grass after cutting, so as to give it a drying without putting it through a process of evaporating its rich juices by long exposure to solar heat. To save clover hay in first-rate condition a slight amount of fermentation is necessary, and this is best obtained by putting it up in small cocks at first, then in larger ones, and thus gradually curing it in the shade. When it has been cured in this manner it will not be liable to a second fermentation in the mow or stack, especially if it is salted when stored, or lime in a small quantity scattered among it when it is put away under cover.

Timothy, which is about the only other grass that is largely saved for hay here, is at its greatest perfection to be cut and saved

for hay when the first joint above the root has turned yellow and become hard. If left to ripen its seed, as is too often the case, the juices become turned into woody fibre, and although in that state it will perhaps yield a heavier crop of hay, the hay is of considerably less nutritious value to feed stock than if it had been cut earlier, when the grass was full of saccharine juices. In this respect, however, the fault in a measure lies with the city or town consumers of hay, who, knowing nothing about the chemistry of nutritive values, continue to pay the highest price for that article of timothy hay which contains the most stiff stalks and ripened seeds. When the prejudice existing against early cut hay has become dissipated, through a better understanding on the part of the general public of its nutritive value, as compared with late cut woody fibre, we may expect to see a change for the better in the *modus operandi* of haymaking, and in the mean time let the farmer save the early cut well cured hay for his own use, and sell the other to city consumers.

### Hay Tedders.

Have any of our readers ever seen one of these implements at work? They are a new thing as yet here, although it is some time, we believe, since they were introduced in Great Britain, where they have proved of great use both in saving labour, and making hay of a better quality in a shorter time. We do not know of any of these implements having been manufactured here, and to judge by the appearances of the hay fields at this date, (May 28th), few farmers will have a crop on the ground heavy enough to require the use of any machine to spread it out to dry. No doubt these implements are really excellent, but before we can afford to buy, and use these expensive labour-saving machines, we must make the land produce crops of hay that are worth expending the labour on. An English tenant farmer, who generally cuts from two to four tons of meadow hay, and four to six tons of clover per acre, would

laugh to see a hay tedder playing at hay making on our half seeded lightly covered grass fields, averaging at best one and a half to two tons of hay per acre. On most of our hay fields, the ordinary mowing machine leaves the grass scattered so thinly, that under our hot July sun it gets dry enough to rake what is cut in the morning into windrows and put into cocks the afternoon of the same day. Let us have hay tedders by all means, if we can afford to use them, but give us first heavy crops of hay to use them on to advantage.

### Gang Ploughs.

These useful and labour-saving implements are coming very much into fashion in the Western States, and we noticed in the *California Farmer* that they are very generally used in that country, where great crops of wheat are raised, and labour, both of men and horses, is scarce and expensive. They do the work of several ploughs at once, requiring generally three horses abreast to perform fair work. They will not of course do good work on any soils that are in grass or that are inclined to be tenacious, but on the rich volcanic soils of California, or on the western prairies after they have once had the top crust made friable, they are just the thing needed, and we think they might be more used here, especially in preparing summer fallows, and for breaking up stubbles preparatory to sowing a stolen crop, i. e. a crop of late corn, turnips, rye, or anything intended to answer as fall feed for stock, or to be turned in as a green crop in the autumn. They might well be used to give the last dressing to the soil before sowing fall wheat, or even to cover it in, when it can be sown tolerably early. They are not costly, and can be regulated to cover in seed almost as well as a drill machine, and are much less expensive. If those who manufacture them would advertise in our columns in good time, many more farmers would use them than are now doing.

### Beet Sugar-making in England.

If from 20 to 30 tons of sugar-beet can be grown per acre, and disposed of on the spot at £1 per ton, there is no question but that sugar farming will prove profitable.

The mode of culture must steer clear of two extremes—gross feeding and starvation. The former is apt to produce water rather than sugar, and yet the root must have weight enough to pay. Apart from the question of sugar growing it is worthy of inquiry, how far farmers are wise in growing those mangels that are almost wholly above ground, and whether, even for feeding purposes alone, the Sugar Beet would not prove the more profitable? The chief feeding value of Mangel is derived from its sugar. The question may be asked with great pertinence—whether more food might not be grown by choosing a low-growing Sugar Beet than a high-growing Mangel? For it seems that the part above ground yields scouring salts rather than nourishing and fattening sugar. Heat in any great quantity is not needed to develop sugar.

But how will the new industry affect the feeding of stock and the agricultural interest generally? The stock will suffer much less than is generally supposed. It is difficult to convince many farmers that as much as 90 per cent. of their large Mangels is sheer water. This item can at least be readily supplemented from the nearest pump or pond. We lose nothing by allowing the hydraulic presses to disperse the water of our beet. A brief outline of the *modus operandi* of production will render this apparent to every intelligent reader. The sugar-maker is intent upon extracting the sugar, not wasting or destroying the roots; hence every part of the root not convertible into sugar is used for cattle food or manure.

The first process consists of the trimming of the beets. Along the centre of an open shed a row of women sit, armed with knives, between two long rows of Sugar Beet; those on the outside are untrimmed, those on the inside being dressed. The dressing consists of scraping the rough soil off, removing the fibres and the part of the top that has been above ground. These chippings are then sold for stock food, at 1d. per bushel. The cleaned roots are then caught up by boys, and emptied into a long cylindrical iron cradle or washer; they are delivered at the further end of the washer clean, seized by active hands lying in wait for them, and delivered to the raspers. These convert the roots into a soft homogeneous mass, resembling potato soup or rotten turnips, and deposit it in a small well. Into this well a scoop or basket constantly dips, hung with such nicety that the least touch tips it over and empties its contents. On each side of this spot women are stationed with flannel bags that just hold the contents of this measure, and their business is to empty the measure of beet soup into these bags, and place each bag flat

between two plates of iron; these are piled one above the other until they reach a sufficient height, when they are placed under powerful hydraulic presses. The pressure is not completed at once, but they go through a series of six or eight presses in succession, arranged in a semicircular line, around an open gutter that conveys the juice into a large tank. After every separate squeeze the plates and bags are re-arranged, made up to the requisite height, and re-pressed. And thus a great many are employed, and a number of presses are at work together.

From the last press the bags are carried back to one end of the cleaning-shed, whence the pulp is emptied into the pulp store, and the bags are passed into the washing-house. Here a number of women are engaged constantly cleaning the bags, and passing them on again to the fillers. Thus far, then, nothing has been added to the beet; it has simply been separated, by enormous pressure, into liquid and solid. The liquid has been passed forward one step nearer to sugar, the solid has been sent back ready for conversion into beef. The pulp, as it is called, might, with great propriety, be called beet bread. It is the flesh-forming matter of the beet, not baked, but pressed almost dry. It is greedily eaten by all kinds of stock, and is, doubtless, a most wholesome and nutritious food.

From the well near the hydraulic presses the beet-juice is speedily lifted up to the top of the factory. Following it as quickly as possible, we find three large copper vessels full of beet-juice. Here, also, we are confronted with the Excise officers, and are reminded for the first time of a duty of 8s. per cwt. on British-grown sugar. Singularly enough, the duty is levied on the beet-juice, and before one step further can be taken towards converting the raw juice into sugar, its temperature and specific gravity must be duly and carefully noted. As soon as this is done, the process of conversion into sugar is resumed. The samples analyzed range from 3 to 13 per cent. in their sugar. The former samples of roots are not worth more than 10s. per ton, while the latter would be worth 30s. per ton. Now it would be easy to keep the roots of each grower by themselves, and test the specific gravity of the respective juices separately. This would afford a powerful stimulus to the discovery of the best means of increasing the per centage of sugar, and it is just possible that the amount will be still further increased.

But beet juice is readily decomposed. No sooner does it leave the presses than it begins to change colour. From a bright pinkish, it at once assumes a dark hue. This chiefly affects the quality of the sugar, and must be prevented as much as possible by hurrying forward the process of manufacture. The instant, therefore, that the Excise is satisfied, a quantity of lime is cast into the juice, which destroys certain impurities, and casts them up to the surface as a dirty froth or scum. After boiling by steam, the clear

liquor is drained off in one direction, and the scum in another. The juice is then saturated with carbonic acid gas (which throws down the lime), filtered through animal charcoal, and otherwise purified, and another residuum is thrown off. The scum is sent through a filter-press, all that is useful for sugar making preserved, and the refuse converted into cakes for manure, and offered at the works for £1 per ton. As nothing more of the beet comes back to the farmer, it is unnecessary to follow the process of sugar-making further here. Suffice it to say, that from this stage most of the processes aim at getting rid of the water, and changing the sweet liquid into solid sugar; hence it is evaporated while in vacuum, and after being reduced as much as considered desirable, it is run into barrels and dispatched to London, to be finally converted into sugar. It is hardly needful to observe that the whole of the machinery is driven by steam-power.

It is one of the necessities of the manufacture that the work should be continuous. Fresh relays of workmen and women, therefore, succeed each other night and day. Over 100 hands are employed, and the result upon an agricultural community of so much money earned, wages spent, and such an active industry excited just at the dead season of the year, can hardly be over-estimated. All around the factory there is an air of bustle and of business. Visitors are flocking to see the sugar-making from far and near, and the Lavenham experiment will, doubtless, become the birth-place of many others throughout England and other countries. From different countries of Europe, from Canada, and from all parts of Great Britain and Ireland, gentlemen have been to see and judge for themselves; and there seems no reason, in the nature of our climate, circumstances, or laws, why sugar-growing should not speedily become almost as important a branch of British agriculture as the production of beef, beer, and corn.—*Gardeners' Chronicle, England.*

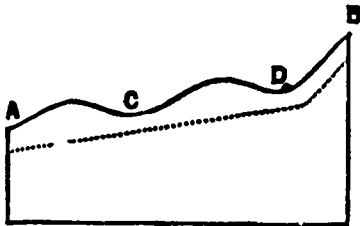
IMPORTED SEED.—A correspondent from Burford sends us a small sample of wheat, which he says he obtained at Woodstock, out of a quantity recently imported from Scotland. The sample was particularly full of weed seeds, and he wishes to know what kind they are. They appear to be principally oats, barley, cockle, and wild convolvulus. The wheat itself is fine, but parties having such for seed should follow our correspondent's example, and carefully hand-pick the lot, or separate the impurities by floating in strong brine. We have seen several samples of seed wheat and barley, imported both from Europe and the States, every one of which contained altogether too many foul seeds; and a specimen of "Norway oats" had a peck of Canada thistle heads taken out of every bushel. Farmers would do well to closely examine any seed sample, and get rid of all weeds before sowing.

## Practical Drainage.

By ALLAN MACDOUGALL, C.E.

NO. IV.

The outfall drain being either cleared up or made afresh, the next step is to commence work on the grips or trenches, and these in all cases must be brought up from the lowest point, as it can easily be understood, that to commence at the top of a drain is only to carry down the water into the trench, whereas by working uphill, the trench is kept dry, and can be better and more easily worked, while there is no water to trouble the workman. There is also another advantage in this system, the water in the grip flowing down shows the workman if the depth is regular, and if he is taking proper precautions to get rid of the water; when the land is flat or regular, this is a sufficient test. When the land rises and falls in undulations, the regular depth to which the drain is being laid must not be diminished, for as before explained, it will come too near the surface, and be liable to be acted upon by frost—independently of which, if brought to two feet from the surface, it won't act so well as a drain, and that portion of the field will always suffer, whereas a few inches of extra depth will do the field good, in getting through a mound. To illustrate this better, let the undulating line A C D B represent the lie of the ground. It



is clear that from B to A there is a good fall, but there are hollow places at C D in which water lodges in the undrained, and would remain in the drained state of the field, if the drains were laid parallel to the surface of the land. The water will fall from each of the higher places into the hollow, and thus find the drain, and if the slope is not regular it will lie in the hollow at C and D. To get it away from here is the drainer's duty, and he can easily do so by making the drain follow the surface of the land at first, and finding his proper depth at such hollows as C and D, cut a regular channel between the two points; it makes no difference to him if he be a foot or even too feet deeper, so long as he gets a proper fall. To aid him in determining the line of the bottom of the grip, it is very convenient to have three pieces of wood shaped like the letter T, commonly called *borning rods*; they can be made of any convenient length, three feet is the usual length, about 3 or 4 inches broad and half an inch thick, with the head of the T twelve inches broad, securely nailed on

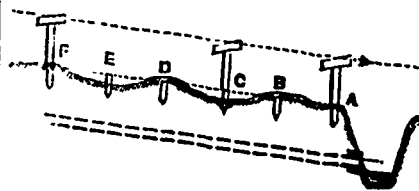
so as to be perfectly square to the body of the figure.

The practice of using these rods in order to obtain an uniform slope on a drain, is called *borning*; it is almost more necessary on flat land than sloping, as the eye is often apt to mislead, and the water, though always a sure test of the fall, is not so of the regularity of the bottom of a ditch. The manner of using these rods and the practice of *borning* will be next explained.

Many persons who are accustomed to cut trenches for drains, or are in the way of doing much grading, by long practice get into the habit of at once seeing if the slope be regular; this can be very easily done on roads or railways, but where, in draining, the distances the trenches are to go are not great, and the trenches both narrow and dry, the workman having no water to guide him, will be very apt to follow the surface of the land, particularly where the undulations are slight and regular, with a gradual fall on the whole length of the field.

If a drain were cut in a regular undulating field, the bottom would follow the surface of the land to a considerable extent, and as formerly explained, there would be hollows in the drains which would cause the water to hold back and dam up the pipes. In Britain, where large operations are being carried on, a proprietor frequently buys a cheap kind of spirit level on a tripod, that costs about \$20 or \$25, and with it the grading of roads and drains can be accurately carried on. But where a little work is to be done in drains, or even grading, the *borning rods* will be found after a little practice to work quite accurately, and they have the advantage of costing almost nothing, as any one can make them. They are made, as before mentioned, 3 feet or 3 feet 6 inches long, 3 inches broad, by half or five-eighths inch thick, in shape like the letter T, having the head 12 or 14 inches broad, securely fastened to the blade and at right angles to it. If it can be conveniently done, the tops should be painted white, with a margin of black, half an inch broad on the upper side, to enable them to be clearly seen, or a piece of white paper tied over the head will answer the same purpose.

The way to proceed to work with the rods is as follows:—Suppose on an undulating field it is desired to give the drainers the lines the bottom of the grips are to take



through the rising lands B, D, or the hollows C, E. At a convenient distance, F, perhaps the top of the field, or as far as can be easily seen from A, the main drain, or point where the level is fixed, let a peg be driven

into the ground; at A do the same; fix up a rod at F, or get an assistant to hold one up there; the leveller then proceeds to A, leaving an assistant at any such point as C, with a peg and a rod. Placing his eye over the top of the rod at A, the leveller must make the top of the rod held on the top of the peg at C, come into a true line with the top of the rod at F; the peg at C may require to be raised or lowered till the three rods form a true line. The assistant can then go to another point E or B, and the same operation must be performed, the leveller never leaving his post till he has put in all the stakes he thinks necessary. At B and D the pegs are below the surface of the land; they must be brought to their proper level, by having a hole dug out with a spade, so that the rod may rest on the top of the peg; at C or E the peg may happen to be above the surface of the field. The line of the drain being so far graded, the drainer only needs a stick, cut to the proper depth the drain is to be below these pegs, and as he comes to a peg, by applying the gauge he knows if he be right. The superintendent of the work will do well, though, to check the grading of the trenches, by *borning* along the bottoms as well as over the top. This plan is in extensive daily use all over Britain; no time is lost by it; a short trial will soon teach the method of using the rods, and a great advantage be gained in having a regular slope for the drains.

In sighting the *borning rods*, it is necessary to keep them all perfectly perpendicular, or else, one perpendicular and one sloping, will make a grade on the line of the rods, as any one can see for himself, by placing three rods perpendicular, and taking the line of them, then sloping one 6 or 8 inches, and then again taking their line or "*sighting*" them.

The materials formerly mentioned as useful and adaptable to drainage, should only be used in those districts where better cannot be obtained; but when tiles can be got, they ought to be used in preference to everything. The use of them is now so universal, and their special advantages over the other materials so great, that they will soon repay a reasonable extra cost for carriage. Being of uniform shape and size, of a hard material that will not suffer from the action of the moisture of the land, and free from many dangers that attend other kinds of drains, a few words only will be necessary, to point out the benefits from using them. In all drains there are difficulties to be met with, belonging to the soil, over which the farmer has no control.

Drains frequently form receptacles for vermin. Rats, mice, or moles, burrow into them or make their nests in them; or the roots of shrubs or trees, or, in wet places, of long rank grasses, grow into them and tend to choke them up. In tiles these dangers are altogether obviated, as their form, and the materials of which they are made, keep them

free from the attacks of vermin; if carefully laid, to a proper depth, as formerly explained, roots will not get into them, while their power and property of discharging water is greater and more regular than that of any of the materials that have been formerly mentioned. In laying them, however, greater care must be exercised than in stone drains, for they have not the same area as stone drains, and have friction to overcome. Yet, from their form and material, they are superior to those drains of larger area, and can discharge more rapidly. It is in laying these drains, particularly, that greater caution must be used in the grading of the trenches, as any hollows will only keep the water, till it gains sufficient head to act as in a syphon; this may be injurious to the drains. In selecting pipes, the straight ones only must be taken, and those that are well burned. Attention must be paid to this, as the pipes are of no use if badly burned, for they crack with the moisture, or if crooked, they cause the water to force its way, instead of running off freely, or on very flat land where the sole of the tile is not straight, cause the water to rise to get over the inequalities, while the ends do not meet properly, letting the water escape or giving vermin a chance of entering the drains. Over the ends where the tiles meet, a few small stones should be put, and if the grip has been cut too wide, a few along the side will be required to keep the tiles from shifting when covered. Side, or arterial drains, are usually laid with what are called two-inch pipes, that is, with round tiles two inches in diameter, or egg-shaped tiles of two inches diameter in the middle; and the main drains with three or four inch tiles. The horse-shoe shaped tile, with a flat bottom, which was used for a long time, has a disadvantage, from the difficulty of getting the sole to burn quite flat, and when laid, they were more frequently placed on their sides, so as to make the ends fit properly; thus the extra benefits of a flat sole were lost.

Side drains should not be laid to a greater length than 200 yards. Some engineers allow 300 yards for the maximum length; but this distance should only be used under very special or favourable circumstances, and when they join the main drain they ought to curve round with the fall of it for ten or fifteen feet, joining at a little higher level than the bottom of the main; then the two currents will blend together, no back-water be caused, and the side drains will be emptied sooner. In joining drains to an outlet, where the water is likely to wash them away, a flat stone below and another on the top of the tile will prevent any danger.

The number of tiles necessary to drain one acre of land, at different distances apart between the drains, are contained in the following table. A one horse cart will carry about eight hundred two inch tiles, or five hundred three inch ones, over a good and hard road.

Yards apart.	Pipes.	Chains of digging.
8 .....	1,816	..... 27
9 .....	1,613	..... 24
10 ....	1,452	..... 22
12 .....	1,209	..... 18
15 .....	974	..... 15

The season being now so far advanced, no drainage operations can be carried out. These papers will therefore be discontinued, to be resumed during the Fall, when the farmer will have time and inclination to pursue the study of them.

### Canada Thistle Experiments.

To the Editor.

SIR,—As the cropping season has again returned, I will give you a history of my experience in cultivating Canada thistles last year. Canada thistles are not so easily cultivated as some people may imagine; in fact, some one recommends, as the best way to destroy them, to cultivate them as a crop, after finding some useful and profitable mode of disposing of them on a mercantile scale. He affirms that to do this would at once call in aid a thousand plagues that would soon finish them, root and branch; and certainly my last year's experience goes far to show that much less will kill them than is usually supposed. On the 10th day of May, last year, I carefully dug up twelve roots of the Canada thistle. I found no sort of difficulty in getting some very fine plants, as my farm is a new one, cleared only about eight years, and consequently all stumps as yet, except where we have burnt them out. Well, I selected four plants of each division for experiment; I dug the trenches about plough gauge, or a little less. No. 1, 2, and 3. In No. 1 I planted four roots, with their heads all downwards; some were pretty old, tough fellows, some were younger, and all were thrifty "good stock;" as the seedsmen and nursery men say, "such as I could recommend." In No. 2 I planted four more plants, buried about six inches deep, but their heads turned up. In No. 3 I planted four more plants with their heads just above the surface. I must beg you to remark all the roots were out of the ground only ten minutes before planting, and were planted in a moist place, and plenty of rain fell all through May—in fact too much for ordinary crops.

In two weeks I opened the ground and carefully noted the result. No. 1, buried heads down, six inches deep, were all rotten. No. 2, buried six inches deep, heads up, were all dead but one. No. 3, buried six inches deep, with their heads just peeping, were in a vigorous state, all thriving and growing. I must confess I was somewhat surprised, I did not quite expect such a result although some experiments formerly tried, had led me somewhat towards the result.

A friend of mine, who takes great interest in agriculture, when told of the result, doubted the correctness of the experiment,

and I at once went to a patch of thistles and carefully dug up six more plants, and buried them heads down, six inches deep, and made a careful record, and mark over them. This was in the latter part of June, and the place of the second burying was my friend's garden, on the north side of a large bed of cauliflowers, where the land would be moist and somewhat defended from the intense heat of our very dry summer. The land was just what Canada thistles are supposed to like—a rich sandy loam. The result, when the plants were examined a month or six weeks afterwards, was just the same; all were dead. I tried it again on the spur of the moment, and planted four more plants, two heads up, and two heads down. Those buried six inches deep all died. The conclusion I have arrived at, so far, is that, 1st, if Canada thistles are ever so carefully taken up absolutely out of the earth, severed from every portion that may have root in the ground, and buried heads down six inches deep, the roots will rot and die at once; but unless severed from roots, and not absolutely disturbed, they will live, no matter how deep you bury them. When we carefully note the process and results of ploughing them in, we shall see that very few are absolutely entirely severed from the root that still retains its hold in the earth, and as the ramifications of the thistle roots are very great, many portions retain a hold while others are entirely severed and buried.

We all know that following in dry hot weather will kill thousands of them; but some few old roots remain uninjured, and any quantity of seed also remains, ready to sprout and grow on being exposed to the air. My next experiment was directed towards destroying them by interfering with the great laws of nature and reproduction, viz.—That every plant that bears seed, and once vegetates in the early part of the season, must complete its mission that year of growing above ground "or die." Nature insists on vegetation running a certain course, after once commencing; and if effectually checked at this point, the plant must die sooner or later. My next endeavours were therefore directed towards preventing any portion, ever so minute, of green top ever appearing above the surface. The land was deeply and continually hoed—so often, that it was quite impossible for any portion of the thistle to fulfil its mission, or even begin to feel it likely it would be allowed to do so. The result was death, "root and branch." All died; but seedlings afterwards grew again from seed; but the first or second year they are easily destroyed.

What I adduce from this second experiment is, that to effectually destroy Canada thistles we must allow them to grow until say middle of June; their vitality has then greatly expended itself; then plough the land deeply and well, and afterwards harrow fine and level; then, and during the remainder of the season, horse hoe with such a horse hoe that cannot possibly miss one top

of a thistle, first one way, then across, and again, until the season for growth has entirely gone by, and you may rely on it every one of the old roots will be killed. But half measures will not do. Let none escape or show their heads; if they do, all the labour, or most of it, is lost for that year.

To follow out the first plan of experiment, and apply it on a merchantable working scale, would be almost impossible; but the latter plan is perfectly feasible, and cheaper than ploughing three or four times.

C.

### Which Kind of Carrot is the Best for Field Culture?

This is one of those debateable questions, on which you will find scarcely two persons agree. The Great Belgian White is much in favour with most people. It certainly yields a large crop; but I very much doubt if the quality of the root, in fattening and nourishing principles, is equal to the yellow kind. It grows deep into the soil, but also stands well out of it, so that although hard to dig, in one sense, from its length of root, it is easy in another, from the excellent handle the portion above the ground forms; but late lights on the subject of the difference in value between that portion of a root above the soil, and that portion covered by the soil, may render the analysis of the upper half of the root well worth while by the grower. In the culture of the beet for sugar, all the root which grows out of the soil is so inferior to that underneath it, as to render it worth while to divide the root, and reject that portion for sugar-making which has not been under the soil. Sugar beets are now earthed up, so that the convenient handle to the Belgian carrot may be "a handle, and nothing more." This, however, is only thrown out as a hint for enquirers and examiners.

Next comes the Long Yellow, or Orange Carrot. This yields well, is rich, has plenty of green to smother weeds, and if you get a good plant, will, after one or two hoeings, have the ground to itself, and form a most useful crop; the tops being cut off and left on the soil to be ploughed in, form a good coat of green manure. The fact, too, that the roots strike deep into the soil, and evidently bring up a good deal of nourishment from the sub-soil, is greatly in its favour; but when you come to harvest this root, then comes the trouble. To dig them with ordinary forks, costs half the value of the crop. Plough them out you cannot, without leaving at least one-fourth of the root in the ground. No doubt this would form an excellent sub-soil manure, but be rather too expensive, and, therefore, there is nothing for it but to dig them. Both these and the Belgian White require thinning in the row, which is a serious job.

The same observations apply to the Altringham Carrot. The next is the Intermediate. This is also rich, and yellow, and is less trouble to dig, but the greens are not so long as the Long Red and Orange, and do not

help much to smother the weeds. They can, however, be ploughed out, and yield well; but they also want room in the row, and the work of thinning them is serious.

We now come to the short varieties, the chief of which is the Early Horn; and there are various others—the Scarlet Horn, the small kind which is used for forcing—and some others, all short, however, and blunted at the end—often, indeed, more like bulbs than roots. None of them are more than six or seven inches long—many three or four inches. They grow rapidly, will stand thick in the row, or, rather, never want thinning, for they will grow together till they force one another out of the ground. Some have short tops, or greens, and are objectionable as a field crop on that account; but others have long greens, and form a good smothering crop. All bear the earliest sowing, and will also bear late sowing, and will come to perfection even if sown so late that other carrots would not come up at all, provided there happens a good rain to bring them up quickly. Of course, however, no one would sow so late for a standard crop. These little carrots, though small, are much sweeter than either of the other kinds, and they are better liked by animals (including mankind); and it is believed would, on analysis, yield a larger amount of nutritious matter. The rows may be closer together than the large sorts, and as they require no thinning, the hoeing might be done entirely with a horse-hoe.

On the whole, it is believed that, even weight for weight, the Early Horn and the largest of the short kinds would compete with the larger kinds; but when you come to consider quality, they would certainly be preferable.

To show what quantity can be raised of these little roots per acre, the writer, on one occasion, weighed, measured and calculated the contents of a bed in his garden of sixty feet long, and four feet wide, and after making every allowance for spaces of the surrounding walks, the result was at the rate of very nearly fifty tons per acre. The entire supply of the house for the summer had been drawn from the rows as they grew; but this seemed to improve the crop, as the spaces, not between the roots, for the rows were several carrots broad, but where the roots were pulled out, seemed to fill up with the greatest rapidity. The soil was light, and the entire crop could have been pulled by hand, if wished, without the assistance of a fork.

VECTIS.

**BEECH FOR HEDGES.**—A correspondent of the *Maine Farmer*, after travelling extensively in Europe, says that in Switzerland, Eastern France and Prussia, he was struck with the adaptation of the beech for a thin, but effective hedge. It branches little, is stiff, and keeps its place. He saw but little that was killed or injured by dry seasons. He thinks it may be used with much success, making a beautiful hedge, if care is used in shortening it.

### Turnips a Paying Crop.

To the Editor.

Sir,—Some time since several correspondents gave their opinions on the profits of a turnip crop. I would like to give my experience on turnip culture. I do not agree with those of the writers on the subject who doubt the immediate profit of the turnip crop; for I think they are the best paying crop a farmer can sow both directly and indirectly, provided his land is suitable for them and near a market or railway station. I would say the land best suited for the turnip is sandy loam, or even a sand by giving it from 20 to 25 loads of well rotted barnyard manure to the acre. If you get a good kind and sown from the 1st to the 10th June, I am sure you will get a good crop. I know I have never failed to have a good crop. I will give you the figures as near as I can, and how I managed my crop for the year 1868. In the summer of 1867, I had a field of about 11 acres, which I thought was the poorest on the farm. It was in hay. I cut about half a ton to the acre, which was poor enough. After our grain harvest was cut and housed, we commenced to plough the said field, and sowed with rye as soon as possible for fall and spring pasture, which you must know is better than any other thing you can sow for that purpose, as the more you pasture it the more it will sprout, and it will grow on the poorest ground you can scratch up. I pastured it all fall with 70 sheep and 12 head of milk cows; and in the spring I just kept the sheep on it long enough to give the grass a good start. Towards the middle of May we carted on the 11 acres 250 waggon loads of well rotted manure, and spread it all over the field as evenly as possible. I always put plenty of plaster on my manure when we turn it in the spring; it helps it to rot faster. The second week in May I sowed 2½ acres with carrots, parsnips and onions. The last week in May ploughed under 4½ acres potatoes; though the sets and rows were as wide apart as usual, yet in the summer you could not tell but they had been sown broadcast, they were so rank. For turnips I ploughed ground on the 1st of June, and the rye was well up. Harrowing followed immediately on the ploughing, for the purpose of sprouting the weeds. I dragged again the day before sowing, so as to kill those that had sprouted. I commenced to sow on the 9th June; sowed two acres that day and other two acres about one week after, for the purpose of giving time for thinning and hoeing. The first sowing came up pretty well, the second did not half come. This was owing to the fault of the drill, which did not work properly. Yet although the four acres were nearly half blank, I think they paid very well. I had about 1,700 bushels from the land, and was offered for the crop the sum of \$326 50. The expenses of working I put down as follows, not reck-

oning the manure, as it was necessary to move it out of my way :—

Rent.....	\$12 00
Ploughing 2½ days.....	5 00
Dragging.....	2 00
Cultivating.....	1 00
12 days hoeing and thinning.....	9 00
Six pounds seed.....	1 80
Drilling and sowing.....	6 50
Harvesting and carting to market at 1s ¾ per bushel.....	29 75
	\$67 05

The actual cost of the 4 acres was the sum of \$67 05, which leaves me the net of \$84 86 per acre. So you see it pays very well directly, and I expect my next year's crop of wheat and barley will pay indirectly from the manure; therefore the poor ground of 1867 will be good ground for 1869, after I give it 400 pounds salt per acre, which will help to stiffen the straw and keep the ground longer moist. The only fault people have to my turnips is they are too large. At our county show in Brantford I got one first and two second prizes for turnips, and second for field parsnips, all grown in the said field. For 1868 I intend to sow 8 acres where I had corn last year, because I think and know they pay directly and also indirectly. But I think potato ground is better for the next year's crop, provided it is equally as well manured, as turnips or corn ground. I can always pick out the potato ground in the next year's crop.

I think there is no crop on a farm pays half as well as a root crop, next to which I put corn, both for fodder and grain. I think if any farm will grow corn, a farmer is foolish to sow oats, for a poor crop of corn is as good as the best crop of oats, and a good crop of corn is as good as two good crops of oats. I know of several farmers here who have from 50 to 100 bushels shelled corn to the acre, and I know from experience that good corn stalks are better for milk cows than hay. They will give more milk from them, and thrive well on them, on account chiefly of the large proportion of sugar they contain.

J. S. T.

Paris Road, Brantford Township.

### Ridge and Furrowing Land.

Some time since my attention was called to the idea of ridge and furrowing land intended for fallow or for winter or fall ploughing, and I determined on trying the experiment. I caused a furrow to be opened at every twelve feet all through the field, to be "fared out," as we term it in England. When all was correctly finished, and the land carefully measured off, I commenced and threw out another furrow, from the bottom of the previous one, letting the plough down as deep as the team could readily draw it. Turning at the end short to the right, I threw another furrow against the one last

drawn, and again turning, but this time to the left, I let the plough deeply down into the same furrow, out of which it had just come close to the land side, there forming a ridge with an intervening furrow of nearly 3 feet wide, from centre to centre, and leaving a space of about 2½ feet unploughed under the ridge. I found that I could plough nearly four acres each day with a good team, and as a much larger surface was exposed to the action of the air than by the old plan, I was convinced I had made a move in the right direction. You will readily see that to go over nearly four acres each day was of itself a great boon in working furrows, and as every other furrow was subsoiled, that was also a good thing. When the thistles began to grow here and there, I split the ridges first one way and again the other; this time however, I found I could not get deep enough without running a third furrow into the subsoil underneath the ridges, when split. Of course, this caused one-third more ploughing, and I now only saved one quarter of the whole instead of nearly one-half, as formerly; but the work was good, and as I intended to give the land four ploughings to destroy thistles, I was satisfied with the saving already made. When the field was completed the second time, I concluded no better course could be followed than to cross the land the opposite way, with ridges and furrows just the same. I kept an accurate annual account, and found it as follows. No harrowing was given, as unnecessary, and you will see only about one-half of the land was moved the first time, three-fourths the next, and half the third time, with three-quarters the last. A portion of the field was harrowed across the ridges the last time, so as to level them, and on one part of the field, when sowing was completed; the ridges were harrowed lengthwise on the remainder, which left the land in a succession of undulations, and was believed to assist drainage.

I find the team was

3 days the first time,
1 days the second time,
3 days the third time,
4 days the fourth time of ploughing.

Total, 14 days to plough 10 acres of land four times.

The land was loam, and easily worked. The plough, one that would always take a foot each furrow. Now the ordinary mode of ploughing would have required

For the first time	6 days,
For the second time	6 days,
For the third time	6 days,
For the fourth time	6 days,

Total, 24 days.

Thus showing an absolute saving of ten days' work in ploughing ten acres of land, or nearly one-half. Few farmers can afford four ploughings, but all can afford four ridge and furrowings; and the thistles were effectually killed by this course, as they could

not stand the drying effect of the ridges, so much more apparent than ordinary ploughing.

The great destruction to thistles is caused by dry weather and constant motion. They cannot stand it; but motion, if the land is wet, or so damp by laying the furrows flat and smooth, as not to expose the thistle, only encourages its growth. C.

### Wire Fence.

A correspondent sends the following queries :—

"I have a house road leading from a public highway, and running north-east by south-west, which always drifts up in winter. I propose putting up a wire fence to prevent this, and I wish some information in answer to the following queries :—

How far should the posts be separate?

Should there be a board at bottom?

What size and how many wires to use?

How stretched?

How fastened?

Should the top wire be heavier than the others?"

In regard to most of the above particulars some variety in practice exists. In reference to the first query, eight feet apart is perhaps the most suitable distance for the posts.

Some persons put on a bottom board, and it has the advantage, where the fence borders a road, of keeping sufficient snow on the ground to make good travelling. Some also use a scantling for top rail, to prevent colts and other stock from injuring themselves, as they will sometimes do against a wire that they cannot see. Both top scantling and bottom board are, however, often dispensed with.

The size of the wire very frequently used is No. 7. Some prefer it stronger, using No. 6, while others find No. 8 sufficient for all purposes. The number of wires and distances apart must depend upon the kind of stock intended to run in the adjoining fields. Where no top scantling is used, the fence need not much exceed four feet. Animals seem afraid to jump the wire fence, and are easily hurt in the attempt. With a bottom board, the first wire three or four inches above it, the next four, the next five, and others, according to the height, from eight to twelve inches apart, make a thoroughly efficient fence, capable of keeping out any kind of stock; but where only the larger animals are to be restrained in bounds, fewer wires will suffice.

Different methods of fixing and stretching the wires are adopted. Some bore holes in the posts at the required distances, and pass the wires through. By this method they cannot be forced out of place. But more commonly staples are used, driven into the face of the posts, where required. These staples may be made out of the wire itself by cutting off pieces about three or four

inches long, sharpening the ends, and bending them into shape. These will readily drive into cedar posts. If hardwood is used, stronger staples would be necessary. The staples should not be driven home before the stretching is completed, but as soon as the desired tension is attained, they may be driven up and serve to fasten the wire in place. The ends of the wires—and they should be divided for proper stretching into lengths of four or five chains each—are coiled two or three times round the post, and fastened with staples. For stretching, a common handspike may be used, or a short roller about three or four inches in diameter, with two opposite holes into which pins or short rods may be inserted, to keep the roller from turning back. This forms a kind of windlass, working in slight grooves cut in a post. But where it can be procured, a screw is the most effectual implement. The wire being first tightened by ordinary means as much as possible, the end is attached to the screw, and the required tension is usually secured by one screwing up.

When staples are used, the fence should face the fields in which stock run, otherwise they will sometimes press against the wires and force out the staples. When the fence divides stock fields, the posts are sometimes placed alternately on the opposite sides of the wireline.

The top wire need not be stronger than the rest, except where No. 8 is used, in which case, perhaps, a souter wire would be best for the purpose.

### Improving Poor Land.

There are many fields to be found, even on farms that are ordinarily kept in good cultivation, that show signs of running out, either from having been over-cropped with grain, or from neglect in seeding down to grass; i. e. being seeded down without a proper preparation of the soil by a cleaning crop. This is especially the case on large farms in the older counties, and those where the soil is of a light sandy nature. In most cases the difficulty of obtaining manure in sufficient quantity, or the distance and cost of conveying it from the home-stead to far off fields, has been in a great measure the reason for neglecting them, as the farmer is most apt in these days of high priced labour to consider it more profitable to apply manure to those fields that are most handy and easily worked without any great loss of time in going to and from headquarters. Such fields often are allowed to remain just barely in grass for many years, then ploughed up, a crop of oats, or late spring grain taken off, and nothing returned to the soil.

Now it would be an easy matter to bring them into a good and productive condition by keeping sheep on them, not merely as many as could make a living off such poor lands, but by herding them at nights and

during part of the day, allowing them access to a better pasturage during the afternoons. In this way the land would be greatly benefited at little expense, as the sheep besides leaving their droppings scattered over the land, and no better manure could be desired, would crop all the bushes, weeds, poor grasses, &c., so closely, that they would soon be exterminated, and white clover would spring up in their places. After two or three years of such treatment, if the land is then ploughed shallow and thickly sown with red clover, it would produce a good crop of feed for early summer, and the clover being left to itself to grow and attain a good size after the other pastures come in at harvest time, could then be ploughed under and form a good foundation of green manure on which to grow a crop of wheat or other grain, to be followed by a cleaning crop of roots, corn or potatoes, then barley, seeded down to permanent pasturage. In this way many fields that now are good for nothing but to produce a crop of weeds and briars and a scanty bite for hungry stock, might be made to come in as a part of a rotation on the farm without expending a large amount of labour and manure, when both these items are too costly to be indulged in.

We have seen fields of blowing sand converted into profitable pasturage by the simple expedient of keeping sheep on them in large numbers and afterwards seeding with clover and turning that under when in full bloom. Sheep may also be allowed to run on summer fallows to great advantage, provided they get access to good pasturage at least once a day. They are great destroyers of all weeds and noxious plants, and besides, on light land help to make the soil more compact, and retentive of manure by their constant trampling in their wanderings in search of food, and have been known to eradicate the most inveterate briars and brambles by their constant browsing on them while they are in a growing state.

### Treat the land well and it will treat you well.

I was talking the other day to a highly intelligent farmer from Burford, a man of great activity and energy, and who owns more than one good farm in that favoured locality, but who has all but abandoned his farming, and has gone to saw milling. "Why should you have done so?" I said to him; "it is a pity to see such a man as you are leave the profession of farming, which you ought to do better in than any other, and take to sawing up timber and selling the proceeds." Well, he said, he could not make farming pay, and he could make the saw mill pay. Indeed he convinced me of the latter fact, for he had just paid for one hundred and fifty acres of land upwards of two thousand dollars, which he had made out of the saw-mill. I said I believed he

failed in farming because he had not faith in the land. He expected to get all out of it, without putting anything in—to have crops from the ground, without making any return to it. He *would* work in the ordinary way; namely, crop the land until nothing more would grow, then pasture and fallow until it would once more yield a small crop of grain, but of course it would be getting each year poorer. "Now," I said, "suppose you had laid out on your farm what you laid out on your saw mill, do you not think you would have got as good, or better return?" He said he thought he might, but it was so long to wait for a return.

He had faith to lay out three thousand dollars in the saw mill, to purchase the timber to cut with it, to trust out the results more or less to farmers on considerable credit, and was satisfied with the returns. Had he purchased bones, fed cattle with artificial food, such as oilcake, &c., &c., doubled and trebled his manure heaps, grown turnips, and fed them on the ground when grown, grown clover or other green crops, and ploughed them in, he would have doubled his produce of straw and hay, would the first year following have doubled his stock to eat it, and they would have doubled his manure; and had this all been done, as actively, and as energetically followed out as the saw mill was, the result from the farm would have been as large and as good returns as the saw mill gave, and he would have ended with a farm trebled in value, instead of having on hand a half worn out piece of machinery. VECTIS.

### Hop Growing and Training.

The present low price of hops does not give much encouragement to growers, yet there are doubtless many, who having planted out a few acres within the past year or two, dislike to plough them under until they can have a fair trial of the merits of the crop. We are inclined to think that it would be the best policy for those who have young plantations of hops, to hold on to them for a year or two longer, and stimulate the plants to greater productiveness, when they come into bearing, by giving them all the care and attention they can. Very large areas of hop gardens will be ploughed under this year in Wisconsin and other States, and should a failure occur in Europe, those who hold on will reap the benefit, and especially so, if they give the care and attention to the crop necessary to ensure an article of first rate quality. It is the vast amount of inferior hops that have been thrown on the market latterly, that have in a measure caused American grown hops to reach so low a price in Europe. English brewers cannot afford to make bad beer by using poor hops, as many brewers do on this side the Atlantic. Much of the English article is exported to India, Australia and other distant points, and that trade would soon be lost were an article made that would not stand the test of



being conveyed through many miles of equatorial climates.

To ensure a good sound article of hops, the plants must have good culture, abundance of air and sunshine; and any method of training the vines adopted should bear this end in view. The natural tendency of the hop is to grow upwards, and although it may be forced to assume a lateral growth by training on horizontal wires, or twine, it does not seem to take to this position kindly, and will make an effort to throw out side branches from the horizontal position of the vine which show a tendency to grow upwards. We have in times past thought well of the idea of training hops horizontally, mainly on account of the cheapness of the plan in a saving of labour and material over the long pole system, but we are now pretty well satisfied that if it makes cheap hops it also results in doing so at the expense of producing an article of a quality in many respects inferior.

Another point that is overlooked by growers is the fact that the hop is a strong rampant grower, requiring an abundance of plant food, and that the strongest plants produce the best hops. In many cases the grower, under a mistaken idea that he will increase his crop, plants closely, and allows from four to six vines to grow from each stool. This is sure to result in producing small weak vines that can bear but small blossoms, producing hops with little flavour. One good strong vine to a stool will produce more and better hops than four, and two than six, and what is more, if only one or two vines are allowed to grow each year from a stool, and the crop is kept in a high state of cultivation, and, well, but not too highly manured, the plantation will last many years longer in a productive state. From this it will be seen that not more than two vines should be trained to poles from each stool, if success is desired in hop growing.

**SOWING GRASS SEEDS.**—As an exemplification of our argument that Canadian farmers are apt to be too sparing of their seed in sowing grass, we give the following, taken from an English paper, as the usual kinds and quantities allowed for one acre in England, where it must be recollected that the climate being moister and milder than ours, a much better stand of grass would be obtained from thin seedling than with us. Pounds of each kind—Sweet Vernal 1, Fox-tail 3, Cocksfoot 4½, Hard Fescue 2, other Fescue grasses 14, Italian Rye Grass 5, Rye Grass 4½, Timothy 1, Meadow Grass 1, Rough Stalked Meadow Grass 6, Red Clover 3, White Clover 4, Alsike Clover 2—making fifty-one pounds of seed per acre, as the allowance on ordinary soils, and costing the English farmer thirty shillings, equal to about \$7 of our money. The quantity of the above mixture would be equal to about two bushels by measure.

## Hamburg Barley and Oats.

To the Editor.

STR.—On the 1st of March last I received from the Department of Agriculture in Washington, D. C., one pound each of barley and oats, with request to test and report. The barley is called the Probst-eier barley, the oats are called the Schonen oats; they were both imported from Hamburg. The barley is a beautiful sample; the berry is very large and plump, and light in colour; the oats also are remarkably large and plump, the berry very long and of rather a yellowish shade. I have to-day (May 6.) sown them for the purpose of testing in our Canadian climate and soil, (as requested by the Department in Washington). The ground selected is a sandy loam and in good condition, being sod summer-fallowed last season. I drilled it in by hand in drills six inches apart. When harvested and thrashed I will report to you, if spared, and will send a sample of the grain if requested.

H. M. THOMAS.

Brooklin, Ontario.

NOTE BY ED.—We shall be glad to see a sample of the grain after harvest, and to learn the result of the experiment in regard to yield, time of ripening and other particulars.

## Measure of an Acre.

The *Maryland Farmer* gives the following table of distances by which it says an exact acre can be found:—

5 yards wide by	933 yards long	contains 1 acre.
10 " " "	467 " "	" 1 acre
20 " " "	232 " "	" 1 acre.
40 " " "	121 " "	" 1 acre.
50 " " "	93 " "	" 1 acre.
70 " " "	67.7 " "	" 1 acre.
220 feet " "	195 feet "	" 1 acre.
110 " " "	97 " "	" 1 acre.
110 " " "	263 " "	" 1 acre.
69 " " "	736 " "	" 1 acre.
120 " " "	362 " "	" 1 acre.
219 " " "	181 " "	" 1 acre.

In sowing corn for soiling, it will be well not to rely on one sowing. Three or four sowings at intervals of two weeks would be better.

At Port Elgin there are upwards of ninety thousand bushels of grain held in store awaiting transportation. This is fully double the quantity of any previous year.

Hemp pays well in Kentucky. Two cases are mentioned by an exchange as evidence of the profitability of the crop—\$163 per acre in one instance, and \$140 in another last year.

The New York State Agricultural Society have resolved to offer, at their next exhibition, a premium of five hundred dollars for a steam engine that shall successfully introduce cultivation by steam, with apparatus for pulverising the soil at as cheap a rate as now practised upon the farm. The machine to be tested at the show.

**BOXES FOR MANURE.**—Put the bones into a cask in layers alternately with caustic potash. This will enable you to crush them easily, and improve the fertilizing quality.

A threshing machine, recently patented, and now manufactured in Philadelphia, threshes the grain without breaking the straw. This at least is claimed for it by its inventor. Unbroken straw commands a much higher price in city markets than that which is broken and tangled.

Iowa plants every three years a forest of 5,000,000 trees, and within a considerably less than half a dozen years 25,000,000 forest trees have been planted, and are now growing in the north-west. It's good news that the American mania for tree destruction is abating in any part of the country.—*Greenland Telegraph*.

**PLOUGHING BEGINS.**—On the 24th of April, the friends and neighbours of Mr. Stewart, who recently purchased a farm of 250 acres near Caledonia in the county of Haldimand from Mr. McKinnon, met at an early hour in the morning with ploughs and teams, and before the close of the day ploughed for him a field of one hundred and ten acres. There were a hundred and ten ploughs on the ground, and over 200 persons, young and old, employed about the work.

The *Montreal Witness* gives an opinion upon some samples shown of the Black Sea wheat, purchased in Odessa, for the Agricultural Society of Quebec. We do not consider the quality such as to justify the extra expense attending importation from such a distance. In fact we question whether our wheat inspector would class this wheat as No. 1 merchantable. We regard it as much inferior to many samples which could be bought to-day in this market at half the price which this costs. We hope if any of this wheat is sown, it will be carefully picked over, and all defective grains rejected.

**QUEBEC.—"Ploughman"** asks if there is more than one variety of the "Early Rose Potato." We have no doubt that there are spurious varieties sold under the name. The best security is to buy only of thoroughly reliable seedsmen. The same correspondent wishes to know if any advantage would be gained by sowing carrots in the fall. We think not. The experiment has been tried even in this country, but with no encouraging results. In a recent communication which we published, the writer stated that he had found the carrots thus sown hard to dig, apt to run to seed, and no larger than those that were sown in the spring.

**MAKING MANURE IN SUMMER.**—I tie up all my cattle at night, having them well bedded down with loam or dry chaff from under the barn. In the morning I clean it all out into a shed on the side of the barn, spread it evenly over the ground, and cover it with loam, rotten turf or dry muck. Upon this I fold my sheep, from 60 to 100, during each night, my pasture being handy. I have a

pile of stuff near by with which to bed sheep and cattle. The labour is but little. Lay a good plank, and with a wheelbarrow the work is soon done. I use green brakes a part of the time, and part old poor hay, so as to make a dry bed for the sheep. In the fall the manure is carted into the field and piled up to lie until spring, when it is forked over to make it fine. In this way I obtain a big pile of good manure, made in the summer, when too often but little is saved, for in the ordinary way the hot sun, rain and winds, work destruction to it. I keep all the weeds pulled on the sides of the barnyard, to mix in with this before they go to seed.—*Maine Farmer.*

**SHEEP ON WHEAT.**—During the past two months I have had an opportunity of noticing the wheat crop in many counties in this State, and some in Pennsylvania. The growth of the young wheat is greater than usual at this season, and if persons will, during this month of March, turn their sheep upon their wheat fields, it will be good for the sheep and the wheat. The sheep bite short off, and they will not pull up by the roots as some other animals would do. They should only be turned on the wheat, however, when the ground is frozen, or when it is well settled in April. The sheep bite off the blades that have been partly frozen during the winter, and thus make way for a new and vigorous growth. Although the frost does not damage wheat as it does corn, yet the blades affected by it are still somewhat deadened, and it is better to remove them. I have known this plan to be adopted by farmers many years ago, with great advantage.—*Cor. Zanesville Times.*

**SOWING CLOVER.**—“Cultivator” writes to us, asking if it was not a typographical error in our article on “Sowing Grain and Grass,” to sow so large an amount of clover seed per acre as was therein mentioned, and says he never heard of such a thing before as a bushel to ten acres is the usual quantity sown. There is no mistake about the statement. We do not suppose, at present prices of clover seed, any one could be induced to leave the old ruts they have so long travelled in, and try the experiment of sowing it at the rate of even one bushel per acre. Nevertheless, it has been done and the result was such as to lead us, as well as those who tried it, to believe that one of the chief causes of the failure to get a good stand of clover at the present time, is the fact that it is far too thinly sown. The plants, in general, do not half cover the ground, and consequently the stalks grow coarse, and the roots not being closely matted together, are more easily affected by drought and frosts. As we said, in sowing clover so thickly, it is desirable to give the land entirely to the crop, or at least sow it on some crop, as barley for instance, that does not hold possession of the soil long enough to make the young plants get spindly by overshadowing.

## The Dairy.

### Carrying and Cooling Milk.

Now that cheese factories have been established in many sections of the country, and are likely to prove of such great advantage to the farmer, in enabling him to dispose of the product of his cows during the summer season, without the trouble of making his own butter and cheese, which would be so great an addition to the labour of the women folks as to deter him from keeping as many cows as his farm could profitably sustain, it becomes a matter of importance to ascertain the best methods of carrying the milk to the dairy in such a way as to keep it perfectly sweet and clean, and yet in vessels that can be easily handled. The best size for the purpose would probably be cans holding ten gallons each, made of tin. They can, when of that size, be easily lifted in and out of the waggon by two persons. As the wear on the cans from constant handling is very great, they need to be strongly made, with handles for grappling, that will bear the constant strain on them caused by the crane, where one is used at the factory for lifting from the waggon to the second story, or to the weighing machine, and the tops should fit on easily, and yet so tightly that when tipped over no milk will run out, nor any dust get in during the time they are being carried to the factory. The cans should be strongly bound on the outside with iron hoops, and have double bottoms braced with iron outside. Metal is always preferable to wood, as it can be much more easily cleaned, and does not imbibe or retain any of the milk. We presume the factories furnish the cans, as they could provide them all of uniform quality and capacity, at a less expense than if each individual patron had his own made. But a very small amount of carelessness in keeping the cans perfectly clean and sweet, or in failing to deliver the milk at the proper time, may cause a serious loss to the farmer, for let it be remembered that the least taint in the milk will necessarily cause its rejection at the factory, as it would spoil the whole process of cheese-making if one can of tainted milk were to get into the vats, and the manager must, for the credit of the factory, be the sole judge of the fitness of the milk in each can, and cannot be justly accused of partiality, if he often rejects the milk of a patron who once shows an inclination to be careless about its perfect purity. It is the manager's business to discipline them all into taking the best care of their milk, and bringing it to the factory just at the proper time set down in the rules. Those who cannot submit to his orders had better keep their milk at home.

Let our friends in the country who are so fortunate as to have a cheese factory near enough to enable them to dispose of their milk to advantage, have patience, and endeavour to do their best to please the mana-

ger by furnishing an article that is always clean and pure from taint. Wash the cans thoroughly with boiling water as soon as they return from delivering the milk, afterwards rinsing them with pure spring water, and set them upside down to drain. To the manager we would say, be firm yet gentle in all your dealings with your patrons; let no disputes arise, if you would have the factory prove a success; yet at the same time be particular that every can of milk comes up to the full requirements of the rules necessary to be carried out to ensure a first-rate article of cheese being made, for much of the success of the factory will depend on being able always to make an article of cheese that will command a good price and ready sale.

When the farmer has to cool the milk before taking it to the factory, it is usually done by setting the can containing the milk in a tub of cold spring water containing three times the quantity of water that there is of milk in the can. The water must not be higher than 52°, and if a stream of running water can be had, so much the better; and the time taken to cool the milk should not exceed fifty minutes. The top of the can is left open, to allow of the escape of the animal odour from the milk, while cooling. The milk is to be stirred several times during the process. If ice can be had to put round the can in the water, the milk can be cooled more rapidly, and it is believed that the faster the cooling process is accomplished, the better. When the night and morning's milk are to be delivered together, each should be separately cooled as soon as drawn from the cow, before mixing the one with the other.

### How to Milk Cows.

The following excellent directions for the proper performance of the operation of milking cows are given by Lewis E. Allen, in his *American Cattle*, and are applicable in the principles inculcated, to all seasons and all dairies:—

All persons reared to farm-labour should know how to milk a cow. So they do, generally, as far as drawing the milk from the udder is concerned. But that is only a part of the process. We have often seen this important labour so dirtily, bunglingly, carelessly, and cruelly done, that we have wished that a milking school could be established to show people how to treat their cows, and get the most milk, and to the best advantage, out of them. As every dairyman ought to know how a cow should be milked, either by ones, twos, or fifties, we have some suggestions to make on the proper and best modes of doing it, both in the treatment of the cows, and the conduct of their milkers.

It has been much too common a way, where several cows are kept, in the grazing season, to drive them into yards, more or less filthy from their droppings, half the time muddy under foot, the cows hunching each other, frequently without sheds or shelter in bad weather, and doing up their work in a

helter skelter way, as the time, chance, or opportunity may offer. In the winter season they are confined in filthy stables, frequently unbedded, poorly ventilated, and terribly noisome with the odours and ammonia from urine, and the fetid breath of the cattle within them.

Happily, we believe a better system is prevailing, and milking, among our better farmers and housekeepers, is usually done in a cleanly way; but not always to the advantage that it might be, in having all the conveniences for doing it in the best manner. We object to milking in open yards, where the cows are liable to interruption by each other, or by storms, and often becoming restive by accidents not altogether under the control of their milkers. After long practice in the management of cows for dairy purposes, and their keeping arranged into a regular system, we are satisfied of the decided advantage of milking them, in all seasons, under shelter, and in the stalls which during the winter months they regularly occupy.

Thus we say, in a well regulated dairy, cows, in every season, should be driven into their stables or sheds, and secured in stalls by ties, chains, or stanchions, for milking. They are thus under control, and every animal is secure from injury or annoyance by her neighbours. Each milker should be furnished with a stool for sitting on. A bucket of water and cloth should be at hand, to either wash, wipe or otherwise clean the udder and teats before commencing the work, if necessary. The cows may be fed just before or after milking, as the season of the year, or the habit of the dairy may be; but the habit, whichever way, should be regular always. No noise or loud talking should be indulged among the milkers. No scolding, fretting, thumping with stools or otherwise; and if in refractory cases, some discipline of a restive cow should be needed, none other than a light switch should be used for punishment. Mild treatment, and soothing terms in most cases, are more effectual than harshness in making cows gentle. They should learn to regard their milkers and keepers as friends, to love their presence and confide in their kindness.

The milk should be drawn rapidly, and with both hands, in as cleanly a manner as possible. Sometimes, if the milker be musically inclined, the cow is soothed and entertained by the droning of a low-voiced song. We have seen unquiet and restive cows stand quite still while the milker hummed his tune, though without it she would be timid and uneasy—not that it is necessary in usual cases, but we have known such. One person will milk eight to twelve, and sometimes more, cows at a time, and the times of milking should not occupy more than an hour each. There is a great sleight in this work, and some will milk a dozen cows better, and in less time than another will six. The cows should be taken in regular turn, with the same milkers to the same

cows as nearly as possible, they both becoming better used to each other. The times should be as equally divided in the twenty-four hours of the day as possible, and be the division of the times as it may, it should be regular, that the udders be not subject to undue distention. System, order, and regularity in milking have much to do with equitable flows of milk, and cows habituated to certain times, yield their messes more regularly in quantity than when irregularly milked,

### Purity of Flavour in Cheese.

The following is extracted from an admirable address by Mr. Willard on the future prospects of American Dairying, and treats of one of the most important matters affecting the manufacture of either cheese or butter, namely, purity of flavour. The remarks are well deserving the attention of farmers in reference to their arrangements for the domestic dairy, as well as of those who conduct the business on the larger scale of the factory:—

In the matter of securing fine flavour in both butter and cheese, some points have been entirely overlooked. It is only recently that some of the true causes influencing the flavour of dairy products have attracted our attention, and among these the question of clean pure water for stock has not been sufficiently appreciated. Milk contains 87 per cent. of water, and it would hardly seem reasonable to expect that the animal could overstep the laws of nature and manufacture good milk from stagnant water; yet such has been the case: and because manufacturers have not been able to make a good product out of such milk, they have been blamed. With all our knowledge and experience in New York, we have not been able the past year to obviate having some bad off-flavoured cheese during the hot weather, especially the July cheese. I took some pains to study this question, and I found by examining farms in numerous instances, that stagnant, putrid water, was one of the leading causes. There were other causes, but this one was invariable. In one instance the cause was attributed to the milk of one of the patrons whose cows had been drinking from frog ponds. This man changed his fences so as to get good water, and so the trouble ceased. In the private dairies of New York and England, particular attention is paid to this matter. I wish I could impress this fact upon every dairyman present, as it is one of the faults which will have to be corrected before the highest standard of excellence can be reached. On farms where springs are deficient, the effect is to be overcome by digging a well, and applying wind-power for pumping, which can be inexpensively erected, and are durable.

“Another point on which the old dairy farms are in error, and which is the cause of great impurities in milk, is the bad construction of milking stables, most of them little better

than pest houses, owing to bad ventilation. So bad are some of them that I have seen delicate women faint away in them in hot weather. Follow the milk which comes from these places to the factory, after having been confined in the can under a close-fitting cover, and you will find it most offensive in odour and putrid. If there is any manufacturer present who can make clean-flavoured goods from such milk, I should like to see him and hear his process. In this respect the English farms are ahead of ours. Their milking stables are open on one side, cool, and well ventilated, and milking made a pleasure to the animal and milk-maid. But I must say the new dairy districts are in advance of the old in this respect. Without this matter is attended to and carefully watched, a good product cannot be made.

“I have said dairy farming promised to be remunerative and enduring. The statement needs modification. It does not promise to be remunerative to those who make a poor or inferior production. It is also ruinous to the dealer. I have noticed the history of failures among provision merchants, and it is poor stuff that in the end breaks the camel's back. I came here to do you a service, and I beg of you not to fall into the errors of the old dairy districts.”

### Something about Rennets.

X. A. Willard, in *Rural New Yorker* of May 15th, says:—“Among the annoyances that beset the path of the cheesemakers, not the least is the difficulty of obtaining good rennets. A large portion of the rennets offered for sale are worthless, while some are of the worst character, being tainted, and when used for cheesemaking giving a bad flavour to the cheese. Most of the rennets put up in cities are bad.”

His article is too long to give entire, but from it we gather that many erroneous ideas are prevalent even among dairymen as to what constitutes a good rennet. Some people save the entire paunch, whereas it is only the fourth, or true digesting stomach of the young calf, that properly makes a rennet. The calf must be healthy, must have suckled the cow for at least four or five days, and been fed to within a short time of killing. If it has been without food for any length of time, the stomach becomes inflamed, and especially so if the calf has been driven or carried a distance, and then it is of no value for rennet. The stomach should be taken out and well cleaned at once after the calf is killed, and as soon as cold is to be salted and left to dry on a dish for a day or two, then stretched on a hoop or crooked stick and hung up to dry in a place where the temperature is moderately warm. The Bavarian method is to blow up the rennets like a bladder, tie one end to keep out air, first putting on it a little salt at the place where tied. The skins being thus made very thin, will dry rapidly and keep well. Great care

should be used in examining rennets before purchasing, and paunches or anything having the least taint about it should be rejected. Mr. Willard indulges in good humoured raillery on cheesemakers buying large rennets, which in reality were paunches, and brought no cheese. The reason given why they have to get rennets from Europe, and pay double price for them, is that those made in America are mostly worthless, being saved by butchers who know nothing about what constitutes a proper rennet.

### Working Butter.

An efficient and simple device for working butter is that in common use among the butter makers of Orange county. It is an inclined, triangular slab, standing upon legs, and has beveled sides about three inches high. The slab is four feet long, and two feet broad at the upper end, tapering down to five inches at the lower end. At this point there is an opening for the escape of the buttermilk into a pail below, and also for the reception at the end of the lever which works the butter. The butter, when ready to be worked, is placed upon the slab, and the wooden lever, which is either square or eight-sided, is pressed down upon the mass, commencing at the edge and thus operated until the whole is gone over. It is a very simple affair and is not patented.

There is a recent invention for working butter which consists of a metallic hoop pierced with holes and having a close fitting follower. The butter is placed in the hoop, the follower adjusted and pressure applied, when the buttermilk is forced out through openings in the hoop. We cannot vouch for the merits of this implement, never having tested it; but it is claimed to expel all the buttermilk, and thus obviate any further working of the butter. —*A. A. Willard in Journal New Yorker.*

### Cheddar Cheese Competition.

The Cheddar dairymen of Scotland are inaugurating measures for a grand competition, in which it shall be determined whether the skill of their cheese-makers is superior or inferior to that of the Somersetshire dairymen of England. The Scotch complain that their cheese has never been placed in the position which it merits in the London market. It is sold there under the invidious name of Scotch Cheddars, and brings, in consequence, a lower price than the Somerset Cheddars, though fully equal to the latter. This was abundantly proved, they say, by the fact that a number of cheese factors in England were in the practice of purchasing Cheddars made in Scotland, and then re-selling them in the London market under the name of English Cheddars, obtaining, in this way, the market price of Somerset.

A public meeting of farmers, dairymen and others of the Rhins district of Wigtownshire, (Scotland), was recently held for the purpose of taking this matter in consideration. There was a large attendance of the leading farmers and dairymen of the district, and measures were taken to make the necessary arrangements for challenging Somersetshire to a cheese competition.

Mr. Alexander McAdam moved the following resolution, which was adopted:—

Resolved. "That this meeting, representing the cheese manufacturers of Galloway, agree to give a challenge to the dairy farmers of Somersetshire to compete with a given number of cheese from twenty dairies for the sum of £200 (\$1,000)—the said competition to take place in the month of October of the present year."

On motion of Mr. Cowan, the dairy farmers of Kirkcudbrightshire were invited to join in this challenge to Somerset. Measures were immediately taken to raise the amount named in the resolution, and one-half the challenge money was raised upon the spot.

The Canadian Dairymen's Association are publishing the proceedings of their last Annual Meeting.

New cheese from Illinois factories sold in Chicago to dealers, May 5. for 21 cents per pound.

A dealer in cheese in Chicago received last season 70,000 pounds of cheese in one shipment direct from New York city. This cheese cost over \$14,000.

A Connecticut cattle breeder, after trying several breeds and crosses, has come to the conclusion that a cross between the Alderney and Ayrshire makes the most profitable animal for ordinary farm use—having special reference, we suppose, to the production of milk and butter.

MILKING QUALITY.—F. G. in the *Country Gentleman*, gives an opinion that some cows will give milk from which butter of the best quality can be made, while others, and good milkers often, will yield only butter of an inferior quality, white, soft and chalky in appearance, that no amount of good correct feeding and management can modify or change. He thinks the quality of the butter as given by a cow is inherited. This coincides with our own opinion in the matter. We found last year that one of our cows gave butter of a very inferior quality, so much so that the admixture of the cream from her milk with that of cows giving good butter, resulted, if not in spoiling the whole churning, at least in rendering the butter made of inferior quality. When we tried the cream of this cow by itself, it was found to take a much longer time in the churn before the butter would come. Let farmers pay some attention to this matter, and ascertain satisfactorily if the good or bad quality of butter made is not more dependent on the animal than the food given. May not the quality of cheese be also dependent on the animals?

## Veterinary Department.

### Flatulent Colic.

Flatulent Colic, or flatulency, is a disease that principally affects the large intestines, and consists in a distension of these viscera, produced by the formation of gases. The gases supposed to be so generated by the decomposition of the food, &c., are either carbonic acid gas or sulphuretted hydrogen. Flatulent Colic is oftener met with in old horses than in young ones, and often arises from a weakened condition of the digestive apparatus generally. This is caused by being fed for a lengthened period on food of a stimulating and heating nature. When in young and healthy horses, it is frequently produced by giving a change of food. During the past winter it has been prevalent in some districts where Indian corn has been given as a substitute for oats, where the oats were at once stopped and full measures of corn allowed. It is often produced by feeding on wheat or barley, or from giving a large quantity of food immediately after a long journey or hard drive.

Many of the symptoms of this complaint are common to spasmodic colic, and other painful bowel affections, such as uneasiness, lying down and rolling, but the real nature of the disease is soon developed, and easily recognized by the distended condition of the abdomen; and this distension is generally greatest at the right flank. The horse suffers violent pains, and if not relieved, the disease continues to increase, and may cause death by a rupture of the diaphragm or of some part of the intestines, or from asphyxia.

In the treatment of flatulency, the patient should have a good stimulant combined with a laxative, as sulphuric ether two ounces, linseed oil one pint, and clysters should be freely used. In some cases the chloride of lime appears to act beneficially by neutralising some of the gases found within the intestinal canal, and may therefore be given in two drachm doses. The belly should be well rubbed, and either stimulated with mustard, or clothes wrung out of hot water applied. If no relief is given in the course of three-quarters of an hour, it is necessary to repeat half the above dose of the stimulant. The compounds of ammonia are also excellent remedies in this complaint. After recovery from an attack of flatulent colic, the horse should be carefully fed and used, and the food given with regularity.

The examination of the pupils of the Montreal Veterinary College was held recently, and out of four who went up the following three were successful in obtaining diplomas: C. J. Alloway, and Wm. Patterson, jun., of Montreal; and James Ferries, Galt. This was the first examination and the standard was high, the course embracing botany, chemistry, *materia medica*, physiology, and the regular veterinary practice. The school possesses specimens and anatomical preparations from the Auzoux collections near Paris.

## Stock Department.

### Notes on Canadian Herds.

#### NO. I.

During a visit to London recently, we took an early morning walk out to the farm of Col. J. B. Taylor, who has lately entered the lists as a breeder of short-horn stock. His property comprises about seventy acres of land, situated on the south bank of the Thames, in Westminster township, about a mile from the G. W. R. station. The soil is clayey, but rich, principally in grass, with a few acres of roots.

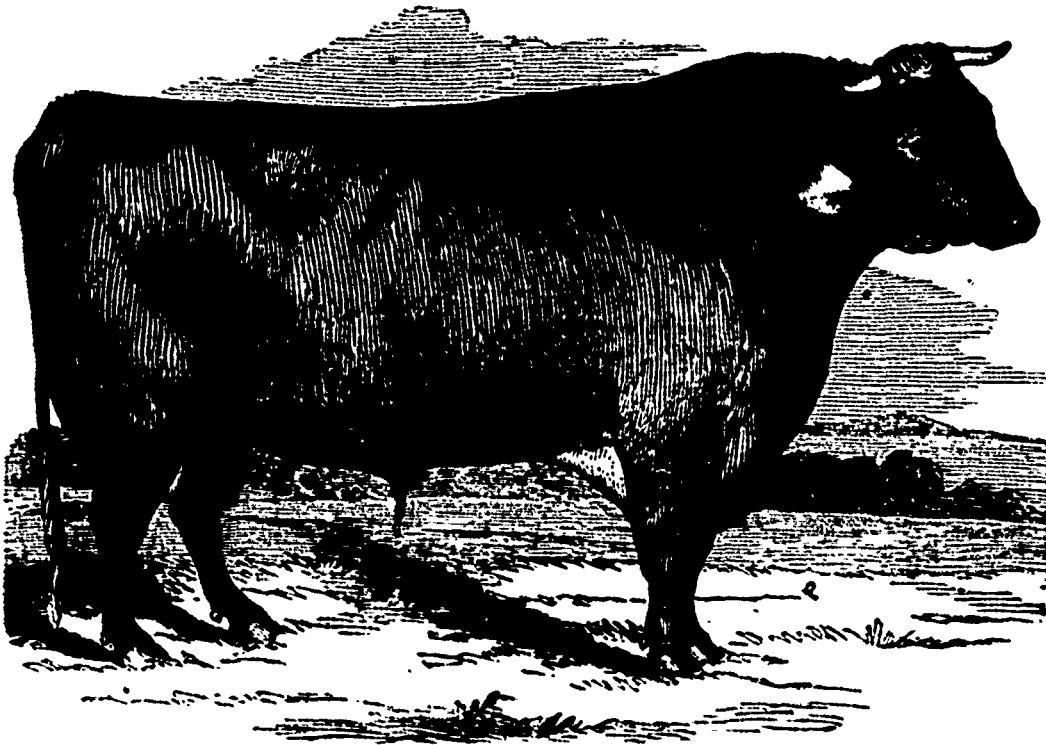
We found the Colonel at home, and full of genial enthusiasm on the subject of stock-breeding. He began his herd last fall, with the purchase of three animals at the sale of Mr. J. Snell, of Edmonton namely, cow "Fancy," which was thought to be in calf, but proving otherwise, was sold this spring to the butcher (the recent statements going the rounds of the press about her calves we found to be pure Munchausenisms); cow "Bracelet," out of "Young Countess," by "Buttery 2nd," [91] expected to drop a calf to a son of "Baron Solway;" heifer "Nolesy" out of "Flora,"

by "Butterfly 2nd," now in calf to "Duke of Magdala." Soon afterwards he purchased the two year old bull "Duke of Magdala," out of "Mattie," by "Grand Duke of Moreton," [324]. His colour is dark rich red, with some white, and he partakes largely of the appearance and qualities of his sire.

The Colonel's fancy runs towards the Duchess tribe since he saw "Duchess 97th," and he has now two females and one male of that tribe, "Duchess of Winfield," and her half-sister, "2nd Duchess of Portland," both bred by A. G. Brace, of Herkimer county, N.Y. These animals, when we saw them, showed evident signs of hard usage at the hands of their former owner, for they were so thin we could scarcely imagine that they were specimens of high-bred short-horns. They were in very low condition when they arrived a few weeks ago, but have been carefully fed and nursed since coming into the Colonel's hands, and have just gratified

him by both dropping heifer calves to "Duke of Winfield." It is to be hoped that now they have got into good hands, they will soon regain their former good breeding shape, and be able to grace the show yard with credit at the coming Provincial Exhibition. The Colonel has also a nice cow, "Jessie," by "Royal Duke of Gloster," lately bought from George Robson, of London township, and, lastly, his recent purchase from J. O. Sheldon, of Geneva, N. Y., of the Duchess bull calf, "Proud Duke," whose pedigree we give in another column. This animal, though but four months old, shows every mark of high lineage, and promises to become a noble animal that will succeed in winning laurels for his owner in the exhibition ring.

At Major Greig's, Beachville, we expected to find some extra good stock; but were rather disappointed to find that his short horn



"PRINCE OF WALES,"—The Property of W. WHEELER, Esq., Woburn.

females were but few, and mostly grades, or enough above it to pass muster for the Canadian Herd Book. He has, however, one fine two year old bull, "Lord of the Hills," out of "Sanspareil," by "Grand Duke of Moreton." His recent purchase from Mr. Cochran of "Captain Grahame," an eight months' old bull of nearly pure Booth blood, will prove an acquisition that promises to tell to advantage on his small herd. He is out of "Pink Thorn Leaf," by "Prince of the Realm," (22627) dam by "Baron Booth," (21212). We noticed several fine Ayrshire cows that are kept for the dairy, and to furnish extra rich milk for the family.

The Major farms three hundred acres of as nice land as one can wish for, situated on the banks of the Thames, close to Beachville, with a fine slope towards the south, and his pastures seemed to be thick and strong, and capable of carrying a large amount of stock.

### Prize Ayrshire Cattle.

The merits of the Ayrshire breed of cattle are too well established and too well known to require any lengthened notice. They are acknowledged to take the lead as dairy cattle for the quantity of milk they yield, though some of the smaller breeds, more especially the Alderney or Jersey cows, give milk that is richer in cream. The small size of these diminutive breeds renders them unsuitable for the ordinary farmer, and as the Ayrshire, besides her excellent dairy qualities, is of fair size, and when not in milk will readily take on fat, it is in every respect a first-class animal for the dairy farmer. Among the most successful breeders of this variety in Canada, the Messrs. Wheeler, father and son, of Scarborough, have for many years been foremost, and have taken prizes for them at all the recent Provincial shows. The accompanying illustrations were drawn from life by Mr. Page, and faithfully represent prize animals in this class at the last Provincial Exhibition in Hamilton. The bull "Prince of Wales" was bred by James Logan, Esq., of Montreal, dam "Charlotte," by "Sir Colin." Mr. Wheeler purchased him from J. W. Hough, Esq., in 1866. He took the first prizes and diplomas in 1867 and 1868 at the Pro-

vincial fairs. He is eight years old.

The cow, "Sally," was bred by Mr. J. P. Wheeler, sen., out of the imported cow "Lady Ayr," and was got by the imported bull "Carrick Farmer," who was winner of several first prizes at the Provincial fairs, and gained the diploma for the best bull of any age in 1865 and 1866. Sally took the first prize as a yearling, and as a two-year old, and again as a three-year old cow at Kingston in 1867. Last year, at Hamilton, she took the second as an aged cow, two other cows of Mr. Wheeler's taking the first and third. She is a deep milker, and is five years old.

Both bull and cow are good specimens of this valuable breed, and would be creditable in any showyard. Besides premiums for the animals whose portraits are given, Mr. Wheeler took several other prizes last year at Hamilton for Ayrshires, showing the best one year old bull and two-year old heifer.

### Cattle Breeding In-and-in.

The following interesting observations on breeding in-and-in are from Darwin's late work on "Animals and Plants under Domestication" :—

"With cattle there can be no doubt that extremely close interbreeding may be carried on advantageously with respect to external character, and with no manifestly apparent evil, so far as constitution is concerned. The same remark is applicable to sheep. Whether these animals have gradually been rendered less susceptible than others to this evil, in order to permit them to live in herds, a habit which leads the old and vigorous to expel all intruders, and in consequence often to pair with their own daughters, I will not pretend to decide. The case of Bakewell's Long-horns, which were closely interbred for a long period, has often

been quoted, yet Youatt says the breed had acquired a delicacy of constitution in consequence of common management, and that the propagation of the species was not always certain. But the Short-horns offer the most striking case of close interbreeding; for instance the favourite bull, Favourite (himself the offspring of a half-brother and sister from Foljambe), was matched with his own daughter, granddaughter and great grand-

daughter, so that the produce of this last union, or the great great grand-daughter, had 15-16ths, or 73-75 per cent. of the blood of Favourite in her veins. This cow was matched with the bull Wellington, having 62-6 of Favourite's blood in his veins, and produced Clarissa. Clarissa was matched with the bull Lancaster, having 68-75 of the same blood, and she yielded valuable offspring. Nevertheless, Colling, who reared these animals, and was a strong advocate for close breeding, once crossed his stock with a Galloway, and the cows from this cross realized the highest prices. Bates' herd was esteemed the most celebrated in the world. For thirteen years he bred most closely in-and-in, but during the next seventeen years, though he had the most exalted notions of his own stock, he thrice infused fresh blood into his herd; it is said that he did this, not to improve the form of his animals, but on account of their lessened fertility. Mr. Bates'

own view, as given by a celebrated breeder, was that, 'to breed in-and-in from a bad stock was ruin and devastation, yet that the practice may be safely followed within certain limits, when the parents so related are descended from first-rate animals.' We thus see that there has been extremely close interbreeding with Short-horns; but Nathusius after the most careful study of their pedigree, says that he can find no instance of a breeder who has strictly followed this practice during his whole life. From this study and his own experience, he concludes that close interbreeding is necessary to ennoble the stock; but that in effecting this the greatest care is necessary, on account of the tendency to sterility and weakness. It may be added that another high authority asserts that many more calves are born cripples from Short-horns than from other and less closely interbred races of cattle.

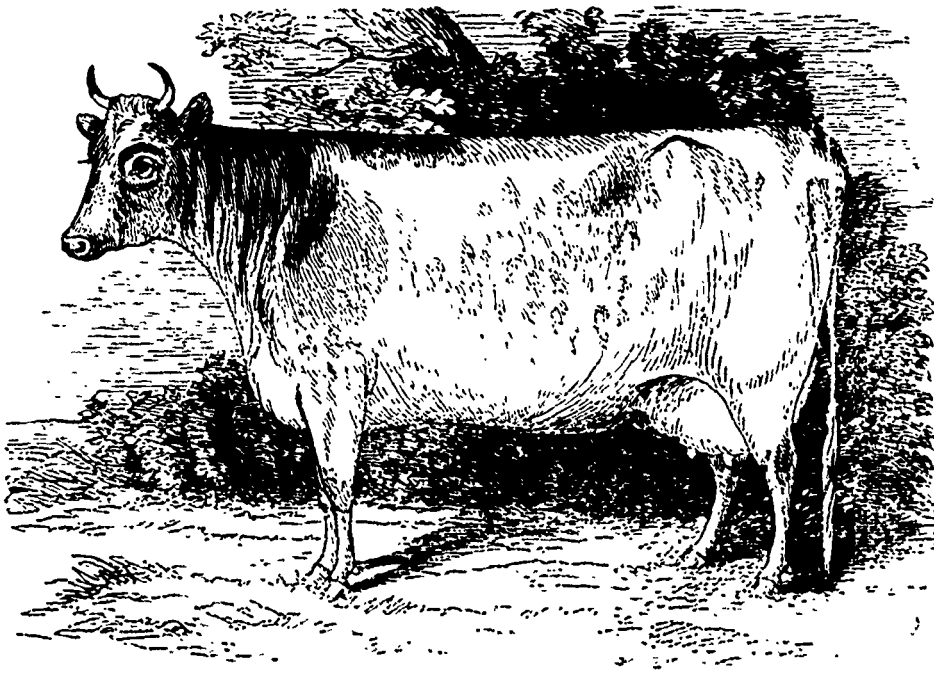
long continued interbreeding within the limits of the same herd without any consequent injury. With respect to the cattle at Chillingham, the late Lord Tankerville owned that they were bad breeders. The agent, Mr. Hally, estimated, in a letter to me, dated May, 1851, that in the herd of about fifty, the average number annually slaughtered, killed by fighting, and dying, is about ten, or one in five. As the herd is kept up to nearly the same average number, the annual rate of increase must be likewise about one in five. The bulls, I may add, engage in furious battles, of which battles the present Lord Tankerville has given a graphic description, so that there will always be rigorous selections of the most vigorous males. I procured in 1855 from Mr. D. Gardner, agent to the Duke of Hamilton, an interesting account of the wild cattle kept in the Duke's park in Lanarkshire, which is about 200

acres in extent.

The number of cattle varies from 65 to 80, and the number annually killed (I presume by all causes) is from eight to ten, so that the annual rate of increase can hardly be more than one in six." The evils of close interbreeding, can now be more easily guarded against than formerly, in consequence of the more general interest in raising choice cattle and the wider extension of the best breeds. Mr. Jos. Harris, in the

*American Agriculturist*, insists strongly on the importance of having thoroughbred males in breeding any kind of farm animals. Speaking of hogs he says :— "It is not enough that the animal to be used has the right form and fattening qualities. You want to be sure his ancestors for several generations have had the same qualities, and that they are fully established in the breed. Such an animal, when bred with common stock, will impress his qualities on the offspring. A grade or common animal, no matter how superior in form, lacks the necessary force to overcome the defects of the animals he is bred to."

The celebrated shorthorn bull, Fourth Duke of Thorndale, the sire of our best Canadian stock, and an animal of the highest reputation in Great Britain, died on the 18th of April last. Captain Gunter, of Wetherby Grange, has lost, in this splendid bull, perhaps the most famous of his "Duchess" herd.



"SALLY,"—The Property of W. WHEELER, Esq., Woburn.

"Although, by carefully selecting the best animals (as Nature effectually does by the law of cattle), close interbreeding may be long carried on with cattle, yet the good effects of a cross between almost any two breeds is at once shown by the greater size and vigour of the offspring; as Mr. Spooner writes to me, 'crossing distinct breeds certainly improves cattle for the butcher.' Such crossed animals are, of course, of no value to the breeder, but they have been raised during many years in several parts of England to be slaughtered, and their merit is now so fully recognized, that at fat cattle shows a separate class has been formed for their reception. The best fat ox at the great show at Islington in 1862 was a crossed animal.

"The half-wild cattle that have been kept in British parks probably for 400 or 500 years, or even for a longer period, have been advanced by Culley and others as a case of

### Salt for Stock.

That stock of all kinds require salt, especially in summer, in order to thrive well, is now pretty generally admitted. We have been in the habit of allowing a regular supply to horses, cattle, sheep and hogs, once a week during the season of grass, and occasionally in the winter season. The best article for the purpose is solid blocks of rock salt, such as were shown last year at the Provincial Exhibition by Mr. Hendrie, who imported them from England. But although this article ought to be cheap, it is much dearer than fine salt, owing to there being no demand for it. These blocks of rock salt are so hard that animals cannot chip them with their teeth, and can get just about enough by licking them. They may lie out in the field without much danger of being dissolved by rain, &c. Large flat stones made slightly hollow form good salting places, so do the sap troughs left in the woods after maple sugar making has been got through with. It is better to have a number of small troughs or rocks of salt scattered about the field than to put all into one place, as this will prevent the animals crowding each other, and the stronger ones from getting the lion's share, often too much at a time. Feed salt to all kinds of stock regularly on the same day of the week, and they will get accustomed to it, and not yearn after it at times, as would be the case when they get it only by chance. It is said that cows that get a regular supply of salt yield good butter, which comes quickly from the cream in churning.

### European Cattle, Sheep and Hogs.

In his report of the Universal Exposition at Paris, in 1867, John P. Reynolds, Secretary of the Illinois Agricultural Society, gives the following summary of his observations as to the merits of the different varieties of cattle, sheep and hogs in Europe.

In regard to cattle, he says: "After looking at them with some care, and obtaining what ever reliable information I could in regard to such as we do not know all about here, I feel some confidence in expressing the opinion that, taking everything into account, the Durham has no equal for beef, the Devon for work, or the Ayrshire for quantity of milk; that for quality of milk, the Alderney, Jersey and Brittany are of about equal merit. I am aware that the Hereford contends in some localities with the Durham for beef, and with the Devon for work, but I think maintains a very unequal contest.

"Sheep.—For mutton of fine quality, the English Southdown heads the list wherever known. For mutton and valuable wool, the Leicester (improved) of England, takes the first rank, though, like the pure Southdown, it must have abundant food and proper care. If there be a race of domestic animals indispensable to agriculture on old and partially

exhausted lands, it is sheep. In all judicious efforts to reclaim worn-out soils, some varieties of this race, for their ability to thrive where cattle or hogs would starve, and for the comparatively rich returns they make for the food and care bestowed upon them, are regarded as of the very first importance.

"Hogs.—For everything desirable in this 'best of all assimilators,' the English breeds are confessedly before all others in Europe. Starting with a cross of the Chinese to secure fattening qualities, intelligent selection and subsequent crossing have produced at least one good and distinct variety in almost every shire in England. These have been transported to the continent of Europe as they have been to America, and form the elements of every good race they or we have. The Berkshire, Yorkshire, Suffolk and Middlesex are most esteemed in France."

### Short-horn Items.

Colonel J. B. Taylor, of London, Ontario, has lately imported from the herd of James O. Sheldon, Esq., of Geneva, N. Y., the roan bull calf "Proud Duke." By examination of his pedigree, as below, it will be noticed that the five last sires in the pedigree are among the most noted bulls of "Duchess" blood.

"Proud Duke," got by 10th Duke of Thorn dale (5610).

Dam, Penance, by 2nd Grand Duke (12961) [321].

Dam, Peerless, by Grand Duke (10284).

Dam, Peri, by Grand Duke (10284).

Dam, Pink, by 2nd Duke of York (5959).

Dam, Marigold, by Raspberry (4755).

Dam, Bright Eyes, by Sir Richard (5175).

Dam, Queen Bess, by Fleatham (2028).

Dam, —, by Admiral (5).

Dam, —, by Young Denton (964).

Colonel Taylor has also imported from the States the roan cow "2nd Duchess of Portland," got by Duke of Richmond (3886).

Dam, Duchess of Portland, by imported Lord Ducie (13181)

Dam, Alice Maud, by Grand Duke (10284)

Dam, Cicely, by Duke of Northumberland (1940).

Dam, Craggs, by son of 2nd Hubback (2682).

Dam, Craggs, from the herd of Mr. Bates: And also the roan cow "Duchess of Winfield," got by Duke of Cornwall (3854).

Dam, Duchess of Portland, by imported Lord Ducie, as in the pedigree above.

A writer in the *Mark Lane Express* strongly advocates working bulls. In his own case he uses a bridle, collar, and cart saddle. He says it is remarkable how soon a surly bull may be taught obedience by a man of good common sense, courage and firmness.

### The Hamilton Sheep and Sheep-shearing Exhibitions.

These exhibitions, of which the present is the fifth annual one, have always been highly successful, and they are yearly proving of more and more interest to sheep-breeders and wool-growers. Some \$250 were distributed in the various prizes, from \$20 down to \$1.

We were present, and were well pleased to note the interest manifested by the farmers, and the good work done by the shearers. We measured the length of staple in the wool of a cross-bred Lincoln and Cotswold ram on the grounds, and found it to be 15½ inches.

The sweepstakes prizes for rams and lambs, advertised in the bill as per Mr. Nottle's offer in the *CANADA FARMER* of April, did not fill. Probably the amount was put too high.

We would suggest that next year they offer prizes for wool, namely, one for the heaviest fleece in each class of sheep, and a sweepstakes for the fleece of the highest value of weight and quality combined.

The following is the prize list:—

Class 1.—Best aged Leicester ram, Wm. Douglas; 2nd, Walter Allen; 3rd, Joseph Hackney. Best yearling ram, James Main; 2nd, Peter Rogers; 3rd, James McKerlie.

Class 2.—Best Cotswold ram, J. T. Nottle; best yearling do., James Biggar; 2nd, Thos. Blanchard; 3rd, J. T. Nottle.

Class 3.—Best Lincoln ram, J. T. Nottle; 2nd, Peter Grant; best yearling do., J. T. Nottle; 2nd, J. Fothergill; 3rd, J. Alton; best yearling Southdown ram, J. T. Nottle; 2nd, James Main.

Class 5.—Best Merino ram, H. H. Hurd; 2nd, Charles Foster; 3rd, Thomas Shaw.

Class 6.—Sweepstakes, open to all other classes. Best ram of any age or breed, H. Douglas; 2nd, J. T. Nottle; 3rd, Walter Allen; 4th, Jas. Main.

Class 7.—Best fleece, according to value. Walter Allen; 2nd, H. H. Hurd; 3rd, Peter Rogers; 4th, J. T. Nottle.

The judges of the sheep were James Gerrans, of Dunkirk, N.Y.; David Ashbaugh, of Glanford, and Robert Kirkwood, of Hamilton.

Best shearer of sheep of any age, William Hawkins, Middlesex, \$20; 2nd, John Gill, Exeter, \$8; 3rd, Nicholas Ford, Glanford, \$5; 4th, Joseph Rush, Jarvis, \$3; 5th, L. Hancock, \$2.

Best shearer of yearlings, Robert Bowrin, Hamilton; 2nd, James Ford; 3rd, E. Lavis, Hamilton; 4th, John Laing, Seneca.

The judges were Messrs. T. Stock, John Smith, and H. J. Lawry.

The value of Canadian cattle exported into the United States during the first three months of 1869 was \$236,252—nearly double the value of those exported during the same period of 1868.

**HEAVY FLEECE.**—We are informed that Mr. John Smith, of Burford, clipped from a Merino ram in his possession 254 pounds of wool. His clip last year was 214 pounds. He obtained the first prize in his class at the last Provincial Exhibition.

At the Port Elgin monthly cattle fair on Monday, May 10th, quite a number of cattle were brought in and were all sold. Working oxen brought about \$75 per pair, cows from \$20 to \$30 and young cattle from \$10 to \$15.

The sale of Mr. Bowley's, Siddington shorthorns, near Cirencester, has excited much interest among British cattle breeders. Good prices were realized, fourteen bulls having averaged £35 each, and twenty-five cows brought prices averaging £21. Two of the Siddington cows were bought by Lord Dummore for 100 and 270 guineas respectively.

Mr. M. H. Cochrane, of Montreal, has again been a buyer of choice cattle in Ireland. At a sale of Mr. Chaloner, a successful breeder of short horns, at Kingsport, Ireland, Mr. Cochrane purchased Floribunda for 100 guineas, and British Maid for 80 guineas. The cattle were "in good fair condition, without any attempt at pampering; while they handled well, and were covered with an abundance of soft, woolly hair."

The Union Stock Yards at Chicago occupy 345 acres of land. There are 120 acres in pens. These yards will contain, at one time, 25,000 head of cattle, 100,000 hogs, 50,000 sheep, and there are stalls for 350 horses; in all, quarters for 175,350 animals. There are 35 miles of underdrains, 10 miles of streets and alleys, and 2,709 gates. There are two artesian wells, one 1,032 feet deep, yielding 65,000 gallons of water daily, the other 1,190 feet deep, and yielding at the rate of 600,000 gallons of water daily.

**GRADE DURHAMS.**—The general verdict of the farmers and dairymen, both in England and America, is that grade short-horn cows are the most profitable to raise and keep. They are generally fair milkers, good eaters, hardy enough if taken care of, as cows should be in winter; if put to thoroughbred bulls their offspring is sure to make superior animals, either for the dairy or the butcher; and lastly, when their best days are past they make a large quantity of superior beef at small cost, as they keep in such good condition even while milking, if fed as they ought to be to make them profitable, that they require very little extra feeding to become fat.

**SHEEP WASHING.**—This operation is usually performed during the last of May or early in June. In no case should it be done till the weather has become settled warm. If the water is decidedly warm, so much the better. So soon as it is done the sheep should be put in a clean pasture, and ought to be sheared

two or three days afterwards. Our long woolled sheep do not require much washing in order to cleanse their wool, but in Australia, where the wool is fine and gummy, it is so hard to get it clean that the operation of washing it has not been generally performed on the back of the sheep; but of late they have taken to using warm water in which some alkali has been put that will combine with the grease in the wool, and make it wash out like soap.

**SHEEP REQUIRE WATER.**—A correspondent from St. Vincent, county of Grey, writes respecting the importance of allowing sheep a free supply of water to drink, and gives a striking instance of the ill effects of depriving them of it in the case of a neighbour, whose small flock have for several years failed to increase or thrive, in consequence of his acting on the assumption that water is injurious to them, or at all events that they do not require it. We believe that sheep, like all other animals, should be regularly supplied with pure water, and be allowed to drink as much as they will. Still, they will not always drink, especially in winter, as we have found after many years' experience. The same correspondent, who signs himself "An old servant of Mr. Bates," the celebrated short-horn breeder, directs attention to a typographical error in our "History of Short-horns." It is there stated that Mr. Bates lived on the banks of the Tyne, whereas it should have been the banks of the Tees.

**SAWDUST FOR BEDDING.**—The London *Field* contains the following account of an experiment with this material. "Having used sawdust as bedding for horses for a length of time, the results of my experience may not be unacceptable to some of your inquiring readers. I litter the horses on it to the depth of six to nine inches, raking off the damp and soiled surface every morning, and spreading evenly a little fresh, removing the whole only four times a year. Its advantages appear to be many, of which I will state a few which give it, in my estimation, its great superiority over straw. It is much cleaner and more easily arranged, and of course much cheaper at first cost, making in the end excellent manure. It is peculiarly beneficial to the feet, affording them a cool, porous stuffing, a substitute for the soil or earth we always find in the hoofs of a horse at grass, and presents the nearest resemblance to a horse's natural footing, the earth. We have never had a diseased foot since the introduction of sawdust in the stable, now some years since. Horses bedded on sawdust are also freer from dust and stains than when on ordinary litter, simply because sawdust is a better absorbent, perhaps, and testify their approval of it by frequently rolling and lying down for hours in the day. It has also the recommendation of being uncatchable, an advantage which all in charge of horses with the habit of eating their litter, will readily admit."

## Poultry Yard.

### Report on the Fourth Poultry Exhibition under the auspices of the Ontario Poultry Association.

The Exhibition Committee beg to lay before the members of the Association a report of the Exhibition held under their auspices on the 21st and 22nd April, 1869, and in doing so, cannot but congratulate the Society on the marked improvement which has taken place in this over former exhibitions, chiefly conspicuous, however, in the excellence of the specimens shown, and in the number and class of persons who visited the show.

In this latter respect, the observant eye could not but see many of our citizens, who heretofore scarcely gave our exhibitions a passing thought much less a visit, wending their way to the Agricultural Hall; and one case may be mentioned of an aged and honorable gentleman, who after making a tour of the coops, was asked how he liked the show, replied—"I am exceedingly well pleased, and very glad that I have come, as I had no idea so fine a collection of fowl was to be found in Canada," and this answer might be taken as the general feeling which prevailed in the minds of all. The object, too, for which a large number of visitors came to the exhibition is matter of congratulation; this is exemplified in the numerous purchases made, and the many enquiries your Secretary had to answer, as to where hatching eggs of different breeds of fowl could be obtained, and where breeders could be found who had fowls of such and such description for sale at lower prices than those marked on the pens. Notable too among the visitors to the exhibition, was the corresponding Secretary of the New York State Poultry Society, David E. Gavit, Esq., of New York city, who attended in his official capacity, and remained during the two days on which it was open, and was the purchaser of several pens of fowls. Your committee take this opportunity of recording their pleasure in making the acquaintance of this gentleman, an ardent admirer of poultry, and enthusiastic in his endeavours in promoting the raising and breeding of fowl in the highest state of perfection.

In preparing the prize list, your committee, actuated solely by feelings of economy, reduced the number of classes from 45 to 35 as compared with the prize list of last exhibition; always, however, keeping in view the desirability of giving all the recognized varieties a proportionate rate of the prizes to be awarded. Nor did this, in the opinion of your committee, militate against the interests of the show; yet your committee do not desire it to be understood that they wish it to be adopted as a standard for future exhibitions.

The committee are glad to be able to state that the arrangements for the exhibition were very complete, and with one exception



perfect throughout; this case only arose through the exhibitor bringing with him his birds under his arm and his labels in his pocket, instead of having his birds brought in proper baskets or boxes with the labels attached. The committee, therefore, cannot too strongly deprecate such a course, and recommend that, in future, under no circumstances should birds be received into the exhibition building unless properly labelled in accordance with the exhibition rules, no matter who the exhibitor may be.

Nearly all the specimens arrived in good time and in perfect order, no inconvenience having arisen by way of delay in the trains, or in fetching the birds from the stations to the Hall, nor did any casualty occur during the time the birds remained on exhibition; this to your committee is a matter of much satisfaction.

The system adopted at the first exhibition in regard to the sale of specimens, seems to be now perfectly understood, and although the sales were more numerous on this occasion than on any former one, all parties seemed well satisfied, no complaints in this respect having come to the knowledge of your committee.

The total number of entries in all classes, including extra entries, (excepting several pens of pigeons exhibited by Col. Hassard), was 273, and the number of exhibitors 47. It is to be regretted, however, that several pens of birds did not arrive; but in this respect your committee have no greater reason to complain than former committees, as in all exhibitions there will be deficiencies of this nature.

The number of exhibitors in the spring of 1867 was 33, the number of entries to the same exhibition was 177. In the fall of that year, the number of exhibitors was 45, of entries 293. In 1868, exhibitors 48, entries 269; and in 1869, there were 47 exhibitors and 279 entries.

It appears that the exhibition of this year exceeded in number of entries that of any former one except the one held in the fall of the year of 1867; but it must be remembered that this was a special exhibition, inasmuch as there were prizes for young and old birds in the same class, which, as might be expected, largely increased the number of entries.

The close proximity in the numbers of exhibitors at each of the respective exhibitions might lead to the belief that they were the same persons who exhibited on each occasion; such, however, is far from being the case. At the second exhibition there were, out of the 45 exhibitors, 28 who did not show at the previous exhibition. At the third exhibition, out of the 48 exhibitors there were 20 who did not show at either of the two former ones; and at the exhibition of this year, out of the 47, there were 22 who had not exhibited at any of the shows previously held by the Society.

The committee have endeavoured to as-

certain the cause which has led to this falling off on the one hand, and increase of new exhibitors on the other, and have come to the conclusion it has arisen from the fact, that heretofore many persons, successful exhibitors under the old regime of judging, finding that they could no longer compete successfully with their stock of fowls, dropped off little by little, giving place to new competitors. The committee are the more fully convinced of this by comparing the list of exhibitors and the classes of fowls now prominently represented at our shows, with those of former years, and in nearly every instance it will be seen that the new exhibitors are either importers of new fowls or purchasers from importers of them. In this comparison, of course the well known London exhibitors are not included.

The committee, therefore, can only repeat what has on former occasions been stated, that the impetus given by the Society to the importation and improvement of fowls at the commencement of their exhibitions is yearly increasing, and they entertain the hope that, at no distant day, it will be as difficult to find a bad specimen of fowl at their exhibitions, as it was to find a really first class one some years previous to the inauguration of the society.

There is another point to which the attention of the committee has been forcibly directed, namely, the large increase in the sale of birds at this exhibition over that of previous ones, and they have reason to know that the demand for farther purchases was far from being satisfied. The committee would therefore direct the attention of exhibitors to this fact, with a view to their sending other fowls than prize-takers, yet good specimens, to exhibitions for the purpose of sale, putting on such pens only a marketable price. It cannot be supposed that really first class imported birds can be sold cheap, yet their progeny may be offered at a price not prohibitory. Many were the regrets expressed by intending purchasers at the prices marked on pens of certain breeds of fowls as being beyond their reach financially, when a little lower figure would have, no doubt, caused a change of ownership. The improvement and extension of stock in this country being one of the prominent objects of the society, your committee would endeavour to impress strongly this feature on the minds of importers and exhibitors.

In conclusion, the committee would suggest that the thanks of the Association be tendered to the Council of Agriculture for the use of the Hall, to the gentlemen of Toronto who so liberally contributed towards the prize list, to the judges for consenting to act in that capacity, to the public at large for their liberal support of the exhibition, and to the proprietors of newspapers who gratuitously published the prize list.

THOS. McLEAN, Hon. Sec'y.

In well fed fowls the difference will be seen not only in the size and flesh of the fowls, but in the weight and goodness of the eggs; two of which go farther in domestic uses than three from hens poorly fed.

QUERIES.—X. Y., writing from Bracebridge asks "What plants and what kinds of grain would be improved by the use of hen manure? How should it be applied? Also how is the sex of Guinea fowls to be known?"

ANS.—Almost any kind of garden crop would be benefited by an application of hen manure. It should be applied in a diluted state by mixing with mould, ashes, other manure or compost. It is not a very easy matter to distinguish the sex of Guinea fowl. The cock may generally be known, however, by the cry, which is different from that of the hen, as well as much more frequently uttered. The wattles also are more fully developed and pendent.

DORKING FOWLS.—For the farmer there is no breed of fowls that will prove so generally acceptable, and profitable, as the grey Dorkings. They are hardy, fair layers of large eggs, set early and assiduously, prove good mothers, mature early, fatten easily, and give meat of the best quality for the table, white, plump and tender. They are not inclined to wander from home or scratch up the soil in the grain fields. No variety is held in such general estimation in England by those who aim at utility rather than beauty in breeding poultry.

VALUE OF POULTRY.—At a recent meeting of the Royal Dublin Society, His Excellency the Lord Lieutenant stated that the number of poultry in Ireland had increased considerably during the last ten years, and now amounted in value to over ten millions of pounds—a fact which shows its importance as a source of wealth. The authorities in Canada should consider this subject, and admit poultry from England and other countries free of duty. The present duty on imported birds is a serious item when added to the original price of good stock, the transit across the ocean, and other expenses.

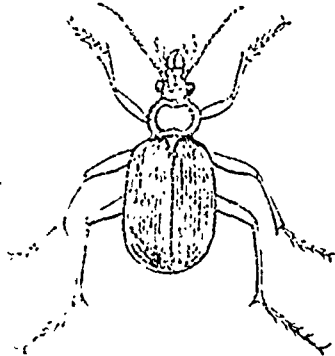
TURKEYS.—One reason why the turkeys, seen in our poultry-yards, do not vie in splendor of plumage with their untamed brethren, is that we do not let them live long enough. For the same causes we seldom witness the thorough development of their temper and disposition. A creature that does not attain its full growth till its fifth or sixth year, we kill at least in the second, to the evident deterioration of our stock. But let three or four well selected turkeys be retained to their really adult state, and well fed meanwhile, and they will quite recompense their keeper by their beauty in full plumage, by their gleaming hues of glided green and purple, their lovely shades of brown, bronze and black, and the pearly lustre that radiates from their polished feathers.

## Entomology.

### Carnivorous Ground Beetles.

We lately brought before our readers an account of the first family of Coleoptera, which are termed Tiger Beetles (*Cicindelidae*) from their rapacious propensities, and which, as insect destroyers, are highly useful to man. The next, and infinitely more numerous family, possesses the same highly satisfactory character, and should be treated by us with the same tender consideration. The members of it, from their habits and mode of life, are called by the general name of Carnivorous Ground Beetles (*Carabidae*). Unlike the Tiger Beetles, which are only represented by one genus, (*Cicindela*) in this country, the Ground Beetles consist of a vast number of different genera and species; over forty genera and an immense variety of species are already known to Canadian Entomologists, and more are added to the list every year. Some of the species are the most difficult to determine of all our beetles, and

Fig. 1.

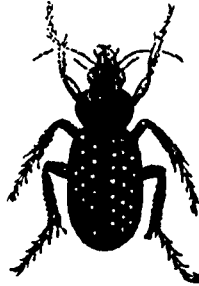


afford an intricate puzzle to the student; the general features of the whole family can, however, be easily learnt from a few specimens, representations of which we now proceed to place before our readers.

The largest and handsomest member of this family is the Green Caterpillar-hunter (*Calosoma scrutator*, Fabr. "the beautiful-bodied searcher"). Fig. 1. represents the size and shape of a large specimen of this species—some males are considerably smaller—but no woodcut can convey an idea of its exceeding beauty and brilliance of colour. The head and thorax are dark purplish black, the latter with a greenish coppery margin: the wing-covers (elytra) are bright shining green, with fine longitudinal lines and scattered punctures, and a broad coppery-red margin; the under-side is deep shining green varied with coppery markings: the legs are blackish-brown, in some lights deep purple. This magnificent beetle, as its name implies, feeds upon caterpillars, especially the obnoxious canker-worm of the United States, sometimes even ascending trees for the purpose; its larva (or grub) has also the same useful propensities. It is rather a rare insect in Canada, though found

occasionally in most parts of Ontario; collectors of insects can often find specimens in summer after a southerly gale, on the outer shore of the Toronto Island, which is a famous place for obtaining rare beetles, that have been drowned in the lake and washed ashore by the waves.

Fig. 2.



Another caterpillar-hunter (Fig. 2.) belonging to the same genus as the preceding, is quite a common insect in Canada, and can be found in May and June under logs or stones, as long as the ground is moist; in the hot dry weather it is not so readily met with. It is called the hot, or glowing *Calosoma* (*C. Calidum*, Fabr.) from the appearance of the wing-covers, which are black with six rows of bright coppery impressed spots, thus bearing a fanciful resemblance to a vessel of coals with a perforated cover. Its general colour is shining black, unrelieved except by the spots just mentioned; still it is a handsome beetle, though not to be compared to the preceding species. Like its congener, it devours caterpillars with avidity, both in its larval and perfect states, and is a capital hand at reducing the numbers of those horrid pests, the cut-worms; we usually transport a number of these big beetles into our garden every spring to keep down these cutters-off of our young cabbage plants.

The next large beetle of this family to which we would draw attention, is the murky ground-beetle (*Harpalus saliginosus*, Say); it is entirely of a dull black colour, and may be readily recognized from Fig. 3. We beg our readers to take particular notice of this figure, as there are a very large number of beetles of the same general shape and structure, though usually smaller, that prey upon

Fig. 3.

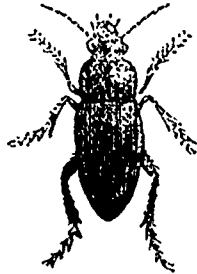


Fig. 4.



other insects, and are consequently useful to man. Any dark-brown, black, green or metallic coloured beetles of this shape, that are found under chips or stones in damp places, or running in grass, may be safely considered as belonging to this family, and

therefore be treated with kindness and consideration; it always gives us a pang of regret to find the crushed body of one of these beetles lying by the way side, where it has been ruthlessly trampled under foot by some ignorant "lord of creation." The particular species here referred to is stated by Mr. Riley to be a formidable enemy of that western plague, the Colorado potato beetle; it is also satisfactory to learn that an allied species (*H. Pennsylvanicus*, De Geer?) a very common insect in Canada, is a merciless devourer of the plum curculio.

A much smaller but very peculiar genus of beetles, is called the Bombardier (*Brachinus*), from its extraordinary power of discharging from its tail end a very pungent fluid, accompanied by a report (resembling the sound *phut*) and some smoke-like vapour; this fluid, which resembles nitric acid in its effects, and makes a stain on the fingers that will last for several days, is no doubt intended for its defence against more powerful beetles. Fig. 4. represents one of these beetles (*B. fannans*, Linn.); its head, thorax, and legs are yellowish-red, and its wing-covers dark blue. Like other ground beetles, it may be found under sticks and stones in the spring, and in similar hiding places on the damp margin of rivers during the hot summer months. There are quite a number of different species of this genus in Canada, but all are very much alike.

Our limited space forbids our going on with the list of species of this family, but we trust that the examples given will prove sufficient to enable our readers to recognize these friendly beetles, and save them from being doomed to a pitiless destruction that knows no difference between friend and foe. Should any one, however, be still in doubt as to the character of any specimen that he meets with, we beg that he will send it to us for identification, that we may judge whether he and his fellows are worthy of death, or are deserving of a better fate.

### What a Spider Eats per Diem.

In order to test what a spider can do in the way of eating, we arose about daybreak in the morning to supply his fine web with a fly. At first, however, the spider did not come from his retreat, so we peeped among the leaves, and there discovered that an earwig had been caught and was now being feasted on. The spider left the earwig, rolled up the fly, and at once returned to his "first course." This was at half-past five a.m. in September. At seven a.m. the earwig had been demolished, and the spider, after resting a while, and probably enjoying a nap, came down for the fly, which he had finished at nine a.m. A little after nine we supplied him with a daddy-long-legs, which he ate by noon. At one o'clock a blowfly was greedily seized, and then immediately, with an appetite apparently no worse for his previous indulgence, he commenced on the blowfly.

During the day and towards evening, a great many small green flies, or what are popularly termed midges, had been caught in the web; of these we counted one hundred and twenty all dead and fast prisoners in the spider's net. Soon after dark, provided with a lantern, we went to examine whether the spider was suffering from indigestion or in any other way from his previous meals; instead, however, of being thus affected, he was employed in rolling up together the various little green midges, which he then took to his retreat and eat. This process he repeated, carrying up the lots in little detachments, until the web was eaten for the web and its contents were bundled up together. A slight rest of about an hour was followed by the most industrious web-making process, and before daybreak another web was ready to be used in the same way. Taking the relative size of the spider and of the creature it ate, and applying this to a man, it would be somewhat as follows:—At daybreak a small alligator was eaten; at seven a.m., a lamb; at nine a.m. a young camelopard; at one o'clock a sheep, and during the night one hundred and twenty larks. This, we believe, would be a very fair allowance for a man during twenty-four hours: and could we find one gifted with such an appetite and digestion, we can readily comprehend how he might spin five miles of web without killing himself, provided he possessed the necessary machinery. —*English Paper.*

Enquiries about Insects.

**THE TREE CRICKET** (*Ecanthus niveus*, Harris). —A. W. of Wyoming, Ont., has sent us a twig from a cherry tree in his garden, which is filled with the eggs of this insect. On one side the bark is split open and the wood is perforated in a continuous row with a number of holes about as large as would be made by an ordinary pin; on splitting open the twig these holes are found to run diagonally across the pith, and each contains an elongate yellowish-white egg. The author of the mischief is represented in the annexed cut,

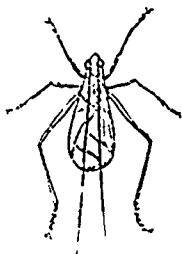


fig. 1.

Fig. 1 being the male tree cricket, Fig. 2 the female. The latter is furnished with an ovipositor, with which she makes the holes, and there deposits the eggs. The general colour of the insects is a delicate pale green, but occasionally darker specimens are found. The young, which resemble their parents in

form and colour but are destitute of wings, hatch out about midsummer; towards the end of the season they acquire wings, and imitate their parents in the work of destruction. The loud sharp chirruping noise of these insects must be familiar to most of our readers; when they are very numerous it becomes so continuous as to be rather disagreeable.

There has been a good deal of doubt amongst Entomologists as to whether they should class these insects among our friends or foes; of late the question appears to have been decided against them, as their noxious qualities have overbalanced their beneficial ones. Our correspondent, we have no doubt would in vain put them down as enemies of a very bad kind, as he says they have injured nearly every branch of his cherry tree. Their friends urge that this is a beneficial summer pruning, and is very good for the tree, but unfortunately there can some times be rather too much of a good thing. Besides the pruning, if we admit that in their favour, they also devour considerable num-



fig. 2.

bers of the noxious plant lice, and that ends the case for the defence. On the other side, we have to charge them with injuring the canes of grape vines, blackberries, raspberries (especially the Black Cap), perforating and so destroying the twigs and small branches of the peach, plum, cherry, white willow, elder, sumach, hazel, &c., &c., and even being so wicked as to sever grapes from the branches just as they are beginning to ripen, and even sometimes to cut off whole branches or to so much wound the stem as to prevent their ripening. Poor crickets! the jury must decide against you, your fate is sealed! *Fiat justitia!*

**Remedies**—Jar off the crickets when they are found on trees or vines, and quickly trample them under foot before they have time to rise from the ground; cut off in the winter or spring, and burn all perforated twigs and canes, and thus prevent the hatching of new broods.

**THE CURRANT-BORER**, *Trochilium lipuliforme* Linn.—A. W. also writes that "the currant-borer has done a great deal of damage, and that he first noticed it by seeing large holes picked in the stems by snow-birds, he thinks, as he saw the broken stems before the snow was off the ground, and on cutting some of them he found a few white grubs." We do not think that the snow birds could have made the holes in the currant stems, their beaks, though strong, being of a somewhat different conformation from those of the wood-peckers. The holes were probably old ones through which the borer had escaped after completing his transformations, the broken stems were, no doubt, the effect of the

wind on the hollowed and weakened canes. This borer is the larva of a pretty little black moth Fig. 3. with clear wings and three



fig. 3.

narrow yellow bands on its body, which resembles very much and might easily be mistaken for a small wasp. These moths fly about the currant bushes in the hot sun in June; in the cool of the day they may be found resting under the leaves. The eggs are laid near the buds, and soon hatching, the grub bores into the soft stem and gradually hollows out a large portion of the cane, remaining in it all winter, and till the following June.

**Remedy**—Prune away in the spring all but three or four canes, and burn all that are found to be hollowed or dead. The usual neglected condition of currant bushes renders them an easy prey to their numerous insect enemies.

**GRUBS UNDER MANURE**—These which A. W. says are very numerous in his garden, are probably the larvae of some beetle or other insect that feeds upon dung, and are useful scavengers. We can say nothing positive about them without seeing specimens.

Chloroform is now said to be extensively used in England, without injurious results, to stupify bees so as to remove the honey. For this purpose, a table is set about ten feet from the hive, and covered with a cloth. Some chloroform, about a quarter or a sixth of an ounce, is then poured into a shallow dish and covered with a wire gauze, to prevent the bees from falling into it. The hive is then removed from its stand and set over the chloroform. In about twenty minutes, all the bees will have fallen down on the table in a state of stupefaction, not one remaining in the comb. After removing the comb, the hive and the bees are restored to their place, the latter soon recovering, without suffering the slightest inconvenience.—*Ec.*

**THE COMMON FLEA** (*Pulex irritans*, Linn.)—Most of us are so well acquainted with this insect in its perfect state, that it is not worth while to dwell upon its peculiarities. It is not, however, so generally known that its larva is an elongate, wriggling worm, totally unlike the mother insect, and that it feeds upon particles of clotted blood deposited along with the egg upon the floor of apartments by the mother flea. Hence fleas cannot multiply in the room where the floor is continually scoured and swept; and hence, also, we may deduce the practically important corollary, that the modern practice of laying down a permanent carpet in bedrooms, instead of the old-fashioned bedside carpets, which used to be taken up every few days and shaken in the open air, affords

## Apiary.

### To Get Bees out of Honey Boxes.

I have never had much difficulty in getting boxes filled with nice honey; but I have had great difficulty in getting the bees out of the boxes after their removal from the hives. I have taken off boxes early in the morning, at mid-day, and late in the afternoon; have set them near the hive, and away from the hive, covered and uncovered, with smoke and without smoke; in short, have tried all sorts of ways. Still, many bees, after leaving a box, would return for a second load of honey and bring with them a swarm of hungry robbers: so that it was impossible to leave removed boxes until the last bee had been driven or coaxed out, and every hole covered. This took too much time, and I sought a better plan. Why not set the boxes on an empty hive, in some remote part of the apiary? That worked very well for a little time; but the robbers soon saw through this arrangement. Then I must have some kind of door or outlet to the hive, through which the bees could pass out, but not return. That was soon devised. A piece of tin was placed over the entrance, with four holes cut in the lower edge, about the size of a bee, and each hole covered, on the outside, with a small isinglass door, hung on a bit of fine wire, so as to work with the utmost freedom and the least possible friction. All the light admitted into the hive must pass through these little isinglass doors, and thither the bees within flocked. The slightest push against one of these little doors was sufficient to open it, the bee passed out, and the door shut behind him. Hundreds of bees followed him with the same result. This was most satisfactory. But wait; here comes a bee back for a second load. Now for the test. Can he enter? You may be sure he will try. He does try every door—but fails. Bees are coming out of one door while he is trying to enter another. Presently one opens the door he is at, and in goes our little thief. By this time half a dozen have returned, and in ten minutes more the experiment has proved a failure; for in that time they have learned to push the doors to one side, and without difficulty. This might have been remedied by putting a pin at the sides of the doors, to prevent their moving sideways. But the plan was abandoned for something else that occurred to me just then, which I put in practical operation with entire success. Not a bee got into the hive after that. I could leave a hive with a dozen boxes (resting on slats put across the frames), go to dinner or down town, or leave it all day, and be certain all the time that not a bee could enter it from the outside; and every bee within could leave at any moment with perfect freedom. The plan adopted was simply that which is used in a certain kind of rat-

decided facilities for the propagation of the flea. Entomologists differ as to whether the fleas ought to be placed in a small order by themselves (*Aphaniptera*), or whether they should form an abnormal family of the two-winged flies (*Diptera*). As they agree in almost every respect with the two-winged flies, except in having but the mere rudiments of wings, the latter seems the preferable course. After all, these questions are questions rather of words than of things, and of taste rather than of science. It is commonly supposed that the flea that infests the dog is the same species as that which infests man; and that, consequently, dog-fleas can exist, flourish, and multiply in bed-chambers where there are no dogs. All entomologists, however, are agreed that each species of flea is peculiar to a distinct species, or at all events to a distinct genus, of animals; and we have descriptions of some ten distinct fleas, inhabiting respectively man, the dog, the cat, the squirrel, the hedgehog, the mole, the mouse, the bat, the Australian porcupine (*Echidna*), and the domestic fowl. We have ourselves found a small species upon the young of the common racoon. No doubt dog-fleas, if they shift their quarters from dog to man, may cause considerable irritation upon the human skin for a few days, or even weeks, just as chicken-lice, under similar circumstances, will sometimes do; but that they can increase and multiply upon such unnatural food as human blood is an entomological impossibility.—*American Entomologist*.

ENTOMOLOGICAL SPECIMENS may be sent, for identification or for information respecting history and habits, to the office of the CANADA FARMER, or direct to the Entomological Editor, Rev. C. J. S. Bethune, Credit, Ontario. The postage should be pre-paid. The specimens should be sent in a pasteboard or other box, not loose, but packed with cotton wool, or some similar material. The name and address of the sender should also accompany the package, not necessarily for publication, but as an evidence of good faith and that we may know where to apply for further information if necessary.

Entomologists will be interested in the matter of "snow fleas," which have swarmed in New Brunswick the past winter. The *St. John Journal* says these singular little insects (resembling in their motions the name-sakes living in houses,) completely covered the surface of the snow for miles in some localities; in the horses' tracks, and in the ruts made by the sled runners, they were an inch or more in depth. On the 29th of March last they were especially plenty, and some small spiders were noticed among them. The snow flea is somewhat smaller than the common flea. It is quite black. On taking a quantity of them in the hand a strong sensation of cold is produced. The south wind and soft weather generally bring them. They are often found in the snow two feet from the surface and when brought to the light exhibit the usual animation by which their motions are characterized.

trap in common use, and the application was made in this way:—Through a cork bore a hole large enough for a bee to pass through; cut ten or a dozen pieces of fine wire, say each an inch and a half long, press one end of these wires into the cork around the hole, and so near together that a bee cannot pass between them. Let the outer ends of the wires converge together, leaving an opening at the end just large enough for a bee to pass out through it. Put the cork to the entrance of the hives, with the wires standing outward, and slanting up a little from the alighting board, so that the bees from the outside can pass under it, while trying to get in. Close the entrance all round the cork, so that all the light that enters the hive must pass through the hole in the cork. This will bring every bee within to this hole, for a passage out. I will guarantee it to work perfectly.—*Cor. in American Journal*.

### Improved Method of Swarming.

Where bees are left to have their own way in swarming, it is found sometimes that one colony will throw off swarm after swarm, nearly swarming itself to death; while some of the families that came off are feeble and worthless. Then again, another colony, full of workers and rich in stores, and which should afford at least one good swarm, will do no such thing, but hang out and threaten, and yet make no decided movement. The following arrangement, it is said, will prove a remedy for this state of things. Suppose I have ten colonies, all numbered, as they should be. Number 1, on examination, is found to contain ten queens in embryo, and is therefore capable of supplying ten colonies, if the young queens are not destroyed. Number 1 inaugurates the movement and sends off a good strong swarm. Very well. Hive them, and give them their position. Now number 1 has lost half its numbers, and for the present its inhabitants are all in excited commotion, and they are now ready to receive new comers. Remove number 2 to a new stand, and place number 1 on the old stand of number 2. The workers of number 2 that are out in the fields, will, on their return, flock into number 1, and when day closes number 1 is again strong in numbers and immediately concludes that it is best to send off another colony, and in about a week a second swarm will come off, hale and strong. Number 2 has lost enough of its numbers to make a swarm; it has indeed swarmed through number 1. It has a prolific queen and is rapidly augmenting its numbers every day, and will soon make up its loss. Meantime number 1 must be placed on the stand of number 3, and number 2 may be taken to the first stand occupied by number 1. Number 1 will be filled right up again as before, and in a day or two will send out another strong vigorous swarm, with a young queen. And thus the process may go on until ten swarms, all strong, have all come through number 1. This plan has been recommended, and is said to work well. It looks reasonable, and is worthy of trial.—*Cor. American Bee Journal*.

## Correspondence.

### Mind and Labour on the Farm.

To the Editor.

SIR,—I wish through the medium of your journal to say a few words to my brother farmers. The time is come for us to try and raise the standard of our occupation, and show that agriculture is capable of being ranked amongst the most important branches of industry of the world. Farmers are often so engrossed with work as to lose sight at once of their own true interest, and the advancement of their calling. Now, I will know what state a farmer's mind gets into, or any other man's who labours hard. I have felt it often, and very many times I have had hard struggling to rouse myself to action. Every man whose muscular system is actively employed more than his mental, loses the natural activity of the one in the too great use of the other. A tired body makes a sluggish mind; and a sluggish mind surely makes a poor farm. But you will say, men must work constantly and hard, or the farm will not pay. Very true in some respects, and for the most part, in busy seasons, but very far from truth for many months in the year. There can be no profit in any man who conducts a business, such as a large cleared farm, so devoting himself to hard labour at every season as to be physically unable to think or reason out consequences, cause and effect. The utmost any farmer can save by devoting himself from morning until night to the hardest and most continuous work on the farm, is about \$210 a year, without board—that is the cost of hiring a good man for that period. Now, we will suppose that out of that time the farmer will be hindered two hours each day (one hour, morning and evening) to do "chores," and this would be a small allowance; and we will further say that he is hindered one hour, on the average, each day to look after the farm stock that may want attention, and repair accidental injuries to fences, get up horses, &c. &c. and one hour each day, on an average, to go to market, attend sales of articles, purchase supplies, go to the blacksmith's, haul wood, and do all the hundred and one things that some one must do on a farm. We have thus shown that at least four hours each day is hindered of the necessary work of the team and farm, in fine as well as wet weather; whilst the farmer is, as is shown, quite busy. The value of this time is just four-tenths of all the working time of the year, each day reckoned, *vet or storm*, at ten hours. We see, then, that the time is worth just 296, leaving only \$11 to be made by outside attention to everything else to enable the farmer to pay a hired man. He will then be fully at liberty, if he does all the small jobs above enumerated, to turn his attention to improvements, and acquiring knowledge of what others are

doing. He will, in addition, have plenty of time to sow the grain, help at harvest and haying, attend to stock, and be generally useful, as his man, meanwhile, will keep steady at work all day long. If personal attention is requisite, he can give it, and help all that may be required. All this will be saved without having every hour in the day devoted to such hard work as to incapacitate him from any mental exertion; and another source of economy will be found in the saving \$1 a day and board for haying, and often \$1½ and \$1½ and board for harvest, when men must be had, no matter what you have to pay for them. Ten days' haying and ten days' harvest will save \$29 10, supposing that the man does the same work hired by the year as the day. There is no room for supposing that there can be any business of the extent of 90 acres of cleared land, and the stock required on it, in which the labour of the farmer, if forced to do what a hired man can do, will pay as well as his personal attention to other matters which would then be neglected.

What I would try to impress on the farmer's mind is this: not to suppose that his calling is necessarily one that any fool can profitably conduct provided he has only a strong pair of hands. The hands are, no doubt, very useful, but not essentially more so than indifferent bodily strength and a clear head. Depend on it, there is just as much opening on the farm for head-work as anywhere else. No man ever made himself wealthy simply by the work of his hands alone. He may make the first few hundred dollars, and save them; but he must, after that, become comparatively a capitalist, and seek for labour other than his own, to render profitable his small accumulated capital, and no sooner does that time arrive, than he must look round at the doings of others, read and reflect, reason and act, if he would keep pace with others who do so. Without thought and comparative ease of body, a farmer will never have his buildings and fences in order, nor will he ever have any ornament about his homestead, or have an inclination to try new experiments. He may have enough to eat and drink, and wear; but these supplies, although very acceptable, will never alone raise the man above a machine to do work. It is for the million I am now writing. I leave out of my category the few favoured ones who have capital and thorough-bred stock. We must use for our lands the improvement of the means that lie within ourselves, and our own power to obtain. We must adapt our present means to ends to be reached. We must not say "such land is worn out and worthless," and refuse to try its regeneration. If such were indeed the case, and land was virtually worn out, and absolutely destroyed, how is it that lands cropped 500 years before the knowledge of chemical manures, bears crops to this day as well, and perhaps better, than it used to do? Don't try to amend too much at first: do a small piece each year, reason on it, and use such means as you have within reach, and never despair or believe that land is absolutely worn out, notwithstanding all that chemistry and book-farming may tell you.

### Labour-saving Machinery.

To the Editor.

SIR,—Unquestionably this is a great age in which we live; its rapid strides in the arts and sciences are unprecedented. Wonderful have been the achievements of the nineteenth century; and labour-saving machinery will compare favourably with any other of the great inventions. The day is past when any argument was needed in favour of the employment of machinery in preference to exclusive hand labour; and in this country especially the agricultural interest needs its mighty aid to progress. Some farm hands are demanding two hundred dollars and board per annum, a few are even securing it, which is more than the labourer can earn or the farmer afford to pay. Look at the outrageous prices demanded during last harvest; in this section of the country—as high as three dollars a day were paid. Now, what we want (for we are not satisfied with the improvements great as they have been), is better machinery for harvesting our crops, so that we shall not need much extra help during harvest. The "Marsh Harvester" comes another step in this direction, if it only proves what its manufacturers describe it to be. Do not suppose that I despise the old Canadian reaper; all honour to it! But let "Progress and improvement" be our motto. Some of our machinery is labour-saving but not durable; and farmers are under the necessity of purchasing a new machine every few years, very soon coming to the conclusion that if it is *labour-saving* it is not *money-saving*. Our inventors should try to combine simplicity with durability, if they wish to be successful in this branch of machinery. We have our mowers which have allowed the scythes to hang up to rest, and our horse-rakes have come to the relief of the boys, and various other machines which are too numerous to mention here. If it is true some farmers are so credulous that they invest in nearly every machine that professes to be labour-saving, whether the agent is a reliable man or not; when of course some machines prove worthless, and the farmer over the way points at his neighbours and says, "Here is a scientific farmer for you!" In this way the use of machinery is occasionally brought into undeserved discredit, and useful inventions are sometimes slow to be recognised and established in public estimation and patronage. Certainly people should be careful how their hard earnings are invested, for there are still some *new* persons who will "take in" an honest farmer, just as quick and with as little remorse as any other man.

In another communication I will offer a few remarks on in-door labour-saving machinery.

CULTIVATEUR.

York.

C.

### Drive the Work.

(To the Editor.)

Sir,—Although one of the most important and busiest seasons of a Canadian farmer's life is just past, it may not be amiss, by way of a reminder, to urge the carrying out of the familiar old adage, "Drive the work, lest the work drive you."

I believe it is true that all men are, in one way or another, seeking happiness and pleasure, and the man who delights in his profession or business may find pleasure in its legitimate and proper pursuit. This is none the less true of him who loves the good old time-honoured occupation of tiller of the soil. But to follow the pursuit of agriculture with any degree of comfort, the farmer must "take time by the forelock," and keep well ahead. This cannot be done by making good resolves for the present, and then going at things with a rush without properly doing anything that is done. It must be the result of mature calculations for the future, and these carried out with indomitable energy and perseverance.

Perhaps there are few countries in which the farmer is required to do his work in so short a time as this Canada of ours. A week lost in the commencement seems to be difficult to regain, and spring follows winter so suddenly, that it is absolutely necessary that the farmer should have his plans well matured, and all things in readiness, and when the proper time arrives, up and at it with a will.

One cannot, without some experience, properly appreciate the difference in the life of the farmer where his work is well ahead, and when it is dragging behind. In the latter case, Time, which waits for none, seems to travel at a double-quick pace, and before one job is off his hands, two or three others are crowding on him for attention. He is continually working at a disadvantage, on account of not taking the work at the proper time. Who has not seen the farmer, whose work has somehow got behind, with his summer fallow needing to be ploughed, his roots requiring to be weeded, and his hay suffering for want of attention. All cannot be done at once, and yet to neglect any, is ruinous in that direction. A farmer in such a condition is likely to murmur and complain of the weather, likely to be cross and surly if you call on him on any business which may hinder him for a short time. He is really in a state of worry and perplexity, and can take no pleasure in his labour. This ought not to be, and may, in a great measure, be prevented. Let the farmer not attempt more than he can accomplish well, and in season. Let him start in time, and keep up to time, and his life will be more what a farmer's life should be—one of comparative peacefulness, quiet and pleasure.

FARMER JOHN.

**TAN BARK.**—A correspondent over the signature "Coast," writes:—"Would you please inform me if old tan bark, as commonly thrown out of tanneries, can be used in any shape as a manure; either by using at once, or waiting till more rotten? Any quantity can usually be had, and if it could be used as a manure, would be quite a boon. The popular idea seems to be that it cannot." Tan bark is very slow to decompose, probably owing to the presence of tannin, which is a powerful antiseptic, and to the effect of which leather owes its indestructible quality. It may therefore be regarded as of little manurial value. It is, however, useful as an absorbent of ammonia and soluble manures, and also makes an excellent mulch. The same correspondent makes an enquiry about a well, the water of which is very unpleasant. If he has not done so already, let him try the effect of thoroughly cleaning it out.

**ADVERTISEMENTS FOR THE CANADA FARMER** should in every case be sent in to the office of publication not later than the 7th of each month. Particular attention to this notice is requested, as advertisements received after the above date will be too late for insertion.

## The Canada Farmer.

TORONTO, CANADA, JUNE 15, 1869.

### Notes on the Weather.

The past month of May has been very changeable, and although the weather has been favourable for getting in spring crops, it has not been sufficiently warm for a long enough time after germination had started to advance vegetation rapidly, so that the crops, grass especially, look much behind what they were at this time (June 1) last year. No untimely frosts have occurred since fruit trees blossomed, which was during the third week of May; but the temperature went below freezing on one or two days in the early part of the month. From the 15th to the 22nd we had a week of cold, cloudy, ungenial weather, succeeding a week of high temperature, which put a check to the rapid advance of vegetation just at its commencement. This was followed by a week of cold, showery weather.

The temperature has ranged from 30° on the 2nd, the lowest, to 75° on the 11th, the highest.

There have been but two perfectly clear days, fifteen partially clear, on three of which there were thunder storms, fourteen cloudy days, and fifteen days on which rain has fallen, but the quantity of rain has been much below what we had during the month last

year. The soil is dry, and the crops greatly need copious rains, which have fallen this week in some places, but not generally over the country, and more heat is needed to bring them forward to the advanced point at which they were at this time last season. A few hot days in June will bring up the grass and spring grain rapidly.

The prevailing winds have been from the N.W. and E.

In another part of the paper will be found some particulars about the crop prospects, so far as can be ascertained at this early period.

### Genteel vs. Manual Occupations.

Those who read Mr. Winan's article in the *GLOBE* of April 20th and May 7th, on the causes and consequences of the present great depression in commercial circles, resulting from overtrading, will see how small the prospect is or can be of any young man who enters into mercantile pursuits being able to make even both ends meet.

Yet there are many, too many sons of well to do farmers, who are every year hurrying to the city, where they enter some of the numerous class of cheap commercial colleges now so common, and after going through a few months' probation in one of them, think they are fit to enter the arena of competition with men who have spent a lifetime in mercantile business, and who, with all the advantage of a close knowledge of materials and an extended experience, yet find it a difficult struggle to hold their own, so closely has overtrading cut down profits.

The result, as might be expected, is that not only does the unlucky wight find himself distanced in the race, and fast drifting into the insolvent court, but he also drags down with him his father, brothers, or such of his friends as have been coaxed into backing his paper; and thus it comes that so many once well-to-do families have to sell off their cherished homestead, their stock and furniture, and emigrate to the Western States, where, under the protection of a homestead law, they can begin anew in a more humble way than they would like to do among those old associates with whom they have hitherto held their heads so high. The large importations of goods, and the difficulty among importers of getting them off their hands, has no doubt led many of the agents and touters of wholesale houses to induce young men of but small capital to enter on the business of keeping store in some country village with goods bought on credit, but which the wily agent well knew would have to be paid for if only he could get the incipient merchant's friends or relatives to virtually mortgage their property to his employers by endorsing their customers' note.

For a while things would go on swimmingly with the young country merchant. He would get plenty of customers, while his

goods were new, and would feel himself to be rising in importance among his neighbours, and perhaps the gentility of the thing would commend it to those friends who endorsed his paper. But difficulties soon stop his career. At first he made up his mind to sell for cash only, and sold low; soon one got credit, then another, and by the time his note becomes due, he finds himself with a lot of silver, and a good many small accounts, good enough perhaps, but not immediately realizable. The agent of the wholesale man comes down on him at once, takes his silver at a heavy discount, perhaps promises to renew the notes, goes away, sends along the Sheriff to sell him out, and with the stock bought at half cost, starts some one else in the store. The young merchant has the world to begin again, and with prospects blighted, hopes dashed, and perhaps his relatives sold out, his position is anything but enviable. Compare his position with that of one who, while he has ambition, still has manliness enough to scorn a life of seeming ease and gentility, and prefers going into some trade requiring manual dexterity. He may not have white hands or wear fine clothes, be invited to the minister's house of an evening, or ogled by silly misses.

But then look at the wages earned by these men, who while they are called mechanics or farmers, and are scorned by the fine jackdaws who strut our streets in borrowed feathers, are yet head and shoulders above them in everything that pertains to true nobility, and can afford to have comfortable houses of their own, marry some sensible loving woman whose ideas centre in making home happy, and letting the gay world wag as it will, while she watches her young olive branches growing up in health and beauty, content with her husband's love and her children's prattle.

"Let not ambition mock their useful toil,  
Their homely joys and destiny obscure;  
Far from the madding crowd's ignoble strife,  
Their sober wishes never learn to stray;  
Along the cool sequestered vale of life  
They keep the even tenor of their way."

We do not believe there is a mechanic in Toronto who earns less than \$10 per week; some of them can realize double that amount. Machinists earn from \$3 to \$5 per day; compositors, printers, &c., \$1.50 to \$2 per day; carpenters, joiners and painters, \$1.75 to \$2 per day; and so on through all the various trades, while the farmer who toils to feed all, reaps the rich reward of health and enjoys all the comforts of life. There is abundance of work, more than there are hands enough to supply; and were it not for that, there would be fewer strikes and less talk of importing skilled labour to supply the demand in the mechanical arts. Were the wages of skilled labour reduced somewhat, it would result in more work being offered and more chances of employment, as many capitalists would invest in trades were it not for the extra high price of skilled labour just now. Work is plenty, but

labourers are scarce. Wake up, young men, to the dignity of labour and throw aside those absurdly false notions of gentility so prevalent now a days, notions that wise men but laugh at, and none but fools would believe in. The tendency of the age is to scorn honest toil-workers, but the time will soon come when the drones in the hive will get too numerous for the welfare of the swarm, and must be driven out and left to starve on the bread of idleness.

### Notes of a Short Trip.

During the third week of May, we took a run along the route of the Great Western Railway as far as London. At Bronte we left the cars and went a short distance northwards into Halton. The appearance of the country indicated a late spring; grass very short, spring crops not all in yet. Fall wheat somewhat spotted with winter-kill, but looking strong and healthy where it had been drilled in, and the surface drainage attended to.

From Bronte to Hamilton the soil is lighter and warmer, and things look somewhat better. Fruit trees seem pretty full of bloom, and even peaches show fuller of blossom than we have seen for years. Along through Flamboro, Beverly, and the rolling hills of Dumfries, there was not much tall wheat to be seen, but many fields of spring grain; clover in some places looking well, but most of it appears patchy, especially on fields seeded down last year. Near Paris and thence westward, the country improves in appearance. At Woodstock and Ingersoll we left the cars and took a short trip into Oxford. Here the evidence of good farming and a genial soil is more manifest. Fall wheat looks thick and strong, pastures pretty full of grass, clover well seeded and thick, and generally spring crops put in as they should be, some of them being already an inch or two above the soil. This being the great dairy county, we visited the Ingersoll cheese factory, owned by Mr. Harris. The establishment has been at work since the 1st of May, and we were shown through it by the manager, who appears to thoroughly understand his business. Last year 75 tons of cheese were made. The milk of 500 cows is now brought in, but it is expected there will be more as the season advances and pasturage gets abundant. The establishment is quite a model one, and we were gratified to see that everything about it was kept in a state of perfect cleanliness. At another time we hope to be able to stay longer, and see all the processes of manufacture carried out. As we neared London there was not much to be seen in the way of cultivation except an occasional hop yard or small clearing, most of the land between Dorchester and London appearing too poor to be worth cultivating. We spent a couple of days at London, which, now that the oil excitement has died out, no longer wears the air of bustle it had two years ago, and seems to have

settled into a quiet provincial town. Being on a light sandy soil, it is one of the healthiest and cleanest cities we know of, and the great number of white brick dwellings that have been recently built, give it an air of genteel respectability that is charming. Many of the streets have been planted with avenues of trees, so that it will soon become in reality what it now is in name, the "Forest City." Here house rent is reasonable, and living cheap, and one can enjoy both health and comfort on a small income, and the new sulphur spring baths promise to prove an attraction to draw summer visitors.

The fine river that now idly flows on two sides of the city, might be made the means of giving employment to many busy hands in manufactures, were capital and labour more abundant. We drove out a few miles from the city and noticed many signs of good farming. The crops here look well. Fruit trees full of bloom, except apples, which show but few blossom buds, probably from having been injured last year by being stripped of leaves by the caterpillars. At Col. Taylor's we saw a field of orchard grass, (*Dactylis glomerata*) that was now (May 20th.) nearly a foot high and just shooting into bloom, while an adjoining strip of timothy was but three or four inches high, showing how well that grass is adapted for early feed, and the advantage that would accrue to our farmers were they to grow more varieties of grass than they now do. One gentleman showed us a plantation of small fruits, grapes, &c. he had just put out, fifteen acres in extent, and nothing could have been better done in the way of the preparation and care he was devoting to it.

### Books, &c., Received.

ANNUAL REPORT OF THE AMERICAN DAIRYMEN'S ASSOCIATION.—We have received a copy of the Fourth Annual Report of the American Dairymen's Association, containing an account of the proceedings at the last meeting at Utica, and the very valuable papers, factory reports, &c., then delivered. The address of Professor Gamgee, on the diseases of cattle, of Mr. Willard on the Dairy interest, past and present, and Mr. Webb's paper on the cheese market of 1868, are especially deserving of permanent record. In an appendix to the same pamphlet is the fifth annual report of the Ohio Dairymen's Association, containing much interesting matter of a similar character.

REPORT ON ABORTION IN COWS.—We have also received a copy of Dr. Dalton's report of the commission of enquiry appointed by the New York State Agricultural Society to investigate the cause and history of epidemic abortion in cows, with a view to discover, if possible, a remedy. The report, though valuable, is chiefly negative as regards the results of the enquiry, and we cannot gather from it any additional light on the important subjects of cause or prevention.

**Recovery from Drowning.**

With the return of the warm and pleasant season of the year, the favourite practices of boating and bathing are again resumed for health or pastime, and already we hear of the occurrence of those fatal accidents which every summer carry off so many in the flush of youth and enjoyment. Cases of the kind are liable to occur in isolated rural situations where prompt medical assistance cannot be obtained, and any one may be suddenly called upon to render aid in an emergency of the kind. It is of the greatest importance, therefore, that every one should make himself acquainted with the best means of proceeding for the recovery of persons apparently drowned; for promptitude of action is imperative, and a few minutes' hesitation, delay, or wrong practice, may remove the last hope of restoration to life. No apology, we feel sure, is needed for reproducing at this season an article which was published last year in the CANADA FARMER, giving brief instructions for the proper method of proceeding in these cases. The directions are mainly the same as those adopted and promulgated by the National Life Boat Institution, and are also in use in the British Navy and Coast Guard Stations. These directions are founded on the methods prescribed by Dr. Marshall Hall and Dr. Sylvester.

In these melancholy catastrophes, unless the unfortunate individual is quickly rescued from his peril, there is very little hope of restoring animation. A few minutes' complete submersion under water is sufficient to extinguish life. And yet, as we every now and then hear of well attested instances of resuscitation after a comparatively long submersion, it is well, when there is any ground for hope at all, to use every means in our power to recover the drowned. One chief reason of the discrepancy of statement that we have met with in regard to the length of time that a person may be submerged and yet recover, is owing to the different modes of death in drowning. In some instances the person faints almost immediately on the occurrence of the accident; and in these cases animation may be suspended for a much longer period, without proving fatal, then when no such arrest is given to the full activity of the vital functions, and suffocation, neither modified nor complicated, is the cause of death. The appearance of the face will often indicate whether fainting occurred or not. In some drowned persons the countenance is remarkably pale, in others it is livid and swelled. The first would most probably be the result of syncope or fainting, and would leave more hope of recovery than the latter appearance. Still, after five minutes of complete and uninterrupted submersion, very little expectation could be entertained of restoring the breathing and animation.

In the treatment of drowned persons, the greatest gentleness and care should be ob-

served. It is a common opinion that the lungs are filled with water, which is the chief cause of suffocation, whereas usually very little water enters the lungs, the spasmodic effort caused by the contact of water with the glottis preventing the entrance of fluid into the windpipe. Nothing is more foolish, therefore, or more likely to do harm, than the practice of holding the drowned person up by the heels, or with the head in any way low, or rolling the body about, or any other of the rough usages resorted to, with the idea of emptying the lungs of water. There are three principal objects to be kept in view in our treatment of the drowned. First, to restore the breathing. Second, to restore or keep up the animal heat and Third, to rouse dormant animation by stimulants.

The first two objects should, as far as practicable, be attended to immediately: the wet clothes removed, and dry blankets or dry coats substituted; but no time should be lost in the first and most essential part of the treatment, namely, efforts to restore the breathing. First try the following plan



INSPIRATION.

Place the patient on the ground with the face downward, and one of the arms under the forehead, in which position the tongue will fall forward, so as not to obstruct the entrance of air, and fluid from the mouth and throat will naturally escape. If breathing does not immediately commence, move the body on the side, a little over towards the back, apply hartshorn, snuff, or tickle the throat with a feather, and dash a little cold water on the face. If these measures have no effect, replace the patient in the former position, with the face downwards, supporting the chest upon a folded coat or other garment. Then turn the body back again gently on the side, and a little beyond. Re-



EXPIRATION.

peat these movements carefully and perseveringly, about fifteen times in a minute, or once in every four or five seconds. The rea-

son for these movements is, that the first or prone position forces the breath out of the chest; the weight of the body being on the chest; this weight is removed by turning the body on the side, and air will naturally tend to enter the chest. The effect is increased by making uniform and brisk pressure with the hands on the back, between and just below the shoulder blades, while the body is placed downwards, removing the pressure completely on turning the body over on the side. One person during the whole time should gently support the head, and keep the arm under it when the face is turned down. The directions will be rendered plain by aid of the accompanying illustrations, the first of which represents the position of the body in the attempt to induce inspiration, and the second in that of expiration. The third and fourth illustrations show the corresponding positions of the body in Dr. Sylvester's method of restoring the breathing.

Another method which may be resorted to, if the preceding measures do not in the course of five minutes seem to have any effect.



INSPIRATION.

is that recommended by Dr. Sylvester. Place the patient on the back, with the head higher than the feet, and support the head and shoulders on some kind of cushion or pad. Draw forward the tongue and keep it protruding beyond the lips. Remove all tight clothing from about the neck and chest, not omitting the braces. Then placing yourself at the patient's head, grasp the arms just above the elbows, and draw them gently and steadily upwards above the head, and keep them thus stretched up for two seconds. This is done to draw air into the lungs. Then turn down the patient's arms, and press them gently and firmly against the sides for two seconds, to force out air. Steadily repeat these movements, alternately, about as often



EXPIRATION.

as those recommended previously, namely fifteen times in a minute. As soon as any spontaneous breathing is induced, let these efforts be at once discontinued, and proceed to keep up the warmth of the body.



Should the foregoing measures seem unavailing, attempts may be made to restore the breathing by insufflation of the lungs with a pair of bellows. The nozzle of this is to be inserted into one nostril, the other nostril and the mouth being closed. The projecting cartilage of the throat is also to be pressed back while air is introduced. To expel the air, pressure is made with the hand on the chest and abdomen. These movements should be repeated as before, with about the frequency of natural breathing. The treatment should be persevered in for several hours if necessary.

In most cases it would perhaps be best to persevere in one of the first two methods prescribed at least until the arrival of medical assistance.

At all times it should be remembered that the free access of pure air is indispensable, and all unnecessary crowding round the patient should be avoided. To promote warmth, wrapping the body in warm blankets; friction with dry and warm flannels, upwards in the course of the circulation, from the extremities towards the heart; the application of bags of hot salt, bran, or the like, are the readiest means to be resorted to.

As soon as respiration is sufficiently restored, small quantities of wine, brandy and water, or warm coffee, may be carefully administered. The patient should remain in bed and a disposition to sleep be encouraged.

#### Patrick Bell.

Another pioneer of modern progress has passed away. The Rev. Patrick Bell, LL.D., the inventor of the reaping machine, died on the 22nd of April, at the manse of Carmyllie, Forfarshire. Though comparatively little has been heard of this good and great man, his modesty having been equal to his patience and his sterling worth, he will be ranked among the benefactors of mankind, and agriculturists especially will hold his memory in reverent esteem.

So unostentatious has been his whole career, and so little had he courted notoriety or sought any personal benefit from his successful invention, that a large portion of the agricultural world have scarcely heard his name, and are probably ignorant that it was to the modest minister of an obscure country parish that they owe the most important application of machinery to the labour of the farm. His contemporaries have been slow to acknowledge his merit, and it is only within the last few years that his name and his just claims have been at all prominently brought before the public. His own countrymen, however, have been foremost to do him honour. Recently the farmers of Scotland presented him with one thousand pounds, and the University of St. Andrews conferred upon him the honorary degree of LL. D.

It is now more than forty years since he brought out his first reaping machine. He had since attained a good old age, being at the time of his death over seventy, and had the satisfaction of seeing his invention come

into general use throughout the civilized world. He was the son of a farmer, and so became practically acquainted with agriculture from his childhood, and was thus induced to direct his knowledge of natural philosophy and his taste for mechanics in aid of the agriculturist, to secure for him some share of those advantages which science has conferred on every other industry. The machine which he invented has scarcely been superseded, though a host of inventors on both sides of the Atlantic have followed in his track. Indeed, so thoroughly had he mastered the right principles of construction, so carefully had he provided for every conceivable need, that all the progress made since by American inventors, has scarcely resulted in any material change or improvement upon the original design. But Dr. Bell did more than discover a reaping machine; he inaugurated a change of system, the substitution of machinery for manual labour in the field; and by degrees has followed a long succession of new mechanical appliances in aid of the farmer. The reaping machine was the parent of the mowing machine the thrasher, the various haymakers, clover crushers, the steam plough, and a host of other contrivances that have almost revolutionized the art of agriculture. Successful inventors have made themselves famous both in the old and new world by following in the track first opened out by Patrick Bell; and ere the unobtrusive parish minister of Carmyllie is quite pushed out of sight by the crowd of familiar names that have succeeded him, it is well to pay a passing tribute to his memory, and record the fact that to his practical skill, patient research and earnest ardour in pursuit of science are largely indebted for the beneficent revolution now in progress.

#### Drain Tile Ditching Machine

We have pleasure in directing attention to the advertisement of Messrs. Eyer & Bros., of Richmond Hill, who manufacture a machine first exhibited by Mr. Abell, at the Provincial Exhibition last year in Hamilton, where it was shown at work and elicited the commendations of judges. Certain deficiencies were noted at that time which have since been remedied, and in the machine now offered to the public, the manufacturers have greatly improved upon the original design. Among the most important alterations, the diameter of the wheel has been increased, so that a deeper ditch can be dug in less time than by the first arrangement. The throat has also been enlarged so as not to be choked by stones as formerly. An arrangement has been added also, which enables the worker to finish the ditch with a flat bottom, a very essential desideratum in laying tiles. To obtain the requisite depth it is necessary to go over the same furrow back and forth several times, the dirt being thrown out at the side. The horses walk on solid ground outside the ridge of turned out soil. In this respect the drawing, which otherwise gives a faithful representation of the machine and the manner of working it, is slightly inaccur-

rate. The makers guarantee the machine to dig at the least from one hundred to two hundred rods in a day, and on many soils it will do more. The width of the ditch is eleven inches at the top and eight inches at the bottom, and we believe the machine will dig to the proper depth for such work, namely, 3 ft. 6 in. Such a machine as this is much wanted in Canada, and the manufacturers deserve encouragement in bringing this invention before the notice of the agricultural public.

THE MICHIGAN FARMER.—This the title of a new weekly Agricultural journal, the first number of which has just been issued. It is published in Detroit, under the editorship of R. F. Johnstone. The number for May 15 contains a large amount of useful matter, original and selected, on agricultural, horticultural, rural and domestic affairs.

FALL SHOWS.—We have already received notification of the times appointed for holding a few of the Agricultural fall exhibitions, but think it is yet too soon to publish such isolated notices. We shall, however, be glad to keep a column open for a list of the shows, with the time and place of holding each, as soon as the season for such exhibitions is a little nearer at hand, and shall feel obliged of the Secretaries or other correctly informed persons will send us the necessary information. Such a list, commenced in good time, and repeated in each issue until the season is over, will no doubt be very convenient for reference.

MOORE'S RURAL NEW-YORKER.—We have seldom seen this well-known, live agricultural journal, until within the last three or four weeks, and we should be glad to receive the back numbers from the commencement of this year. It shows good evidence of progress and improvement since removing from Rochester to New York city, being now the largest weekly agricultural paper in America, giving 16 folio pages of five columns each, per week. The illustrations are good, and have the merit of being original. The editorial staff embraces many first class writers on agriculture, and when it is known that such men as James Vick, P. Barry and F. R. Elliot write regularly for the horticultural department, nothing more need be said to commend it to progressive farmers and fruit growers.

AWAY in the Western States, the complaint is that men have too much land, and that the result is slovenly and unprofitable farming. In many cases the weeds over-top the crops, and of course not only spoil those in which they are found, but spread the evil. Everywhere it is said you can see potato fields uncleaned all summer, and the land getting into an intolerably foul condition. It seems to have a certain attraction for a man to be able to say he farms so many hundred acres, but after all it does not pay. We are not so bad in Canada, but the evil is not unknown among us. For one man hampered and ruined here from having too little land, there are five from having much. Let farmers know that if good farming won't pay, bad farming need not be tried.

## Horticulture.

EDITOR—D. W. BEADLE,

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### Rot and Mildew in Grapes

The following valuable article is the substance of a paper prepared by W. Saunders, of Washington, and which we extract from the "Hammonton Fruit Culturist" :—

In a communication which I had the honour of submitting to American Horticulturists in 1860, the causes and effects of mildew on the grape were treated somewhat at length. Subsequent observations have only tended to confirm the views expressed at that time. It has therefore appeared to me unnecessary to repeat the details already embodied in your proceedings; at the same time a brief *resumé* of what has been learned may be suggestive and useful for future reference.

There are various forms of mildew to be seen on the leaves of the grape, although for present distinction they may be divided into two classes, viz: those that make their appearance on the under surface of the leaf, and those that develop more particularly on the upper surface.

Both classes of mildew are mainly, if not wholly, the result of atmospheric changes, more particularly those of a hygrometric nature.

The most fatal form of mildew is that species which attacks the under surface of the foliage, and is known by the name of leaf blight, sunscald and blasted leaf. Its presence is first indicated by a slight yellowish discoloration on the upper surface of the leaf, which gradually increases until the part affected becomes brown. By turning over the leaf the fungus will be observed spreading and destroying the vitality of the tissue; the leaves ultimately wither, crumble and drop off.

This form of mildew seems to be produced by continued dampness, more particularly when heavy dews, or occasional rains, accompanied by dull or cloudy weather, immediately follow a period of dryness and sunshine; it also spreads with greatest rapidity, other circumstances being favourable, in positions where evaporation is least active.

All varieties of grapes having downy foliage are more subject to this form of mildew than are those with smooth or shining leaves.

The second general form of mildew is that seen on the upper surface of the leaves, giving them an appearance similar to having been dusted with fine flour, and which may be brushed off without any apparent marks of injury. Occasionally this will be observed on the berries in early summer, and may have some connection with the rot. Its effects are mainly those of retarding growth,

and the fruit, and even young shoots in some extreme cases, crack open, as is seen in the cracking of the fruit of some varieties of the pear. The debilitating effects of dry air and dry soil seem to render vegetation liable to its attacks and favourable to its extension.

This form of mildew is less frequent and seemingly less injurious on the native species of grapes than that previously mentioned, and, when treated on preventives, the first described form will be more particularly kept in view.

The rot in the berry is perhaps the most fatal disease in the grape, and one whose origin is yet obscure. It is, undoubtedly, a fungoid growth; from which fact we may deduce its origin to a disorganization of the plant—a weakened vitality, proceeding from one or various causes, either immediate or remote from its appearance. I purposely refrain from enumerating any of the many theories that have been promulgated regarding this disease, further than to mention that it has been noted that, where it does exist, it is most persistent and fatal on plants growing in soils rich in organic matter, showing that a condition favourable to luxuriant growth of plant is favourable to the extension of this disease. It is also well known that, in the case of foreign grapes grown in glass structures, where all the circumstances of culture are in a great degree artificial, the rot is prevented in varieties subject to that disease by withholding water during the period of swelling and ripening of the fruit.

It is probable that we have not sufficiently systematized observations on this disease to enable us to arrive at an intelligent conclusion as to its cause. Diseases of this nature are very often the result of causes affecting the plant many months previous to the visible development of the malady; therefore, reports upon the condition of the soil or atmosphere at the time of its greatest severity, should not hold too prominent a place in our conclusions with reference to its origin.

Assuming these observations to be in the main correct, we deduce from them various practical suggestions, some of which may be briefly mentioned.

So far as our present knowledge extends, the constitution of the soil, either in its chemical or physical condition, or as affected in any degree by culture, exercises but little, if any, influence either in promoting or preventing mildew; but being the result of weakened vitality, it is within the bounds of probability that a system of special culture may be reached which will fortify the plant against injury from such attacks.

The only preventives known are those of shelter from heavy dews and rains, either by mechanical or natural appliances, and applications of sulphur and other antidotes to the foliage.

Experiments have proved that leaf blight may be prevented by sheltering the foliage. How far expedients for this purpose can be profitably employed is a question for grape-growers to decide. The simplest form of

covering is a board covered trellis, and for amateur culture or private family use, the expense of such covering is not worthy of consideration.

It is also well known that sulphur, applied occasionally during the period of growth, will prevent mildew; as a simple statement this has some value, but it is not sufficiently definite to enable the vine-grower to determine the extent or frequency of the applications necessary to secure a crop. Some seasons occur during which there is no necessity to apply remedies, and there is no periodical certainty in any as to when mildew may appear. Could we foresee its approach, so that preventive applications might be made at the proper time, and only at that time, the practice would then be reduced to a definite system, and be proportionably valuable.

This knowledge can be reached only by a series of exact hygrometric observations made in various grape-growing localities, under the general supervision of an experienced physiologist.

It may be well to remark that the system of training hardy varieties on the top of trellis, for the purpose of sheltering the more tender and valuable varieties below, has been suggested, and to a certain extent acted upon, with favourable results.

The ultimate effect of mildew is to check and retard growth, and thereby prevent proper maturity of the wood. For all cultural purposes, it is sufficiently accurate to assume that the hardness of a grape is simply its immunity from mildew. When a grape is said to be too tender for our winters, we may safely conclude that, in other words, it is so subject to mildew that the growth fails to reach proper maturity. Fruit growers, above all others, should learn to call things by their proper names. I have reason to believe that all the foreign wine grapes would withstand our winters if not checked by mildew during growth. I have exposed matured growths of Black Hamburg, Muscat of Alexandria, Golden Chasselas, the Frontignans and other foreign varieties, to a frost several degrees below zero without being injured. And all of our native varieties, excepting, of course, strictly Southern species, are sufficiently hardy to stand our ordinary winters, if kept in health during the summer. It is important to keep this in view.

I have already remarked that downy-leaved grapes are more subject to mildew than those whose leaves are smooth.

The Fox family of grapes, (*Vitis Labrusca*), from which most of our popular cultivated varieties have been produced, such as the Isabella, Catawba, Diana, Rebecca, Concord, Iona, Ives' seedling, &c., are more subject both to mildew and rot, than varieties of the summer grape, (*Vitis Estivalis*), or the frost grape, (*Vitis Cordifolia*). I have long since expressed my conviction that more attention should be given to the improvement of the two last named species for wine grapes than

has hitherto been done. For northern latitudes the *Vitis Cordifolia*, of which the Clinton is a familiar example, is worthy of particular attention, not only on account of its intrinsic merits as a wine, and even as a table grape, but as a representative of a class of great hardihood and freedom from disease. Occasionally we may observe mildew on the Clinton, on the upper surface of the foliage, but I have never seen it obtain sufficiently so as to materially affect growth, and rot in the berry I have never seen. The leaf of this variety is green and smooth on both surfaces. For more southern climates, the varieties of *Vitis Estivalis* will be suitable; among these may be mentioned Norton's Virginia Seedling, Herbemont, Lenoir and Cynthiana.

These comprise some of our best wine grapes, but require a longer season to attain maturity than many of the Fox family, and will not reach perfection at the north except in favourable seasons. Some varieties of this class are also our finest table grapes. The leaf of this species is but slightly downy.

Some of the varieties of *Vitis Labrusca* are the most useful in cultivation; the Concord has for many years attained a supremacy in this respect; the Ives' seedling has recently presented claims which are beginning to be acknowledged; the Hartford Prolific is one of the earliest varieties, and largely cultivated as such; but all of these are popular simply because they are hardier than otherwise superior varieties of their class; were it not so, we should all most certainly prefer the Adirondac, the earliest of all good grapes, the Catawba, so well known for its excellent qualities, the Iona, the highest flavoured grape in the list, the Rebecca and Maxataway, white grapes that when in perfection may be compared to a Golden Chasselas, as also several of Rogers' Hybrids, which practically may be referred to this class for their main characteristics of growth and habit.

This section of our native grapes has received more attention than any of the others; the size of the berries and fine appearance of the bunches have encouraged a disposition to improvement, and many of the later seedlings are of superior quality, but they are more subject to disease than any other of the American species. Even in their native habitats the wild Fox grapes of the woods will be found suffering from the same rot and mildew so prevalent among their more civilized descendants. And here I would remark that a wide field lies open for improving our native grapes, a field that has scarcely been trod upon. I allude to the hybridization of the native species with each other, in contradistinction to the use of the foreign grape for this purpose, which only tends to perpetuate the diseases to which the foreign grape is liable in this climate. We have in the Delaware grape an example of what may be expected from this combination of American species—a hybrid between the *Vitis La-*

*brusca* and *Vitis Estivalis*, it partakes of the tendency to leaf mildew of the former, the freedom from rot in the berry of the latter, and a fruit superior to both. Great results await us in this direction. Place a berry having the size and fine appearance of the Concord or the Union Village, on the bunch of Norton's Virginia Seedling or the Devereux, combining all their good qualities, and there is nothing Quixotic in the expectation of realizing a fruit that will equal, in its magnificent dimensions, the famed grape of Syria.

With regard to the origin of fungoid diseases, I have designedly refrained from expressing any emphatic opinion: this question is still a subject of inquiry with botanists—whether it is a cause or consequence of disease. My observations lead me to the conclusion that it is both; one thing, however, is certain, that fruit growers must sooner or later recognize in fungoid growths their greatest enemy to success.

As closely connected with this subject, it may not be out of place here to mention a circumstance that deeply concerns pomologists as a body. I allude to the exceedingly vague and loose, if not untruthful expressions, constantly used in the description of new grapes. I question whether amongst all the numerous new varieties that have been introduced during the past fifteen years, any one of them has been described without special mention having been made of its entire exemption from mildew. It is charitable to suppose that this may be true in certain localities, but it is not the whole truth: and to presume that any one variety of fruit, grain or vegetable esculent, can be found to adapt itself equally well over the country whose climates extend from the frigid to the torrid zones, is utterly inconsistent with our knowledge of vegetable economy.

### Potting and Repotting Plants.

The frequency with which we are questioned, by those who have advanced to the possession of a greenhouse and a few pits and frames, as to how and when plants should be potted, and what sort of soil should be used, appears to us sufficient evidence, apart from any other, that the subject is not well understood by many who take an active interest in the culture of their plants. The wretched condition in which such a vast number of greenhouse plants are so often met with is the strongest of all proofs that some hints are required concerning the principles that should control operations in respect to potting plants.

A small plant placed into a large pot, having its roots enveloped in a hardened and compact paste of inert, dusty soil, and supplied with an inordinate quantity of water, is a spectacle which often comes under observation, and it is enough to make any one bemoan and pity many an unfortunate plant. That there is a vast amount of erroneous practice in this matter, from a lack of know-

ledge of the physiology and functions of plants, will be readily admitted by those most conversant with the subject; and often have we felt that if vegetable physiology were more or less taught in our common schools, much advantage would be derived from it by all parties. Any youth conversant with the elementary knowledge of the structure and functions of plant life could be taught right practice more speedily than when in total ignorance of the subject. Besides, this elementary knowledge of the vegetable world opens up to youthful minds a wide, interesting, and healthy field of thought, concerning which so many put in charge of plants live in perfect ignorance. Hence gardeners are so much under the dubious guidance of "rule of thumb."

To bring out somewhat forcibly what are the guiding principles and essential conditions necessary to the successful growth of plants in pots, in so far as potting and soil are concerned, let it be supposed that a healthy young plant—and to make the case as widely applicable as possible, say a pelargonium or geranium—is placed in our hands. The object, of course, is to grow the young plant into any desired size which accommodation and taste may suggest, and at last to have a plant with healthy green leaves, and an abundant crop of strong and beautiful bloom. The first thing to be thought of is to grow this young plant, having only a single shoot, into a handsome symmetry; and in order to make it branch out from a single stem into a half-dozen or more, it must be topped, with the view of throwing the current of sap into the lateral buds and causing them to burst into branches. The question here arises, when should this topping operation be performed; should it be before or after the plant is transferred from its small into a larger pot? It should be topped a sufficient time before potting to allow the lateral buds to burst into growth, or it should be deferred till after the plant is transferred to the larger pot, and has recovered the unavoidable check consequent on repotting, and commenced to root into the fresh soil. It is scarcely necessary to explain that both to disturb the roots and to head the plant at the same time must prove a serious shock to so delicate and sensitive a living thing as a plant.

The roots and leaves of a plant are so mutually dependent, so reciprocal in their action, that to interfere with both at the same time must, in the nature of things, prove a retarding and weakening blow to the plant; whereas, if the operations of which we are now speaking be performed at separate times, the roots in their activity hasten to restore the foliage, or the foliage restores the damage to the roots, as the case may be.

If our young geranium require this topping operation to secure lateral growth, the roots, if not disturbed, will soon force the buds into growth, and restore the balance;

or, if the plant is potted with its full complement of leaves into a larger pot, the leaves will, in like manner, restore the damage done to the tender and delicate roots by the operation of shifting into a fresh pot and soil. After a healthy root action takes place, and the system of the young plant is in full and vigorous play, the removal of the top will soon be compensated by the bursting forth of the lateral growth.

Take, on the other hand, a geranium that has done blooming, and that, after being well ripened, has been cut down to lay the foundation for another season's flowering. In order to its healthy growth it is necessary that the whole of the old and exhausted soil be shaken from its roots, and that fresh nutritive soil be substituted. Now, this shaking out operation is frequently performed immediately the plant is pruned back and denuded of every leaf, and, as a consequence, delicate plants die outright. The plant should be allowed to heal its wounds and bud out into leaf before it has its roots entirely disentangled from the effete soil. The young crop of leaves will keep up their action on the roots and hasten the formation of young and greedy feeders, the shock will soon be recovered, and the whole system brought into full and healthy play. Every active root or spongiole dies immediately the plant is cut down and denuded of its foliage, and it is not till young shoots and leaves are again formed that they come into activity again.

From the foregoing the inexperienced can scarcely fail to infer that, in potting plants that require any cutting or pruning to keep them shapely or within convenient limits, the two operations should not be performed simultaneously. Generally it is best to prune first, and allow the plant to make fresh growth before potting is performed. Deciduous plants should not be repotted till they burst into leaf. Fuchsias, for instance, which can be so conveniently dried off in winter, should not be shaken out and repotted till they have expanded a few leaves, and all pruning required in their case should be performed before the roots are disturbed. Evergreen plants, such as camellias, oranges, azaleas and myrtles, have a particular season at which their roots elongate or increase with more rapidity than is usual at other stages of their growth, and under ordinary circumstances that period is immediately they have pushed out their season's growth, and is the best time.

But to throw the consideration of topping and pruning aside, it often occurs that shifting a plant into a larger pot becomes necessary when pruning is not called for. In such cases, when it becomes desirable to merely increase the size of a plant, the repotting should be attended to as soon as the roots have coiled themselves among and around the soil sufficiently to perform the potting with a whole ball, but the soil should never be over "matted" with roots. Generally a sure criterion as to when a plant re-

quires more pot-room and nourishment is when the roots announce themselves at the opening at the bottom of the pot. It is, however, much preferable at the near approach of winter to have plants a little cramped at the roots, than to shift at the beginning of a comparatively dormant season. Under such circumstances it is much better to defer repotting until early spring. All plants, such as azaleas and New Holland plants generally, that are dependent on a well ripened growth for their crop of bloom the following season, are much better under than over-potted, and are likewise much less likely to suffer from injudicious watering.

In continuing our remarks on potting plants, we have to observe that the next important consideration is the character of the soil most suitable for plants under circumstances so artificial. One of the most common and fatal errors into which the inexperienced fall is that of making choice of inert and finely pulverized soil for potting with. This and insufficient drainage are more disastrous to pot plants than any other two points of culture that can be named. To pot plants into common garden soil, which is generally destitute of fibry and organic matter, and at the same time to neglect thorough drainage, is the shortest and surest way of reducing a plant, however hardy and vigorous, to a state of inaction and premature decline. Such soil is destitute to a great extent of what forms the food of plants. Were this its only fault, it might be remedied by the application of stimulants in a liquid form; but the principal want or error lies in its mechanical condition being at variance with the requirements of a healthy pot plant. What is required is organic or turfy matter, which in its gradual decomposition affords food to the plant, and at the same time forms a root medium, which freely admits the wholesome influence of the atmosphere, and has the power of absorbing therefrom the essential gases so necessary to the well-being of plant life. A plant potted in finely pulverized soil, or rather dust, entirely destitute of fibre particles, forms, especially after frequent waterings, a close hardened medium, impervious to the chemical action of the air; and if young roots are ever formed in a healthy condition at all, they are most difficult to be kept alive, if that be at all possible under such circumstances. Such a body of soil, especially if watered with water in which there is a sediment soon becomes as solid as a millstone, and no tender plant can thrive in it.

The soil most suitable for the growth of plants in pots should contain a large proportion of decomposing fibry matter, such as the roots and herbage which are common to the surface of old pasture. The fibry matter which such soil contains not only presents in its gradual decomposition the constituent elements which form the chief food of plants, but prevents at the same time the soil from becoming compressed and soured. Such soil

should be chopped up or teased with the hand without removing the fibre. Sifting should never be had recourse to, except when it is to be used for potting young things into very small pots; and even then, instead of separating the fibre from the finer soil, it should be all passed through the sieve, simply for the purpose of breaking it up and making it fit for going into small pots without taking the fibre out of it. Soil of this fibry description—fresh and open—should form the chief of mixtures for potting with, and is in itself very nutritious. Manurial substances, such as leaf mould and rotten dung, can be added to such a staple with safety in the case of grosser-feeding plants. The amount of sand added to it must be decided by the character of the roots which various plants make. Heath, azaleas, and the generality of New Holland plants, which make fine hair-like roots, require a more sandy soil than others; while such as oranges and camellias, which make strong crowquill-like roots, demand a very moderate admixture of sand. The former plants, too, require more of a peaty than a loamy or calcareous soil; but in all cases there should be a large amount of fibrous material. In using such soil, it should always be inclined to the dry side, as, when used wet, it is apt to become compressed and ill-conditioned.

Drainage is another point of great importance in the pot culture of plants. So important is it that, no matter what your soil may be, if the pot is not well drained it is impossible for plants to thrive. Broken pots or tiles form the very best material for draining pots with, inasmuch as such material is light and porous. A six-inch pot should never have less than an inch and a half of finely broken potsherds, free from dusty matter over the crock which covers the hole in the bottom of the pot. And tender rooting plants, particularly those that are intended to remain several years it may be in the same pot, should have extra care bestowed on the drainage, which should in itself be ample, and have a layer of sphagnum moss or other fibry substance placed over the crocks. To keep the finer particles of the soil from mixing with the crocks and choking up the cavities, through which the water should escape with freedom.

As soon as a plant becomes, in gardening phrase, waterlogged at the root, it is most certainly doomed to disease, and ultimately death, unless immediate remedial action is resorted to. How often does it occur that a tiny worm finds its way into the pot, and works the most disastrous results by wriggling the finer particles of the soil down among the drainage, choking it up and preventing the escape of water. Under such circumstances the depredator must be destroyed, and the drainage renewed as soon as the mischief is discovered, or a sickly plant will be the immediate consequence. The effect of stagnant moisture about the roots of

a plant in a pot is precisely the same, only to an aggravated extent, as that which takes place with a field crop when flooded or insufficiently drained—a yellow sickly appearance, mildew, and ultimate ruination.

Pots should always be scrupulously clean, and quite dry, when used. If they have been previously used, they should always be well washed before putting another tenant into them. Every particle of mould or slimy matter which adheres to them and clogs up the pores should be removed, both outside and inside. When a plant is in a pot, the inside of which is covered with hardened particles of earth, one mischievous consequence, to say nothing of others, is that in turning the plant out of it, the ball is sure to be broken, and of course the roots injured.

Some of these matters may appear trifles to some; but let it be remembered that success depends chiefly on the careful attention to a bundle of little matters, and the most successful gardeners are those who are most enthusiastic in their attention to what the unsuccessful may regard as trifles.—*The Field.*

### Renovating Culture.

Some years since a friend of mine had an orchard that was almost barren, and bore no fruit. As I was passing one day, he asked me to come in and inspect it. I did so, and found the trees to have been sadly neglected. They were bushy in their top boughs, with short growth at the ends, mossy and "hide-bound" in the trunk and large branches, and altogether as miserable a lot of trees as any one could find. The kind was, I believe, good, or I would have advised my friend to cut them down at once. After relating my experience, I induced him to follow my plan of orchard culture, formerly described, and the suggestion was at once agreed to. Whilst walking through the orchard, a she-goat, kept for the children, entered at the open gate, and before we were aware of its presence, she had nearly barked one half of a large tree, leaving only a small portion untouched; the injured portion was about 12 inches long by 8 wide, and almost entirely encircling one half of the large lower limb. It was a large forked tree. The owner rushed after the goat, and was only restrained from inflicting instant punishment by my exclamation that there was no harm done. The season was the latter part of June, and former experience had shown me that apple trees barked about that time did not sustain any injury. I recollect, some years since, trying the experiment by girdling a main limb of an old apple tree. The owner said I had killed it, but the result in about four days proved him entirely in error. The sap at once formed a new bark, equal in all respects to the original, nor did the branch of the tree feel the girdling by loss of fruit, as it bore as usual, and for many years afterwards. Had it been girdled at any other time of the

year certain death must have ensued. After the goat was driven off, and put where she could no longer offend, we continued our investigation, and I advised a total alteration of system in pruning. It was, as I have said, the month of June, and I at once offered to prune the trees myself, having often done so at home. I obtained my favourite sharp thin chisel and mallet, and a fine saw for the large branches. I began by sawing away most actively at a large limb, but was interrupted by further expostulation. "No matter," I said, "no harm will ensue," and I cut away almost half the tree, and reduced the thick bushy head to an open, tolerably good-looking tree. I cut off large and small branches without remorse, until the shape was handsome enough to suit my views, my friend looking on with rueful face. I scraped all old bark off until a clean new inner bark was apparent on the trunk and all large boughs. My idea was, from several rings of holes round the centre of the stems, that partial decay, or at least disease, had already commenced, as the holes were made by the woodpecker, and we all know it never pecks holes without some good prospect of insects, and nothing so surely points to decay or disease as insects in the bark, and a woodpecker hunting them out is an excellent mark. After all the trees had been pruned, and all rough bark well scraped off, I wished my friend goodbye, and left, being determined to visit the orchard and report progress the ensuing spring. Before leaving, I impressed on the owner's mind the absolute necessity of manure over the whole land, allowing the consequent growth of grass to accumulate and fall down where it grew, not forgetting to advise a barrel of plaster to each acre to be sown at once. The spring following I again inspected the orchard in company with my friend, who expressed his entire approbation of the treatment. The trees were all doing well and in full bloom, the soil was moist and loose, and the grass rank and fresh, with a thick mat under foot of last year's half-rotted hay crop. The stumps where large boughs were cut off were all healing over, and showed no signs of decay. This I attributed entirely to the time of year chosen for the pruning, and to the smooth cut quite close to the main body of the tree, and there being no saw marks to hold moisture or decay. For, had there been half an inch of wood left projecting beyond the bark, no growth could have so easily covered it. Two or three of the trees showed signs of decay and general stagnation of life on some of the boughs; these I calculated to remove altogether, and to replace them, allowed one or more strong clean sprouts to remain untouched when the pruning had been done, the following year—and I may mention that I had formerly found the plan succeed admirably: a sprout will grow twice or thrice as fast as a bough, and when it has attained a certain growth, cut off the old dis-

eased limb close to the sprout, and a new tree will be the result in that part. I have now in my orchard renewed trees from sprouts, where the sprouts are fully the size of the old wood, and the ends all healed over smooth and nice. It is true, the trees so treated are full of "elbows," but that is of little consequence. I always cut as close as possible, being careful never to pare away the edges of the bark, as it takes just so much longer for new bark to form. C.

### Orchard Culture.

To the Editor.

SIR.—I have before me a recent issue of your journal, containing some strictures on an essay of mine published by you some time previously. Courtesy required that I should have noticed it before, but circumstances rendered it impossible for me to do so. Allow me to say, before proceeding farther, that my only object is to get at the truth. If the gentleman has better methods of orchard culture than those hitherto practised by the most skilful orchardists, let him state and prove them. On him lies the burden of proof. He comes before the public with something new. He attacks what he is pleased to call the "old-fashioned" way of putting trees in with the spade, and cultivating the young orchard for five years. If the gentleman's plans are superior, the public will adopt them. None will rejoice more than I at any improvement in orchard culture. But it generally requires more than the assertion of one man, however able and intelligent he may be, to induce many to try or to believe in a new method; and now let us examine your correspondent's letter to see if we can cull anything of value from it.

The first point is as to the expense of putting in, and caring for orchards. The estimate he attacks was taken from an excellent article by the Horticultural Editor (then, as now) of THE CANADA FARMER. I believe that gentleman has no superior on this continent as a horticulturist. The public will hardly, then, accept "C.'s" opinion on this point. It is true that by putting trees in with the plough, and letting them afterwards grow up among grass, the expense of planting and care may be greatly reduced; but I think that what is worth doing at all, is worth doing well, and that it will pay to plant trees properly.

"C." objects to my mode of planting. Let him consult the leading works on Horticulture. Let him ask experienced men. If the weight of testimony is in his favour, I will cheerfully submit; but until he can show it to be so, I will hold to the plan which has been so successful in my experience. Again, your correspondent advocates his system of pruning. I would like to refer him to the back numbers of THE CANADA FARMER. If he finds nothing there to convince him, I say let every man be fully persuaded in his own

mind. There is great diversity of opinion on this point. I have to thank "C." for his correction in regard to the mulch. It certainly should be removed in the fall (if long or strawy), and the trees banked smoothly up about one foot. I had intended to give you some notes concerning the University here, Mr. Cornell's stock, the crops, &c., of New York, but this letter is already too long.

JOHN T. DUNCAN,  
Cornell University,  
Ithaca, N. Y.

May 11th, 1869.

### Hamilton Horticultural Society.

#### SPRING EXHIBITION.

This enterprising Horticultural Society held its spring exhibition, as has long been its wont, on the Queen's Birthday. The tables were well filled, and the long drill shed presented a very beautiful and attractive appearance.

In the fruit department we noticed some very fine samples of R. I. Greening, Northern Spy, Golden Russet, and Baldwin apples, in excellent preservation. There were also a few pots of strawberries, but at this season of the year the fruit collection is necessarily limited.

The roses made a fine display. The plants were well grown and profusely covered with bloom. Little need be said of the beauty of the collection, when it is known that it comprised such varieties as General Jacquemont, Cardinal Patrizzi, Madam Boissin, Lord Raglan, The President, and Charles Le Febvre.

The Fancy and Show Pelargoniums were a prominent feature and contributed largely to the beauty of the display. The plants were exceedingly well grown and well flowered. Among the fancy sorts *Aene* was conspicuous, with the beautiful Evening Star and Queen of the Valley; and among the show varieties we noticed particularly those splendid blooming plants *Beadsman*, the *Bride*, *Napoleon*, and *Sir Harry Smith*, and of the newer sorts the beautiful *John Hoyle*.

Of Scarlet Geraniums there was a brilliant display of well grown specimen plants in fine bloom, nearly filling one of the tables, and a good collection of Tricolor Zonalis, among which Mrs. Pollock and Sunset took the lead.

The display of Verbenas was not large, but choice. We noticed among the new aspirants for public favour one named *Dominion*, very large truss and large flower. *Craig Miller* promises to be an improvement on Mrs. Field. *Lord Palmerston* is a good dark bine with white eye, and *Secretary* is an attractive flower, deep crimson with pale yellow eye.

The collection of greenhouse and stove plants was very good. The rich perfume of the Orange Blossoms, mingling with the He-

liotrope and Jessamine, filled the room with a most delightful fragrance. *Alocasia Metallica* glistened in all its lustrous beauty, and the variegated *A. Macrorrhiza* displayed its particoloured foliage to great advantage. There were some fine specimens of *Franciscea Eximia* in full bloom, and the useful *Statice Hulfordii*, that keeps blooming for nearly half the year, together with the lovely climbing *Rynchospermum jasminoides*, filling the air with sweet odours. The *Fuchsias* were the old favourites, *Bopeep*, *Rose of Castile*, *Venus de Medicis*, &c., and the showy *Azaleas* were in good bloom for the season.

The ferns were very fine. Indeed, they can hardly ever fail to interest the most careless observer who has any taste for varied and graceful foliage.

We noticed but one Orchid, a fine specimen of *Dendrobium nobile*.

There was a large collection of *Pansies* of unusually vigorous growth and large flower, and a goodly number of single and double *Petunias* well covered with bloom, and bouquets for the table and hand in rich and varied profusion.

Yet there was one table of plants and flowers that had for us a special attraction, the one devoted to the display of the productions of amateurs. We form our opinion of the taste for horticulture in any community by the extent and quality of the display on the amateurs' tables, and we regard the Horticultural Society that fails to encourage the amateur horticulturists as losing sight of one of the chief objects of such societies. On this occasion the amateurs' table was well filled with fancy and show *Pelargoniums*, bedding *Geraniums*, *Fuchsias*, *Agapanthas*, *Roses*, *Hydrangeas*, cut blooms and bouquets, and the quality of the plants shown, and the care and skill displayed in their cultivation, bore very favourable comparison with that of the professional gardeners.

The vegetable department could not be very extensive or varied at this season of the year, but what was shown reflected great credit on the producers. We noticed especially some very fine Ash-leaved *Kidney Potatoes*, and some round potatoes called *Fox's Seedling*, which are particularly well adapted for frames. The *Sea-kale* and *Prickly Spinach* were also very fine, and the *Long Frame Cucumbers* remarkably well grown.

We congratulate the Hamilton Horticultural Society upon their continued and well deserved success, and would just suggest that we look to these larger and older societies to encourage the cultivation of the later productions of horticultural skill, and expect to find at their exhibitions a somewhat more abundant display of the novelties in the realm of flowers, fruits and vegetables.

COMPOST FOR LILIUM ACURUM.—Two parts of turfy loam, one part sandy fibrous peat, and one part old dry cowdung, well rotted manure, or leaf mould, with a free admixture of sharp sand.

### Distances for Planting Trees.

Persons about to plant orchards and fruit gardens are often at a loss to know the most suitable distances to place the trees. The guiding rule should be to allow space enough, that when the trees attain full size, the sun's rays may freely enter on each side. The roots as well as the tops should have free space. As a general rule, the tops should never approach nearer than one-half their diameter.

Some varieties of the same kind of fruit grow to a much greater size than others, but as an average, the following distances may be adopted, varying with the amount of land and with the wishes of the owner, whether to obtain immediately a large amount from a small space, or to make a permanent orchard that shall long continue without becoming crowded.

APPLES.—In fertile districts of the country, where the trees may attain great size, and where there is plenty of land, forty feet is the greatest distance required. The usual distance is two rods or thirty-three feet. Where the most is to be made of the land, and where thinning in the limbs is practised when the trees become too large, twenty-five feet distance may be adopted. For pyramids on apple stocks, fifteen feet; for pyramids or dwarf standards on *Doucain* stocks, ten feet; for dwarf round-headed trees on *paradise* stocks, eight feet.

PLUMS.—Large growing standard varieties on pear stocks, twenty to twenty-five feet; dwarf standards on quince (with stems pruned up, two or three feet, the heads with natural growth, or slightly thinned by pruning but once a year, for orchard culture), twelve feet; pyramids on pear stocks, twelve or fifteen feet; on quince, ten or twelve feet. It should never be forgotten that pears on quince should be so placed as to admit of high or enriching cultivation.

PEACHES.—It is usual to allow about twenty feet for peach trees that are never shortened in, but permitted to spread out and take their natural course. But if shortened in annually, as they should be, or even triennially, by cutting back three year old branches, they may occupy only twelve or fifteen feet. Peach trees budded on the plum, which reduces their growth a little, may be kept cut back so as to require a space of only eight or nine feet.

CHERRIES.—Common standards, twenty feet apart; pyramids on common stocks, fifteen feet; on *Mahaleb* stocks, ten feet. *Dukes* and *Morellos* require only three-fourths of this space.

PLUMS.—Standards, fifteen feet; pyramids, eight to ten feet.

APRICOTS.—One-fourth more space than for plums.

QUINCES.—Six to eight feet.

GRAPES.—Most vigorously growing native

sorts on a trellis eight feet high, twenty-five feet apart. On a twelve foot trellis, sixteen feet apart.

**GOOSEBERRIES AND CURRANTS.**—Four to five feet.

**RASPBERRIES.**—Three to four feet.

**BLACKBERRIES.**—In rows eight feet apart.

For the above distances, the following is the number of trees required for an acre :

40 feet apart .....	27 trees.
33 " .....	40 "
25 " .....	60 "
20 " .....	108 "
15 " .....	193 "
12 " .....	302 "
10 " .....	435 "
8 " .....	680 "
6 " .....	1,208 "
4 " .....	2,720 "

Thomas's Fruit Culturist.

**How to Secure a Crop of Plums.**

**FIRST METHOD.**—Save a sufficient quantity of dry unleached wood ashes; when your trees are in full bloom, go out in a still morning while the dew is on, or you may go just after a shower, and sow the ashes completely through the top of the tree; repeat the process if a heavy rain wash off the ashes before the tree is out of bloom. Repeat the process when the young fruit has attained the size of marrowfat peas. No fear of damage to the trees from the ashes. I have used them the last fifteen years for this purpose with success.

**SECOND METHOD.**—Examine the young fruit every day or two. As soon as you find the curculio at work, spread canvass or sheets under the trees, give them a sudden jar, and the insects will fall down; you can then destroy them.

**THIRD AND SURE METHOD.**—As soon as the curculio commences to deposit her eggs, which of course is in your absence, go to your tree, and if your eyes are good you can see the egg just under the cuticle of the plum in the crescent mark. Seize the plum carefully with the thumb and fingers of the left hand, and with the nail of the index finger of the right hand, pick out the egg; if that plum is not again stung you are sure of fruit. I have picked them out as many as three times. By this latter process I have had invariably plenty of plums for family use. If the young fruit is delicately handled it receives no injury from the operation; it will heal in a few hours. You must begin at the lower part of the limb or bough, taking each plum in succession, and it must be done within four days after the plum is stung. The operation is of no use after you can see a dark line penetrating the plum beneath the sting; the egg is then hatched, and the worm is making its way in; the pulp, and destroys the fruit.

J. M. BRISTOL.

Virgil, Ont.

**Garden Culture, and why all ought to have a good one.**

To the Editor.

SIR,—I am a genuine amateur gardener; I may in fact be said to love the garden, and all its belongings. I have found more true, simple happiness in cultivating and beautifying the garden than in almost anything else. Perhaps one reason for this is that I, like most other amateur gardeners who are busy making a living all day, always work in the garden before breakfast and after tea. Before breakfast everything is so fresh and beautiful; the dew lies on every spray, the oblique rays of the rising or early sun impart beauty to the scene and gladness and thankfulness to any one whose mind is not by nature too misshapen and distorted to admire and enjoy it. I never was very remarkable for anything that I know of, but I always had a just appreciation of the beauties of early morning and peaceful evening, especially if enjoyed in strolling about the garden after the day's work was over, with the children running races under the cool shady trees, or in early morning, looking to see the growth of the previous night. One of our most practical and beautiful writers, William Cobbett, speaks in glowing homely colours of the necessity of a garden and its healthful productiveness. His great maxim was, "plenty of manure" and "weeding when young." The manure made rank, quick vegetation, the weeding when weeds were young, produced abundant crops which would have been seriously checked if neglected. As a source of profit, perhaps, there may be some doubt as to the advisability of near gardening, but there can be no doubt of the comfort and happiness connected with a comfortable and tasteful home. Few farmers can have much valuable or beautiful furniture within doors; but without, it is quite another thing: there a few hours spent now and then makes an attraction comparatively inexpensive, and almost always within reach of every farmer. Moreover, the well ordered garden furnishes a delightful enjoyment to one's friends. People generally do not visit in the country for what they get to eat or drink. They have plenty at home in almost all cases—but a pretty lawn to play on for an hour in the evening before the dew falls too heavy, and a plate of raspberries or strawberries, or in their season August apples, are all many of us expect amongst farmers, when paying visits to see and be seen by our young friends and acquaintances; and these fruits cost little or nothing but the inclination to grow them. It is very true the lawn must be mown, and walks hoed and swept, or raked, occasionally, but there is plenty of odd time to get this done, if there is but the wish to do it. There is no doubt whatever that, on the farm, growing cabbages, carrots, parsnips, beets, tomatoes and all ordinary vegetables, pays better and affords more comfort, as well as healthful food,

than any investment of the same amount in other ways. On the farm, bread, potatoes and pork, in some shape or other, form the staple of every farmer's living, and these things, with plenty of vegetables, are quite enough; but without any change, almost all soon tire of them, especially women. Men have, out of doors, exercise and hard work, which give them an appetite to eat anything like wholesome food; but with women it is quite different; they cannot get much out of doors, and their appetites are naturally more delicate than ours, and they generally suffer more, and require more to tempt them to eat. To the farmer's wife and daughter, therefore, a garden well cultivated is an absolute necessity; moreover, it often happens there is no meat for weeks together on a farm, if of the smaller class, and from some cause its absence is often beyond the control of the farmer himself; then indeed the vegetables are most acceptable.

In conclusion, I call on my brother farmers, for their wives' and daughters' sake, if for no other reason, to attend more to the garden, and orchard. If expense is an object (and owing to the wheat pests it generally is) allow your wife an extra cow, and its produce, to keep the garden in order, appropriate some one thing, the proceeds of which may be strictly given to pay the necessary labour—put in plenty of each kind of seed, and few people will calmly see young vegetables spoiling for want of hoeing, whilst by some extra exertion early and late, by using odd minutes for all to join when otherwise they would be idle and waiting about, there will be plenty of time found. I always devote Saturday after four o'clock to the garden, and all hands are willing to help if they feel they are working for the luxuries and comforts the garden produces. It is not now my province in this article to speak of the process of gardening, but I intend, if acceptable, to do so in a future, in which I would call the attention of farmers to gardening on a practical scale, adapted to their means and appliance—not an elaborate article on gardening, which expects people to eat green peas and cucumbers in May, or rhubarb in April, but plain simple practical talk about gardening, shade and ornamental trees, all within the reach of every farmer. As for the orchard, I refer my readers to another article on the culture of apple trees, published in a former issue.

C.

**WATERING STRAWBERRIES.**—To have strawberries of large size and full of juice, we must give the plants a thorough drenching with water every night when the weather is dry, from the time the fruit sets till it is ripe. A friend of ours whom we advised to try this plan in his garden, where he had several hundred plants set out and carefully cultivated and mulched, reports that he did so, and doubled his crop both in quantity and quality.

### Culture of Dwarf Pear Trees.

Many people are engaged in cultivating dwarf pear trees, and often find, after years of trouble and attention, that failure is the result. In many of the leading papers on agricultural and horticultural subjects, the same complaint is often made, and in some the remedy now proposed is hinted at as likely to be successful.

Dwarf pears, when grafted on quince stocks, go very deep into the earth in search of moisture and food. From one cause or other, dwarfs will not live in sandy soils. I have tried for several years to produce thrifty, well-grown trees on sandy dry soils, but with very poor results. The trees lived, to be sure; but they never thrive, and any fruit they bore was small and shrivelled, and without flavour. Last fall, I determined to proceed on quite a new plan. If pear trees, whether standard or dwarf, prefer moisture and clay land, to drought and sandy soil, and as my soil is dry and sandy, why, as the "mountain cannot come to Mahomet, Mahomet must go to the mountain." I, therefore, determined at once to make such a soil as pear trees are supposed to like. This I did as follows:—I dug a hole in the garden at each place I intended to plant a pear tree, 3 feet wide and 2½ to 3 feet deep. The surface soil was thrown on one side, and the sub-soil, almost pure sand, was thrown on the other. The hole was then filled with rich surface clay soil, hauled from a distance, that had been uncropped many years, and from natural deposits was very rich-looking. When all were filled, I commenced planting. The trees had, meanwhile, been buried well up in loose, moist earth. Each tree was carefully placed in a hole excavated in the clay for it, allowing plenty of room for the roots to be spread out by the hand in every direction. Some surface soil, very fine, of course, from the nature of the garden, was carefully sprinkled over and through the mass of fibrous roots, and when just covered, was carefully pressed down all over. The clay in the hole had been allowed to settle somewhat. Each tree was now slightly under the surface of the surrounding land, and the hole was finally filled up, and a heap raised of good rotten manure, so old that any fermentation or heat was not likely to occur. Over this was raised a pyramid of surface earth to protect the young trees from the action of severe frost at the graft. When completed, the earth was carefully patted down with the spade, and the rest left to the season and Providence. My idea, you will see, was first to put clay for the tree to grow in, when clay should be found by the tree to be required. Next, to plant the tree so low that a mulch of manure could be used that would eventually decay away into mould and leave a cup of a few inches deep, shaped like a saucer, to hold a pail or more of water, now and then, in dry seasons; or indeed occasionally all summer, the first year. The pyramid of earth

piled up all round the stem is intended to be removed next spring, and is used the first year to defend the tender grafted part. I think it very probable I shall continue the pyramid each winter for two or three years, as a defence against frost as well as mice. The garden is well drained with tile drains, and the depression round each tree, if continued, will always afford an opportunity of watering in after years, in very dry seasons. I shall allow the grass to grow over the land, except just round the tree.

C.

### Watering Plants in Summer.

It is not wise to begin to water plants in the garden, unless it is intended to follow it up thoroughly. If plants in the open ground are watered, they throw out their little roots near the surface in order to drink in the moisture, and if afterwards the watering be neglected, these little fibrous roots perish for lack of moisture and the plant suffers. When they are not watered at all, the little roots go down deeper in search of moisture, and in well cultivated soil, in good condition, they will usually find enough to keep them from suffering, unless the drought continue unusually long. If it seem necessary to give water, it should be given copiously in quantity, sufficient to go down to the bottom of the roots; a sprinkling that merely wets the surface is worse than none. Syringing the leaves to wash off the dust, if done in the evening after the sun is down, will improve the appearance and health of plants.

### The New York Grape Market for 1868.

A correspondent of the *Rural New Yorker* gives a statement of sales of grapes in the city market, from which we gather, that on the 29th July, Catawba grapes from South Carolina sold at 25 cents per pound. August 22nd, Hartford Prolifics from Southern Ohio, sold at 20 cents per pound, and South Carolina Catawbas at 15 cents. August 27th, Concord from West Virginia sold at 18 cents. He remarks the heat is so great during these months, that the grapes rot very quickly after being packed, and must be sold immediately on arrival, else they spoil in the dealers' hands. September 2nd, Ionas from Ohio sold at 25 cents per pound. Hartford Prolifics from Hammondsport, N. Y., sold at 18 cents. The Gravel grape from the same place, being very sour, was sold with much difficulty. September 4th, Delawares from Vermillion, Ohio, sold at 30 cents per pound. September 9th, Delawares arrived from Ridgeway and Hammondsport, N. Y. He further states that the Concord has made rapid strides in the affections of grape consumers, and thinks they have secured better returns than any other variety. Although the Delaware is the most popular of all the early high priced grapes and commands the highest price when in prime order, yet if it

does not come fully up to the standard it falls back to a much lower grade, and must be sold to cheap dealers and pedlars. Prices averaged about 20 cents per pound for a prime article. Dianas that were well ripened and in good order, sold at 15 to 16 cents per pound. Ionas averaged 25 cents per pound. It gave good satisfaction, and seems likely to come into market with the Delaware, with the advantage of larger size. The Isabella is the late grape for the million, selling at 7 to 8 cents per pound. It keeps well, and has been sent from Portland, Maine, to New Orleans and arrived in good condition, and some cases sent to England, after a voyage of twelve days, sold at a profit, and large orders were returned by each steamer. Catawba spoiled sooner than usual this year, and frequently failed to sell at satisfactory prices. There was a great demand for native white grapes, but they were very scarce. The quantity of grapes sent to New York is estimated at seven hundred tons, of which three-fourths were sold to leave the city. The largest arrival of grapes in one day, received by one dealer, was on September 8th, consisting of one hundred and ninety-nine cases; the largest sale in one day was on the 21st November, amounting to 7,735 pounds, all good grapes. His sales previous to 1st October were 66,754 pounds, during October, 95,574 pounds, during November, 76,593 pounds, and during December he sold 20,182 pounds, making a grand total of one hundred and thirty-one tons of grapes.

### Prices of Fruit in 1868.

The Fruit Growers' Association of Ontario have received reports from reliable parties in the cities of London and Hamilton, giving the average retail price of fruits during the past season. It is the desire of the Directors to obtain such reports from other cities, and they hope that members residing in or near such places will take the trouble to send in a like report. This Association seems to be alive to the interests of its members, and to spare no pains to secure and disseminate all obtainable information likely to be valuable to the fruit grower. Every fruit raiser in the Province should become a member of this Association, and help on the work, sure of receiving more than the worth of his annual fee of one dollar in the valuable information contained in the annual report.

The prices of fruit in the city of London ranged at retail as follows:—

Strawberries, per quart	....	12c. to 15c.
Raspberries, wild	....	8c. to 10c.
Raspberries, cultivated, scarce,		
about	....	15c.
Currants, common red, per qt,		
about	....	5c.
Do., White Grape, per quart.		8c. to 10c.
Gooseberries, Houghton	"	8c. to 10c.
Do., Large English	"	15c. to 20c.
Cherries	"	10c. to 20c.
Grapes,	per pound	15c. to 20c.



Pears,	per bushel	\$2 50 to \$4 00
Apples,	"	50 to 1 00
Peaches,	"	2 50 to 3 00
Plums,	"	1 50 to 2 50

The retail prices in Hamilton are reported as follows:—

Strawberries,	per quart,	12c. to 20c.
Cherries,	"	10c. to 15c.
Currants, black	"	10c. to 12c.
Do., common red	"	5c. to 8c.
Do., White Grape,	"	10c. to 12c.
Do., Red Cherry, scarce,	"	15c. to 20c.
Raspberries, Black Cap,	"	12c. to 15c.
Do., wild red,	"	12c. to 15c.
Gooseberries, Houghton,	"	8c. to 10c.
Grapes, good,	per pound,	12½c. to 15c.
Pears,	per bushel,	\$2 50 to \$5 00
Apples,	"	1 00
Plums,	"	4 00 to 5 00
Peaches,	"	2 00 to 4 00

### Dahlias.

Shirley Hibberd, than whom there can be no better authority, names the following, in the *Garden Oracle*, as the best fifty show and fancy varieties for 1859:—

**LIGHT.**—Miss Henshaw, Umpire, Mrs. Pig-gott, Peri, Charlotte, Dorling, Anna Keynes, Alexandra, Princess, Mrs. Thornhill, Harriet Tetterell, Hebe, Lady Derby, Caroline Tetterell, Adonis.

**YELLOW AND ORANGE.**—Chairman, Hugh Miller, Mr. Loshell, Charles Turner, General Jackson, Fanny Purchase, Willie Austin, Golden Admiration, Leah, Lady M. Herbert, Ballion, Annie Austin, Vice-President, Yellow Perfection, John Kirby.

**CRIMSON AND RED.**—John Keynes, Tri-omphe de Peeg, British Triumph, Bob Rid-ey, Sir Greville Smythe.

**PURPLE AND MAROON.**—Andrew Dadd, Lord Faroy, Earl of Pembroke, George Wheeler, James Backhouse, John Sladden, Paradise Williams, High Sheriff.

**LILAC AND ROSE.**—Juno, Jenny Austin, Lilac Queen, Criteton, Mrs. Boston.

**STRIPED AND SPOTTED.**—Gaiibaldi.

**DARK TIPPED.**—Norah Coena, Pauline.

Preference is given, in making up this list, to well established varieties that can be obtained at average prices.

### Grapes at Sandusky, Ohio.

M. H. Lewis, writing to the *Grape Culturist*, says that the Creveling is forcing the conviction upon everybody that it is the best early grape we have. Since it has been found that it will yield fine bunches by alternating it with Hartford, there is more disposition to plant it largely.

FRANSTON is attracting much attention. Old heads are surprised at the excellence of its wine, expressed after the mellowing of the frost. Age adds largely to its value. The must here reached 90°.

Ives pleases by its thrifty growth, hardiness and productiveness. Its wine has warm admirers and as warm opponents. The must this year ranged about 80°.

### New and Rare Fruits.

THE SABLE QUEEN Blackberry is said to have been found growing in an old pasture in Essex county, Massachusetts, more than twenty years ago, by Mr. Daniel Graves, who dug it up and removed it to his garden, because of the superior size, quality, and abundance of fruit. It is now brought to public notice by Mr. J. W. Manning, of Reading, Mass., who has tested it for four years, and thinks it worthy of dissemination.

THE WACUSAR Blackberry is brought out by Mr. Rufus R. Fletcher, of Groton Junction, Mass., who states that while the fruit is large, of good quality, and the plant very productive, it has the advantage over other sorts of being thornless. It was found, five years ago, growing wild on Monadnock Mountain.

DOUGLASS' THORNLESS Blackberry is another variety which is said to be entirely free from thorns, hardy and productive. It is in the possession of Mr. N. E. Dodge, of Fredonia, N.Y.

TETONSKY APPLE.—This variety originated in Russia, and promises to be a valuable hardy apple for our climate. The fruit is of medium size, very handsomely striped with red, and covered with a whitish bloom. It ripens in August, and has a sprightly, agreeable flavour.

THE NEWMAN Plum is a sport from the Chickasaw Plum. The fruit is described as large, of a glossy red colour, covered with a delicate purple bloom, translucent and sprinkled with numerous white dots, sweet and almost pulpless, and has never yet been stung by the curculio, although grown for eleven years among foreign varieties that are annually destroyed by that insect.

### The Niagara Fruit District.

To the Editor.

Sir,—I noticed in a recent issue of your journal, some items of grape growing, and would invite the attention of Canadians, and the whole Dominion, to the Niagara Peninsula, as being one of the most favoured regions on this continent for grape growing, and indeed for growing all the fruits of the temperate zone. We plant grapes here by the thousand. The writer has 7,000 planted in his vineyard, and while cultivating among the vines last week, noticed some of the hardier varieties that had made a growth of three to four inches, and this in a backward season, in the open field, and entirely unprotected during the winter; and I would here impress upon the minds of Canadians the importance of planting none but the hardier and earliest varieties of grapes. Had

I properly understood this matter twenty years ago, I should have saved much precious time and money, as well as vexatious disappointment. I have tried over sixty varieties, but could scarcely recommend more than five or six for general cultivation in the open vineyard; but with these any one could count on getting a regular crop with as much certainty as upon a crop of wheat or oats. I planted a peach orchard twenty years ago, and have gathered peaches for sixteen years, and a very full crop for ten years. Pears we never knew to fail entirely. As to apples and the small fruits, of course they flourish in this region. At the present date, peaches and cherries are in full bloom, and apples will be out in a day or two.

J. C. KILBORN.

Beamsville, May 16, 1869.

PRUNING ROSES.—The best time to prune roses of the hybrid perpetual class is during mild weather in March.

FOWLS' DENO.—It is one of the most fertilizing of manures. Do not turn it over, but keep it under cover until required.—*Collage Gardener*.

COMPOST FOR CULVERSES.—They will succeed in a compost of two parts turfy loam, sandy rather than strong, and one part each of leaf mould or old cow dung, and fibrous sandy peat, with a free admixture of sharp sand.

SELECT ROSES.—In light soil we would have them dwarfs of the Manetti stock, and manure them well with cow dung and bone dust, giving a good handful of the bone dust at planting. Plant Jules Margottin, Lord Macaulay, Semateur Vaisse, John Hipper, Duc de Rohan, and Charles Lefebvre.

INTERNATIONAL HORTICULTURAL EXHIBITION.—An International Horticultural Exhibition is to be held at Hamburg from the 2nd to the 12th of September next. Arrangements have been made on a grand scale for carrying out the plan of this Exhibition, and the responses received from all parts of Europe are favourable. The Prussian, French, Dutch, Belgian, British and Italian governments have appointed commissioners, among whom are some of the most eminent men in botanical science and horticulture.

RENOVATING OLD ORCHARDS.—Some time ago a correspondent of a New England Agricultural paper said that he had two farms, on each of which there was an old orchard where the trees were on the decline. One of them he ploughed, and trimmed off the old and decayed branches and allowed the young shoots to grow, and in six years he had some quite thrifty trees. The other orchard he did not plough, but turned in his hogs in spring, and kept them there until late in the fall, and says he found the advantage to his trees far greater than anything he could do with the plough. The hogs dug around the roots of his trees, and eating the falling apples, destroyed the apple worms.

# Rural Architecture.



PERSPECTIVE ELEVATION.

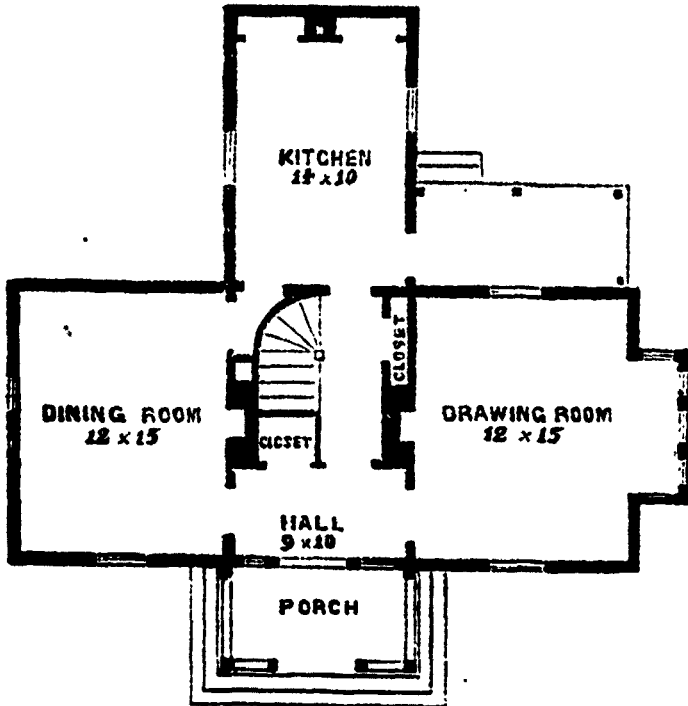
### Cheap Country House.

The accompanying plan is designed for a frame cottage, to cost about one thousand dollars, in a neighbourhood where labour and materials can be conveniently obtained, and at reasonable prices.

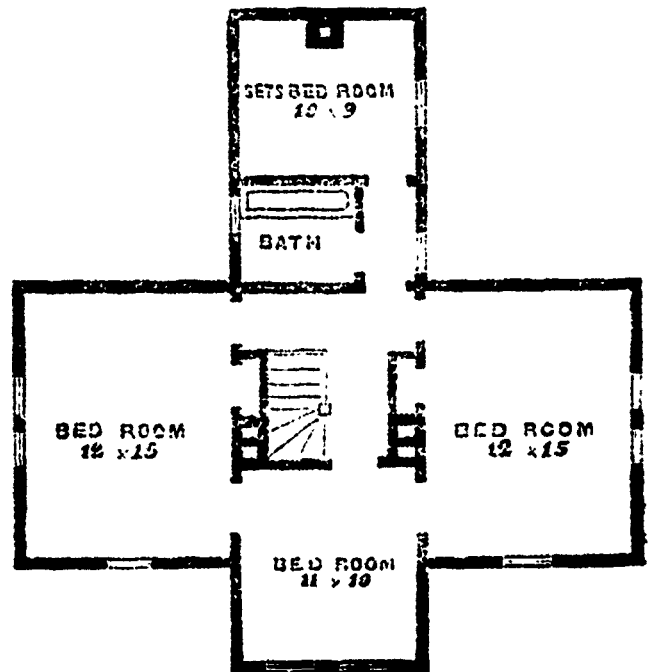
should be well charred before being sunk in the ground, as this will effectually prevent them from decay. The roof is to be covered with shingles bedded in hair mortar and well nailed with good long shingle nails. The floors are to be laid with one and a quarter

grooved sheeting, well nailed with 3 1/4 inch nails to the girths, plates and sills. Cover the joints with a 1 1/2 by 3 inch chamfered batten.

Form the cornices in the manner shown in the drawings, and fix under them 2 inch or-



GROUND FLOOR PLAN.



CHAMBER FLOOR PLAN.

The frame will be of timber, and constructed in the usual manner. The sills are to rest on cedar posts, sunk five feet in the ground, resting on a flat stone. These posts

incb, wrought tongued and grooved flooring, and edges nailed to the joists.

The whole of the exterior of the frame is to be boarded with 1 1/2 inch tongued and

amental cut brackets. Fix to the eaves where required 4 by 3 inch galvanized iron troughs, with 3 inch down pipes of the same material, connecting with the drains.

The inside fittings of the house can be plain or elaborate, as the taste and means of the proprietor may require.

The chimneys must be built with good hard brick, resting on a stone foundation. The flues must be 9 by 9 inch, and well parge-tted. Form the arches of the fireplaces on good wrought iron bars, and build into the flues all necessary stovepipe collars, &c., required.

The cellar is to be under the kitchen, and the walls formed with 2 inch pine planks, spiked to 4 by 3 inch girths let into the cedar posts, and well spiked to them; the floor to be formed of 2 inch plank, well spiked to 4 by 3 inch cedar sleepers. Drain the cellar in a proper manner as circumstances will allow, but care must be taken to get proper fall.

The first story is 9 feet in the clear throughout, giving every convenience suitable for the health and comfort of a small family. The chamber floor is also 9 feet in the clear through the centre, and 6 feet at the sides, from the floor to the plate, the roof cutting off three feet of the height at the sides at an angle of 45 degrees.

The arrangement of the rooms will be better understood by referring to the plans than by any description.

The style adopted partakes of the Gothic, modified to suit; small building of the lodge class; but for elegance in form and simplicity of design it will rank as one of the best, and will form a model cottage that any one might live in, and many covet.

### How to Make a Board Roof.

A roof of boards being less expensive than any other, buildings on the farm are frequently so covered. As usually applied, they are hardly apologies for a roof, as that portion of the water which gets through the joints between the under boards, as they are usually put on, will follow the under edge of the board until it arrives at a lateral bearing, to which the boards, which are lengthwise the slope of the roof, are nailed. Here the water is stopped and falls into the building.

This defect, which is the main one in the board roof generally, is effectually remedied by driving a row of nails in the top of transverse bearing pieces, and allowing them to project one-fourth of an inch, so that the roof boards may rest on them instead of on the timbers. This admits of the water which may beat through the joints in the boards, running without interruption to the eaves, when it is discharged. If the nailings of the board roof are not more than four feet apart, and the upper boards overlap the under ones two inches, and are well nailed, and the roof has a rise of six inches to one foot, it will shed rain well.—*Carolina Farmer.*

## Household.

### Labour-Saving Machinery—In-Door.

To the Editor.

Sir—Not near so much progress has been made in labour-saving machines for in-door as for out-door work. One reason of this may be, that the inventors being principally men are rather self-h, easing their own labours before thinking of the opposite sex. It is true we have sewing machines, but they are rather expensive for most families, i. e., if a good machine is wanted, while a poor one is not worth buying. Then we have churns without number; indeed, there are about some farm houses quite a collection, piled up for a monument, in some out building, which have been purchased from time to time from pedlars, those itinerant annoyances to the farmer; while the different kinds of washing machines are almost innumerable, and every new invention claims to be better than its predecessors; but when tried it turns out to be a "self," to use an expression which we all understand, and the girls have to return to the old wash-board again; the hands, possessing more vitality than the board, will mend during the week, while the board through time will wear out. Then there are other inventions, but which are of very little importance. It seems as if the women of to-day do most of their house work in much the same manner as the women of fifty years ago. They bake their bread, scrub their floors, wash and wipe their dishes, sweep their floors, cook, stew and scour, all in the old-fashioned way that their mothers did. Is it an evidence that house-work is easy, that more labour-saving machines are not invented? For the women of to-day do not have to work any harder than their mothers did, while the labour on the farm is reduced about one-third, yet undoubtedly some farmers work as hard as ever; but if they do, it is because they cultivate more acres than formerly. But if labour-saving machinery is wanted and is necessary, and I think it is to a certain extent for in-door work, then our inventors, as well as the ladies themselves, should turn their attention to getting up some simple, durable and cheap machines in aid of household work; for our object should be to save labour wherever we are able.

York.

CULTIVATEUR.

NOTE BY ED.—We think that in this country there can be no question that the work of women on many farms is more wearing, unremitting, and unrelieved than that of men, and the old distich is too often literally true.

"Man's work is from sun to sun,  
Women's work is never done."

If any class of workers in our rural districts need alleviation to their toil, it is the hard-worked, unselfish, uncomplaining and

indeatigable female members of the farmer's household; and he would confer a boon, not on the sex only, but on society, who successfully turned his inventive genius to the task of lightening their labour. How can a woman who has to toil all day have either leisure or spirit for mental culture, or if she be a mother, for that attention to the higher training of her children which is her first and noblest duty, and cannot be properly delegated to any other. It is one of the inevitable disadvantages of a new country, where female help is usually scarce, that an undue share falls to the lot of the weaker sex. Happily the attention of inventors is now more directed to this quarter than heretofore. The sewing machine (and some of the cheaper ones are really efficient), is a step in the right direction. The knitting machine is also coming into more prominent notice, and has been recently much improved. While the appliances for mitigating the labour of the field are rapidly multiplying, it were shame indeed if nothing were done to ease the work of the house. Much, however, is yet needed in this direction.

### Domestic Receipts.

The following receipts, in part selected from our exchanges, and in part furnished expressly for this journal, are all recommended by an experienced housekeeper:—

STEWED RHUBARB.—Wash and cut the stalks into small pieces and put into a two quart jar, with about a teacup-full of sugar; cover the jar, and set it in a pan of water, and boil for two or three hours. If the rhubarb is young, there is no occasion to remove the skin.

BISCUIT PUDDING.—Grate three large biscuits, pour upon them one pint of boiling milk or milk and cream, add the yolks of four eggs and whites of two, some nutmeg, little brandy, half a spoonful of flour, and sugar to taste. Boil one hour in a basin or mould. Blanch a few almonds and stick over the pudding when turned out.

LEMON CAKE.—Beat six eggs, the yolks and whites separately, till in a solid froth, add to the yolks the grated rind of a lemon, six ounces of sugar, beat this well for seven or eight minutes, shake in with the left hand six ounces of dried flour, then add the whites of the eggs and the juice of the lemon. When well beaten, pour into a cake pan, and bake nearly an hour.

SPICE CAKE.—Two and a half pounds of flour, two pounds of currants, two pounds of butter, half a pound of moist sugar, half an ounce of pounded spice, four yolks and two whites of eggs, two glasses of brandy, a table-spoonful of yeast, and a little warm water. Rub the butter into the flour, mix all together, and put it before the fire to rise about half an hour. Then make it into cakes about half an inch thick or a little more, and the size of a pudding plate. Bake them not too quickly.

**PORRED TROUT.**—Slit open and clean the fish, and sprinkle pepper and salt, adding a little butter, inside; cut off the heads, and place them coiled round in a baking dish, with a little butter on the top; sift a small quantity of flour over them, and bake in the oven slowly for about twenty minutes. When cold, lay them in small potting pots, and cover them, unless intended for immediate use, with clarified butter. A little Harvey's sauce, or essence of Anchovy, added before putting in the oven, is considered by most persons an improvement.

To make a new rope as limber and soft as an old one, boil it two hours in water, and then thoroughly dry it in a warm room.

**HAIR BRUSHES.**—Are best cleaned by washing them in saleratus or soda water, which removes all the oily coating.

**FIRE IN CHIMNEYS.**—May be arrested in a great measure by throwing salt on the fire below, which partly extinguishes the flames; stopping the top arrests the current and contributes to the same result. It should be constantly impressed on the mind of every person, that whenever a dwelling takes fire, every door should be kept closed to prevent the flames from spreading.

**CLEANING KNIVES.**—A correspondent of the *Country Gentleman* says:—A small, clean potato, with the end cut off, is a very convenient medium of applying brick dust to knives, keeping it at about the right moisture, while the juice of the potato assists in removing stains from the surface. We can get a better polish by this method than by any other we have tried, and with less trouble.

### To Wash Feathers.

It is the better way to empty the feathers out of the tick to scald them, for destroying moths. Take a pair of coarse, strong sheet s, place the edges even and turn them down together, and baste in long stitches, leaving a place half the width of the sheet at one end. Shake all the feathers down to one end of the tick, and rip a space as long as the space left in the sheet, and baste the two together, then, with some one to hold up the tick, you can easily transfer the feathers to the sack. Be careful to shake out all the down, or what is better, baste up the place you ripped in the tick, to prevent the escape of any stray feathers.

Wash and scald your tick very carefully, and rinse thoroughly, so it may not be streaked in drying. Put the sack of feathers into a harrel, and scald them well in two or three waters. Do not use soap, as it takes the oil from the feathers and makes them harsh. To dry the feathers, lay the sack upon narrow strips of boards, five or six feet from the ground, shake the sack two or three times a day, and take it into the house at night.

When the feathers are quite dry, replace them in the tick. They will be nearly as good as new.

## Poetry.

### One Year Ago.

BY MRS. H. B. STOWE.  
 One year ago a ringing voice,  
 A clear blue eye,  
 And clustering curls of sunny hair,  
 Fair but to die,  
 Only a year—no voice, no smile,  
 No glance of eye,  
 No clustering curls of golden hair,  
 Fair but to die.  
 One year ago, what loves, what schemes,  
 Far into life?  
 What joyous hopes, what high resolves,  
 What generous strife!  
 The silent picture on the wall,  
 The burial stone,  
 Of all that beauty, life and joy  
 Remain alone!  
 One year, one year, one little year,  
 And so much gone!  
 And yet the even flow of life  
 Moves calmly on.  
 The grave grows green, the flowers bloom fair  
 Above that head:  
 No sorrowing tint of leaf or spray  
 Says he is dead.  
 No pause or hush of merry birds,  
 That sing above,  
 Tells us how coldly sleeps below  
 The form we love.  
 Where hast thou been this year, beloved?  
 What hast thou seen?  
 What rising fair, what glorious life  
 Where thou hast been?  
 The veil! the veil! so thin, so strong!  
 'Twill part us and thee;  
 The mystic veil; when shall it fall,  
 That we may see?  
 Not dead, not sleeping, not even gone,  
 But present still,  
 And waiting for the coming hour  
 Of God's sweet will.  
 Lord of the living and the dead,  
 Our Saviour dear!  
 We lay in silence at Thy feet  
 'This sad sad year!

### Coming Home.

O brothers and sisters, growing old,  
 Do you all remember yet,  
 That home, in the shade of the rustling trees,  
 Where once our household met?  
 Do you know now we used to come from school,  
 Through the summer's pleasant heat,  
 With the yellow fennel's golden dust  
 On our tired little feet?  
 And how sometimes in an idle mood,  
 We loitered by the way,  
 And stopped in the woods to gather flowers,  
 And in the fields to play?  
 Till warned by the deepening shadow's fall,  
 That told of the coming night,  
 We climbed to the top of the last long hill,  
 And saw our home in sight?  
 And, brothers and sisters, older now,  
 Than she whose life is o'er,  
 Do you think of the mother's loving face,  
 That looked from the open door?  
 Alas, for the changing things of time!  
 That home in the dust is low,  
 And that loving smile was hid from us,  
 In the darkness long ago.  
 And we are come to life's last hill,  
 From which our weary eyes  
 Can almost look on that home that shines,  
 Eternal in the skies.  
 So, brothers and sisters, as we go,  
 Still let us move as one,  
 Always together keeping step  
 Till the march of life is done.  
 For that mother, who waited for us here,  
 Wearing a smile so sweet,  
 Now waits on the hills of Paradise,  
 For her children's coming feet.

*Chambers' Journal.*

## Agricultural Intelligence.

### Away West.

Some who have gone to the Western States have sent back very glowing accounts of the country, and the prospects of settlers.—There are two sides, however, to the picture. We give below a letter from a gentleman who has been settled in Illinois for several years, and his experience ought to go for more than the observations of those who have made a flying visit of only a few weeks. It was addressed to the *Galt Reporter*, and well deserves the attention of those who think there is nothing good in Canada, and that as soon as they get to the West they shall be in Goshen:—

To the Editor of the Reporter.

ROSSVILLE, ILLINOIS, }  
 April 16, 1869. }

DEAR SIR,—I see by the *Reporter* of April 2nd, that there is quite an exodus of Canadians just now to the Western States, and the same contains a letter from Mr. Shillinglaw, of Hibbert, giving a very flattering account of the vast prairies, which letter I think is a very one-sided affair, as it gives only the bright side of the picture. For this reason I write you, so that the Waterloo farmers who may have thought of moving may weigh the matter over well before they come, to what I shall call the rash conclusion of selling their homesteads to emigrate to the Western States.

Mr. Shillinglaw, firstly, asks why is the beautiful state of Missouri so thinly settled, and then tells you that it was because the blighting curse of slavery overspread the land. I cannot think, Mr. Editor, that slavery was the sole cause. I might ask why is Illinois so thinly settled, where there was no slavery, with its vast prairies as beautiful, a good part of the State the climate about the same, its soil as deep and as rich, its crops as good, its coal as plentiful and more easily got at than Mr. S. says it is in Missouri—you need no buckets to draw it to the surface, as you but just shovel off the earth and split it up with maul and wedge. The correct reason is, sir, that the poor man cannot buy and settle on a farm on the wild prairie without enduring more hardships than many like to face. Suppose the settler gets his land for five or ten dollars per acre, which I will admit he can.—I look upon this as the smallest item—the fencing alone of it will cost more than the land. The posts, which are generally oak, walnut or ash (which will stand in the ground from three to five years) he will have to pay from twelve to twenty-five cents for each, probably depending how far he settles from a timber district or railroad, but if very near either, or a village or town, good land cannot be bought at that price; the fence-boards must be hauled from some town or railroad station where they are brought by the iron horse, for the great bulk of the lumber used in both Missouri and Illinois comes from the State of Michigan, and the price of the commonest in both States is from twenty-five to thirty-five dollars per thousand; clear stuff from \$60 to \$70 per 1,000 ft.; the hauling of the same is a big job on prairie roads; you may work two days or more with a team to get one load to your intended home—and this can be done only in the summer or early in the fall, in the spring and late in the fall it is not to be thought of, and only one winter in five that any hauling can be done;

lime is \$1 per bushel; shingles \$5 to \$7 per square, according to quality; nails \$8 to \$9 per 100 lbs net weight. All those things must be purchased before those lazy people (as Mr. S. calls them) can build their houses, barns or fences. Carpenters' wages for putting up the same are \$4 per day. Is there any great wonder that many of our best farmers have such poor buildings (so much commented on by people visiting these States) or a rail-pen occasionally for a stable? The wages of hired help to work the farm are from \$20 to \$25 per month with board and washing. This may look big wages to some farm hands in Canada, but they must consider that whatever they have to buy is double the price it is in Canada. If you want a pair of boots \$5 is the price for the commonest trash, and \$7.50 if made to order. If you own a watch you are taxed for it; if you want a match to light your pipe you are taxed for it; and if you are sick you are taxed for it, or in other words you cannot buy a box of pills or a bottle of liniment of any kind but what is taxed. All have to be stamped, even to the receipt you get from your tailor, your shoemaker, your grocer, or anybody else. The best tea is \$2.40 per lb; common sugar 20c; rice 16c; raisins 40c; currants 30c; and syrup \$1.75 per gallon. Horse-shoeing, and all kinds of non-work double the price it is in Canada. For all those necessary articles the farmer has to hand out the cash.

Now, Mr. Editor, let us look at what can be produced from the deep black, rich looking soil. Mr. Shillinglaw says it will grow all the staple crops of the temperate zone to perfection. In this I totally differ with Mr. S. I would like to ask that gentleman if barley, peas, and hay can be raised as good and in as large quantities to the acre as in Canada? The Swedish turnip is a total failure wherever tried—they would make you think of a potato rather, with roots from six to ten inches long and bulbs the size of your fist. Twelve bushels of spring wheat and eighteen bushels of fall wheat is considered a good crop; where there is one that raises more, there are ten raise less, and fall wheat is but very little grown, as the constant freezing and thawing through the winter make it a very unsafe crop. Corn, the great staple of the West, is raised in great abundance. Mr. S. says that sixty to eighty bushels to the acre is a common crop. Here I must again beg to differ with that gentleman. I will admit that sometimes such a crop is raised on a very rich piece of ground, with good cultivation and summer favourable, but where there is one man gets such a return there are fifty whose crop will not reach thirty-five bushels to the acre; and I know one poor man whose field of twenty acres did not yield him enough to fat three small pigs for his own use—this occurred in the summer of 1867. Mr. S. does not tell how much labour is needed to produce a crop of corn. Seven times at least you must go over the ground. First—plough deep, then harrow, mark off and plant; after it is up it must be cultivated three times, often four or five times. What is wanted to feed your cattle or sheep through the winter is generally cut fourteen hills square and shocked in the shed, the rest is husked as it stands and hauled into cribs. Then suppose the farmer gets good crops and is not rich enough to buy cattle to eat up the produce, he will have to team his corn probably a long distance for twenty-five cents per bushel, and his wheat for eighty-four cents per bushel—such is the price paid at the present time. Mr. S. describes the face of the country as beautifully undulating, rising and falling like the swells on the sea; but he does not tell that between those swells there are a great deal of flat wet

land where the water has to be absorbed or evaporated, as there are no means of draining it, and which is the great source of so much fever and ague, from which no one escapes who resides on the prairie. Disease among stock is more frequent than in Canada—distemper among horses, black-leg among cattle, and cholera among the hogs, destroy numbers every year. These facts, which cannot be disputed, I hope the farming community will weigh over in their minds and figure up closely, and I believe they will find that the dollar is as easy made in Canada as in the Western States.

J. S. CRANE.

### Information about the Red River Country.

About Horses and Cattle—Bred Stallions and Bulls Wanted—Wool and Pork Raising.

(From the North Western, April 17)

1st. Can horses be got for farm work?

Horses can be got for farming purposes; but, owing to good animals being in demand for carriage purposes and buffalo hunting on the Plains, horses are not so generally used for ploughing and general farm work as usual.

If there is any one thing that a native of Red River dislikes to part with, it is his horse, if it be a good one; and, as a rule, nothing but necessity will induce them to sell. Considering the number of our population, there is probably no people so well supplied with horses. No man walks a mile in Red River if he can help it. Everyone has his horse, and if able, his carriage and cutter; and the first ambition of a young man is to become the possessor of a spirited horse, a nice cutter and elaborately trimmed robes. With these he is happy, and without them he feels lost in the throng of gay equipages. And in some cases, the passion for making a fine appearance causes them to lose sight of the necessary items of domestic comfort: and if a stranger should attempt to judge of their means by their dashing appearance when in town, he would be disagreeably undeceived upon entering their houses to find a want of what are generally thought to be the very common comforts of life; and, alas, too often, a dearth of the very necessities. This passion for display is not peculiar to Red River however, but is manifested in the East by the top and the dandy, whose wealth is concentrated in a suit of fine clothes, and whose brain is distracted over the tie of his cravat. Although these causes operate to make an apparent scarcity of horses, still there will not be much difficulty in obtaining horses for farm work if you want them, but we are satisfied that for many purposes oxen are preferable in a prairie country, especially for the breaking up of new land.

2nd. Will it pay to raise horses and cattle?

Horses and cattle are in demand now, and that demand is constantly on the increase. Parties intending to go into the raising of stock should bring in a few stallions and bulls of the best breeds; as an infusion of good new blood into our present hardy stock would operate to the great benefit of the Settlement, and would undoubtedly cause the adventure of many in stock raising to be highly remunerative, as such improved breeds would be in great demand at good prices.

3rd. How long are cattle fed during the winter?

Cattle are generally housed in the latter part of November, and are let out early in April. Upon the Saskatchewan horses and cattle can feed out on the prairies during the whole winter, and they are fat in the spring.

4th. How are they fed, and where does the hay come from?

They are fed upon hay; but there is nothing, under ordinary circumstances, to hinder their being fed upon root crops, if the farmers would turn their attention to the growth of turnips, mangold-wurtzel and carrots, &c., as field crops.

The hay is cut on the prairies back of the farms. Timothy and clover are not known in the Settlement, and no kinds of grass are cultivated for the purpose of making hay. The natural grasses are very nutritious, and can be cut to any extent. Although we cannot help thinking that many of our older farmers would benefit their lands by putting them down to grass or clover for a few years.

5th. Do you house your stock?

Yes; in Red River Settlement, though it is not essentially necessary upon the Saskatchewan.

6th. What are the prices of horses and cattle?

The prices paid for horses, bred in the Settlement, range from \$5 to \$25 sterling.

The prices of oxen range from \$3 to \$10 etc. and of cows from \$5 to \$7, sterling.

7th. Would it pay to bring cattle from Canada?

Yes, if the stock be good. Thorough-breds in horses, cattle, sheep and pigs are much needed in the settlement.

8th. Can sheep be kept, and would wool-raising pay?

We do not know why sheep should not be raised here as well as elsewhere; although there are very few in the country. Wool raising should be one of our principal branches of industry. Emigrants would do well to bring in a few sheep with them of good breeds. The quality of the wool now raised is fine and good; and the country can never prosper as long as we send abroad for woollen goods, which could not only be made here to supply our own wants, but would eventually become an article of trade and export. Depend upon it, the growth and manufacture of wool can be made the source of great wealth to a country which would have an extensive market for such goods, especially blankets and flannels, among the Indians to the north and north-west of us.

9th. Do you raise much pork?

We do not. The art of pork making is not properly understood by our farmers. The raising of hogs and manufacture of such pork as is known in the East will be of great advantage to the settlement; and the market will be good, especially as the supply of pemican has failed as a staple. Good mess pork, bacon and hams will find all the market required close at hand.

The maple sugar crop for the township of Front of Yonge, County of Leeds, for this year exceeds 20,000 pounds, which may be considered an extraordinary yield, considering the short season.

A delegation from the village of Streetsville have offered the Agricultural Association of the County of Peel \$200 and free dinners for directors and judges provided the fall fair be held in that village. No decision arrived at until the directors hear from Brampton on the same subject.

### Fruit Growers' Association of Ontario.

The next regular meeting of this Association is appointed to be held in Galt, on the sixth day of July, at the Town Hall. The meeting will be opened at eleven o'clock a.m., and it is expected that members will take with them samples of fruit from their several localities for comparison. The discussion will be directed chiefly to the consideration of small fruits, and members are requested to come prepared to contribute all the information possible on this increasingly important branch of fruit culture. The members at Galt will spare no pains to make the meeting pleasant as well as profitable, and every member in the Province ought to be present, if it be possible. The Directors will be called together at that time to consider business of importance.

We congratulate the worthy citizens of Galt in securing the meeting of this Association in their town, and trust that it will give a new impetus to the raising of fruit in that locality. Are there not some persons qualified to lecture on the different branches of fruit culture, whom the Fruit Growers' Association could induce to lecture on these subjects in different parts of the Province?

[The above notice was not received in time for insertion in its appropriate Horticultural Department.]

The Farmers' Union states that the Canada thistle has made its appearance in small patches in different parts of Minnesota.

Accounts from all quarters of the United States represent winter wheat as looking remarkably well. A much larger area than usual was planted, particularly in Missouri, Kentucky, Tennessee, Virginia and Georgia.

The annual fair of the New York State Agricultural Society will be held at Elmira, commencing about the 1st of October. The books of entry for premiums for the year 1869 will be closed three weeks before the opening of the fair.

The New England Agricultural Society will hold its annual fair at Portland, Maine, from the 7th to the 10th of September. Ten thousand dollars are offered as regular premiums. The Maine State Society will exhibit at the same time and place.

A trial of mowing machines, horse rakes, tedders and horse forks, will be held on the farm of the Agricultural College at Amherst, Mass., commencing June 22, and continuing four days. It is designed to make this one of the most thorough trials in every respect.

The Pennsylvania Legislature passed an Act imposing a penalty of \$25 for the killing of any insectivorous bird, one half of this fine to be paid to the informer. The birds that are classed under the head of insectivorous birds are robins, martins, swallows, bluebirds, woodpeckers, etc.

Mr. Joseph Harris expresses the opinion that indigestion is the source of nearly all ordinary complaints in horses, and that this is brought on by irregular feeding and watering; by exposure, fatigue, by long journeys without food, in a storm, and then by over-feeding and neglecting to rub them dry before leaving them for the night.

March 23, there were 56 shorthorns belonging to Mr. Rich, of Didmarston, England, sold at auction. In October last 58 head of the same herd sold at an average of about £70 each. The average of the last lot was slightly higher. A bull sold for 650 guineas, a cow at 360 guineas. These were the highest prices. The entire herd of 114 head brought £8,053.

The production of beet-root sugar in Europe last year was as follows: 220,000 tons in France, 165,000 in Germany, 97,000 in Russia, 92,500 in Austria, 32,500 in Belgium, 15,000 in Poland and Sweden, and 7,500 in Holland. Many assert that beet-root sugar is cleaner than cane sugar, and for this and other reasons is preferable to the latter.

One of the most successful breeders of shorthorns in Ireland recently sold his herd of 39 cows and 11 bulls and bull calves at auction. The averages were about £52 for the cows and £11 for the bulls. The highest price paid was 150 guineas for a cow purchased for Walcott & Campbell, of New York.

Intelligence from Australia portrays a gloomy state of affairs in that colony. In Victoria a mortality prevails among the sheep to such an extent that the air is poisoned by the exhalations from their decomposing carcasses. The small-pox is raging in Melbourne, and the crops have turned out a complete failure.

The Royal Agricultural Society's meeting will be held at Manchester in July next. Among the more novel prizes offered is a gold medal for the most economical machine for harvesting corn, with reference especially to securing and rapidly drying it by artificial means in wet weather. A prize is also offered for the best method of shoeing horses.

The Elora monthly fair was held on the 4th May. Beef and fallen a dollar since last fair, but farmers stuck out and would have driven their cattle home, the *Express* says, had there not been a shortness of fodder. Holders after a while relaxed, therefore, and buyers commenced operations, paying \$4, \$4 50, and \$4 62½, per 100. There were a few horses on the ground, but no buyers. Working cattle and milch cows were scarce, and enquired after. Twenty-two of the smallest and scrubbiest looking pigs that ever strayed a mile from home were purchased for \$110, and driven away in triumph. About \$7,000 changed hands at the fair and the stores did a good business.

The Maine Legislature has enacted a law requiring the seller of commercial fertilizers to affix to every pound sold a printed label, giving the manufacturer's name and place of business, and the percentage of the different ingredients composing the manure.

The great annual horse show in the Agricultural Hall, Islington, is announced to be opened on the 29th of May, and continue till the 4th of June inclusive. Prizes of the value of £80, £50, £30, besides gold medals of the value of £25 sterling, are offered in the different classes.

A large number of sheep infected with small pox, have been brought from Antwerp to Harwich, England. Stringent measures were adopted to stamp out the disorder by the slaughter of all the infected animals, and it is hoped the disease will not spread. The cholera has appeared among the hogs in Surrey and some other districts in England.

MICHIGAN STATE FAIR.—At the meeting of the executive committee of the Michigan Agricultural Society, held at Jackson, it was decided to hold the next State Fair at Jackson, September 21-24. The citizens give the use of the grounds, which are 30 acres in extent, and contribute \$5,000 toward erecting buildings, etc. The hotels of the city have agreed not to increase their charges during the Fair. Jackson possesses superior railroad facilities, and probably the location of the Fair at that place will give as general satisfaction as if any other point had been chosen.

AGRICULTURAL SCHOOLS IN PRUSSIA.—Twenty-six agricultural schools, says an official return just published at Berlin, were either wholly or in part supported by the Prussian Government during the past year. Of these, three—those at Annaberg, Ebsdorf and Hof-Geisburg—are government establishments. The remainder are private schools receiving subsidies from the public treasury, the total amount of which for the year, was 35,257 thalers (£5,200). The total number of pupils in these schools was 717, which is 105 more than in 1867. Of the students, 349, including 12 foreigners, completed their studies last year.

BRITISH SHORTHORN SALES.—Our recent English exchanges announce the sale to Mr. Gibson, on behalf of Mr. Samuel Campbell, of Oneida, President of the New York State Agricultural Society, of a "Booth" cow, "Pride of the Vale," for one thousand guineas; besides a two-year old heifer, "Mary Peal," for 500 guineas, and a ten months' bull-calf, "Royal Briton," at the same price, 500 guineas. The *Mark Lane Express* says, "The cow and heifer were both in calf to 'Commander-in-Chief,' and are two of the handsomest animals at Warlaby; whilst 'Royal Briton' is of the Strawberry line, which is in the possession of Mr. Booth only." The journals also contain reports of two extensive shorthorn sales, the first at Watlington, from the herd of Messrs. F. Leney and Son the total proceeds amounting to £2,765 for 43 animals, making an average of a little

over £61 each. The highest price for any single lot was 500 guineas for the bull "Grand Duke of Kent." The other sale was from Lord Penrhyn's herd, and took place at Wicken in Northamptonshire. The average price was £60, the total, £3,145 for 32 animals.

THE EMIGRATION from Liverpool during the month of April has been enormous, and it is a somewhat singular fact that the number of Irish emigrating is on the decrease, leaving English and foreigners in a majority. The Scotch now go from the Clyde, instead of from the Mersey, as was their wont in previous years. The number of passengers who left Liverpool in April, for the United States was 21,566, of whom 7,259 were English, 748 Scotch, 4,505 Irish, and 9,044 foreigners. The number who embarked for Canada was 4,985, of which number 2,055 were English, 1 Scotch, 169 Irish, and 2,750 foreigners. In this is counted the cabin passengers; but in addition to these figures are those of the emigrants from the various ports in Ireland, and those carried by ships not licensed as emigrant ships.

### Miscellaneous.

#### Size of Nails.

The following table will show any one at a glance the length of the various sizes and the number of nails in a pound. They are rated from "3 penny" up to "20-penny." The first column gives the number, the second the length in inches, and the third the number per pound:—

3-penny.....	1	inch	.....	557
4-penny.....	1½	inches	.....	352
5 penny.....	1¾	"	.....	232
6-penny.....	2	"	.....	157
7-penny.....	2½	"	.....	141
8-penny.....	2¾	"	.....	101
10 penny.....	2¾	"	.....	68
12-penny.....	3	"	.....	51
10-penny.....	3½	"	.....	34
Spikes.....	1	"	.....	16
Spikes.....	4½	"	.....	12
Spikes.....	5	"	.....	10
Spikes.....	6	"	.....	7
Spikes.....	7	"	.....	5

From this table, an estimate of quantity and suitable sizes for any job of work can be easily made.—Ohio Farmer.

THE ELEPHANT AND THE RAILWAY.—A correspondent writing to the *Indo-European Correspondence* from Monghyr, under date the 21st February, states that "A very serious accident, brought about in a manner unknown and perhaps unheard of since the establishment of railways, not only in India, but throughout the world, happened to a train last evening at half past 8 p.m., between Sahebgunge and Mirzapore, about two miles from the latter station. At that time the No.

5 down goods train was approaching a mango tope, in which some seventy elephants were stationed. The red lights glaring in the distance, and the noise and smoke of the engine, would seem to have caused an awful consternation among the poor brutes, all of whom more or less tried to break away from their fastenings. One large male, however, the strongest and most courageous of the lot, became so infuriated that he broke his chain and rushed forward to intercept and encounter the supposed enemy. He had scarcely placed himself on the line when the train was down upon him; he encountered it with head and tusks; but animal strength proved no match for steam and machinery—the poor brute was knocked down and killed on the spot, and the engine, rebounding, ran off the line, and its eleven carriages were capsized into a ditch. The fireman luckily managed to jump off in time, and the guard did the same, but the poor driver, named Smith, remained in his place, and received injuries from which it is not expected he will recover.—Zoologist.

PAPER MAKERS.—It is only within the last few years that man has succeeded in making paper out of wood, and even now the process is not practically a successful one. Yet the hornets—those "natural paper makers from the beginning of time," as Harris felicitously called them—have been making a kind of tough, grey water-proof paper out of wood every summer from the most remote antiquity.—American Entomologist.

### Markets.

#### Toronto Markets.

"CANADA FARMER" Office, June 10th, 1869.

#### FLOUR AND MEAL.

The market has been dull, with very little doing during the past few weeks. The prices offering at present are for

Flour—No 1 Super, \$3 90 Do. Fancy, \$4 50 Do. Extra, \$4 25.  
Oat Meal—\$5 75 to \$6.  
Corn Meal—\$3 50 to \$3 75.  
Beans—\$15 per ton.

#### GRAIN.

But little doing in any kind of grain, indeed, the prices below are in the cases of Barley and Peas altogether nominal.

Wheat—Spring, 90c to 93c. Do fall, 91c to 95c.  
Oats—50c.  
Barley—80c.  
Peas—73c.

#### HAY AND STRAW.

Hay has been in good supply, and sold at from \$9 to \$14.  
Straw—Has also been in fair supply, and met with a fair demand at from \$5 to \$7.

#### PROVISIONS.

Pork—Per brl., \$26 50 to \$27.  
Bacon—Per lb., 12c to 13c.  
Hams—12c to 15c.  
Lard—16c to 17c.  
Butter—15c to 20c.  
Cheese—14½c to 15c.

#### WOOL.

Selling on the street at 32c, with only moderate receipts.

#### THE CATTLE MARKET.

Beef—The market has been more active during the past week. There was an unusually large number of buyers from a distance present, amongst them one from St. John, N. B., who bought 40 head of prime steers for shipment to that market. They were bought at 42c per lb., live weight. A large number of cattle were, in addition, sold to the butchers here at 41½c to 42½c per lb. We quote per 100 lbs., dressed weight;—Extra

cattle, \$7 to \$7 to \$7 25; 1st class, \$6 50 to \$6 75; 2nd do, \$5 to \$5 50; 3rd do, \$4 50.  
Sheep—Have been in demand. The offerings have been principally clipped sheep; all of which met a ready sale. We quote—1st class, clipped, \$5; 2nd do, \$3 50 to \$4, 3rd do, \$2 50 to \$3.  
Lamb—The market has been well supplied during the past week, and prices have been firm. We quote—1st class, \$3 each; 2nd do, \$2 50 each; 3rd do, \$2 each.  
Calves—Scarce, with a good demand for the better sorts. We quote—1st class, \$8, 2nd do, \$6; 3rd do, \$3 to \$4.

#### PROVINCIAL MARKETS.

London.—White Wheat, per bush, 98c to \$1; Red Fall Wheat, 83c to 85c; Spring Wheat, 85c to 87c; Barley, 50c to 60c; Peas, 60c to 65c; Oats, 47c to 49c; Corn, 70c to 75c; Buckwheat, 60c to 65c; Rye, 75c to 80c; Hay, per ton, \$11 to \$12; Straw, per load, \$2 to \$3; Pea Straw, per load, \$2 to \$2; Potatoes, per bushel, 40c to 55c; Seed do, \$1 to \$1 50; Carrots, per bushel, 20c to 25c; White Beans, per bushel, \$1 to \$1 50; Apples, per bushel, \$1 50 to \$2; Onions, per bushel, \$1 to \$1 to \$1 50; Hops, per lb., 5c to 10c; Tallow, 8c to 8½c; Hungarian Grass Seed, \$1 50 to \$2; Flax Seed, per bushel, \$1 75 to \$2; Turnips, per bushel, 20c to 25c; Clover Seed, per bushel, \$4 50 to \$5 50; Timothy, \$2 75 to \$3; Maple Sugar, per lb., 10c to 11c; Maple Syrup, per gallon, 50c to 60c; Eggs, per dozen, 10c to 11c; Butter, in rolls, 15c to 16c; Butter, in tubs or crocks, 14c to 15c; Lard, per lb., 12½c to 14c; Cheese, per lb., 10c to 11c; Dressed Hogs, per 100 lbs., \$7 to \$8.

Hamilton.—Flour, White, per bbl., \$5; Red Winter, \$4 50; Spring, \$4 50; Oatmeal, per cwt., \$3 25; Corn meal, \$2; Wheat, White, per bushel, \$1 to \$1 05; Red, 98c; Spring, 95c; Peas, 60c; Oats, 54c; Barley, 75c; Clover Seed, \$6; Timothy Seed, \$2 50 to \$3.

Montreal Markets, June 9.—Flour—Extra, \$4 55 to \$4 60; Fancy, \$4 40 to \$4 45; Welland Canal Super, fine, \$4 37; Superfine No 1 Canada wheat, \$4 30 to \$4 50; No 1 Western, \$4 25 to \$4 40; No 2 Western, \$3 90 to \$4. Bag Flour, 100 lbs.—\$2 10 to \$2 12½c. Wheat, Canada Fall, white, \$1 03 to \$1 04; Canada Spring, \$1 01 to \$1 02½; Western 90c to 97c. Oats, per 32 lbs., 42c to 43c. Barley, per 48 lbs., 70c to 75c. Butter, dairy, 15c to 16c; store packed, 17c to 18c. Ashes, pots, \$5 35 to \$5 55; peat, \$5 55 to \$5 60. Pork, mess, \$28; Primo mess \$21; Primo \$20. Peas, per 60 lbs., 77c to 78c. Rye Flour, \$3.

Quebec.—Fall Wheat per bush., 90c to 95c. Spring Wheat per bush., 84c to 86c. Oats per bush., 53c to 56c. Peas per bush., 75c to 80c. Barley per bush., 70c to 80c. Wool, 34c to 35c. Hides, per 100 lbs, \$4 to \$4 50. Beef, do. \$7 to \$8. Pork, do., \$7 to \$9. Straw per load, \$3 to \$4. Hay per ton, \$14 to \$16. Eggs per dozen, 10c to 12c. Butter per lb., 13c to 14c. Apples per bush., \$1 to \$1 12. Potatoes per bag, 60c to 70c. Sheepskins, 80c to \$1 25.

Barré, June 4.—Fall Wheat, 75c to 80c. Spring Wheat, 75c to 80c. Barley, 55c to 90c. Peas, 60c to 70c. Oats, 75c to 80c. Potatoes, 75c to 95c. Pork per 100 lbs, \$7 to \$8. Beef per 100 lbs, \$7 to \$8. Butter per lb., 15c to 17c. Eggs per dozen, 10c to 12c. Hides per 100 lbs, \$4 50 to \$4 60. Hay per ton, \$14 to \$16.

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HAVING been appointed Sole Agents in the Dominion of Canada for Fales' Concentrated Fertilizer, we would direct the attention of the Agricultural community to the immense advantages to be derived from its use. Experience has proved the necessity of manufacturing

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Which Farmers are unable to produce for themselves. The Fertilizer now offered contains, in a concentrated form, all the

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NECESSARY TO VEGETABLE GROWTH. Its effects on Grass are magical, and are shown within a few days after application. It is equally valuable in the production of Grains, Fruits and Vegetables, and its

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# ITALIAN BEES! ITALIAN BEES! AT FALL PRICES.

Having purchased my brother's entire Apiary of Italian Bees, I am now prepared to furnish stocks at the following rates:—

- A) Stock containing an Italian Queen, of my own breeding from imported stock, shipped any time before swarming, \$20.
- A Stock containing an imported Queen, bred from the Dzierzon Stock, shipped as above, \$25.
- A first or top swarm, with two cards of comb, and a queen of my own breeding, \$15.
- An old stock, after the first swarm has issued, containing a young queen, \$18.
- I will also furnish Italian queens, of my own breeding, about the 1st of June, purity and safe arrival guaranteed, \$5.
- Imported queens, about the 1st of June, bred from the Dzierzon stock, guaranteed as above, \$10.
- Stocks will be shipped by express at the risk and expense of purchaser.
- Double and single-boarded hives, and "Canadian Bee Keepers' Guide," constantly on hand.
- All orders must be accompanied with the money and addressed to

J. H. THOMAS, Apiarist,  
Brooklin, Ont.

# THE MEXICAN EVER-BEARING STRAWBERRY.

This new variety of Strawberry, now attracting so much attention, was brought in a hand-satchel from Jalapa, Mexico, in the fall of the year 1858. But one of the plants survived the journey. From this one plant the present extensive plantation of Messrs J. P. WHITING & CO., has been propagated. Four years ago, Mr Fanelon Scranton, of Dundee, Monroe County, Michigan, had a patch about two rods square, when Mr. S. B. French, (who is a practical nurseryman) first saw them, and immediately made a contract with Mr. Scranton to propagate the plant for the purpose of introducing it to the public. J. P. WHITING & CO., now have a large plantation of thrifty plants, which are offered to the public for the first time, with full confidence that they will be found all that is required in a good strawberry, either for the home garden, the market garden, or the more extensive plantation.

## ITS HARDINESS.

The plant came from the mountain range in the State of Vera Cruz, Mexico in the immediate vicinity of Jalapa, which is some five thousand feet above the level of the sea, and a few miles west and north from the City of Vera Cruz. Many of the mountains in this region are perpetually covered with snow. This will account for the extreme hardness of the plant, and shows why it has succeeded so well in this Northern State. It does not winter kill, being entirely unlike most, if not all familiar varieties of the strawberry; while the Mexican shows green and thrifty fruit-stalks and leaves when the snow goes off in the Spring, the others show scarcely any signs of life.

## ITS PROLIFIC QUALITIES.

The single plant, or crown, forms a stool, similar to the garlic, the potato-onion, and plants of that nature. While the parent crown is flowering and bearing fruit, new crowns are being formed, sending forth new fruit stalks, which, in their turn, blossom and bear fruit. These stools or crowns often cover a surface of from twelve to fifteen inches in diameter. The stools may be readily separated, as the roots are nearly tuberous. They may also be propagated by runners, which form stools and bear fruit the same season.

## THE FRUIT.

The plant is bi-sexual, very perfect in its blossoms, and each blossom perfects a berry. The size of the fruit is rather above the average, being neither small, nor yet a mammoth. The fruit stalks stand erect, are of a great length, and staunch enough to support its burden of fruit without permitting it to droop into the dirt. The flavour is rich and aromatic in a remarkable degree. The superior excellence of this variety was first discovered to Mr. French by the grateful fragrance of the fruit. The flesh is solid, melting but firm, and as a berry for transportation it has no superior. Its form is an irregular conical; its colour a bright scarlet; the calyx parts readily from the fruit; in this respect it is nearly as free as the raspberry.

## A CONTINUOUS BEARER.

It does not bear fruit periodically, or monthly, but continuously. Ripe berries have been picked as early as the twenty-eighth day of May, and continuously from that time until the eighth of November. It would be regarded as very productive if it yielded but one crop (like other plants) during the season; but in bearing continuously, it has decided advantages over all other known varieties.

Soil seems to make but little difference with the plant. It has been successfully cultivated on sandy land, on gravelly loam, and on nearly pure clay land, the better the soil the more thrifty the plant, and the more abundant and better the fruit.

It may be transplanted at any season with satisfactory results. When a bed is once set, there is no need of disturbing it for years. The stools are constantly enlarging and will cover the ground completely, without interfering with the productiveness of the plant.

## TESTIMONIALS.

A large number of persons, whose testimony is unimpeachable, have expressed the most favourable opinion respecting this remarkable fruit. A few only of these need be cited. The

## EDITOR OF THE WESTERN RURAL,

in its issue of April 15, says:—

"One of our editors recently visited Dundee and Petersburg, Michigan, where the Mexican Ever-bearing Strawberry has been propagated for a number of years, for the purpose of eliciting information in regard to it. His enquiries, as far as practicable, were directed to disinterested parties. The fruit has been grown by a number of persons, some of them residing at Dundee and others at Petersburg, merely for family use. The testimony of every one conversant with this fruit coincides as to its characteristics. They agree that it is a vigorous grower, hardy, forms new crowns throughout the season, sends out a large number of runners, that it is a prolific bearer, and bears continuously throughout the season from early June until the snow falls or frost cuts the vines.

Its continuous fruiting habit was corroborated by every person we questioned about it, and among them a prominent gentleman at Petersburg, whom we have known for a number of years, who has no interest in it, and who would not, under any circumstances, misrepresent it. The fruit is represented by these parties to be of good size, sub-acid, fine flavour, flesh firm, seed prominent. We found hills where trusses of decayed fruit, as they stood when the frost came last Fall, attested to its late bearing habit."

## MR. SAWTELL'S TESTIMONY.

A well-known and prominent Canadian agriculturist, Mr. R. W. Sawtell, Secretary of the North Riding Agricultural Society of Woodstock, Canada, recently visited Dundee, Michigan, for the purpose of investigating the history of the Mexican Ever-bearing Strawberry, and obtaining information in regard to it, and, by request, furnished the result of his investigations for publication. He states that when he first saw the plants and testimonials exhibited by the agent, he, with others, looked upon it as a doubtful affair. Subsequent examination and observation, however, led him to a different conclusion. He says that having ascertained the standing and position of the promoters, he was satisfied that they were not parties to a conscious swindle.

Referring to his personal inspection of the plants, Mr Sawtell says:—"On removing the snow, I found very many berries, of all sizes, as they had been, when the frost destroyed them last fall, also, he submitted on the vines. In the hot beds of Mr Whiting, at Detroit, they were in full bloom, from the root to the top of the fruit stalk, six or seven inches high. It has a small leaf and blossom, which does not indicate large fruit, but nearly all who have seen them in the garden state that the fruit is of medium size and delicious. I have been thus minute to show you on what grounds I am satisfied that there is no humbug, and I will add, what I learned from strangers, that such men of wealth, position in society, intelligence and long citizenship, cannot possibly be parties to a scheme that would victimize thousands, and which can speedily be brought to the test—as the habit of the plant is to blossom as soon as it fairly takes root, and the runners also bear fruit the same season. If I am then deceived in this instance, I shall scarcely ever have confidence in any one again."

## HON. G. W. CLINTON'S CERTIFICATE.

Mr. Gillman, of Detroit, in a communication to the *Western Rural*, writes:—"A few days ago, the plant was placed by me, at the request of J. P. Whiting, Esq., before the Society of Natural Sciences, Buffalo, of which I have the honour of being a Corresponding Member. After a thorough examination, the President of the Society, Hon G W Clinton, so well known to science in both the old and new worlds, in consultation with D F Day, Esq., the acute and critical botanist, pronounced it a *new species*, and named it for me, as having been "the first to indicate its claims to specific rank," giving it the botanical name of *Fragaria Gillmani*."

Hon G W Clinton, writing to Mr Gillman, observes—"The evidence of its excellence and productiveness is conclusive, and leaves no doubt in my mind that it will be eagerly sought by all judicious horticulturists, and prove the chief among the favourite strawberries of our land. The young plant you have given me is beautiful exceedingly. In aspect it differs from any and every strawberry I ever saw, and I believe it to be hitherto undescribed. Certainly it is not described in any book to which I have access."

## OPINION OF DR. J. K. BIGELOW.

Mr. Gilman adds:—"Further testimony might well be considered unnecessary, yet we will add that Dr. J M Bigelow, the celebrated botanist of the North-east Boundary Survey, and of the Pacific R R Exploration, arrived at conclusions similar to the above, and, in a letter to me (in reply to mine, giving him description of plant, etc.) after regretting his not having the ripe fruit to establish the position of the achenia, expresses himself thus:—

"The most remarkable and distinctive feature of your plant is the racemose form of the scape, the cy-mose being so constant that Dr. Gray makes it a generic distinction. Your plant will therefore obliterate that characteristic distinctive". In this respect your strawberry is different from all others that I have seen. The question whether your plant is a hybrid, is difficult to determine; but the appearance of the growing plant would seem to indicate that it is a true species and not a variety.

Experienced horticulturists having already testified to its merits as a valuable fruit, the circle of evidence is therefore complete by the addition of these scientific opinions."

The plant is for sale by J. P. Whiting & Co., and cannot be obtained anywhere in Canada or the United States except from them or their Agents. Persons desiring the best Strawberry, in every particular, to be found in the country should purchase the

## MEXICAN EVER-BEARING.

Agents are being rapidly appointed in each county throughout Canada; but orders can be addressed to the undersigned, who is General Agent for the Strawberry throughout the Dominion of Canada. Circulars giving full particulars as to mode of planting, culture, price, &c., will be sent on application (post paid) to the undersigned.

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GENERAL AGENT,  
WINDSOR, ONT.





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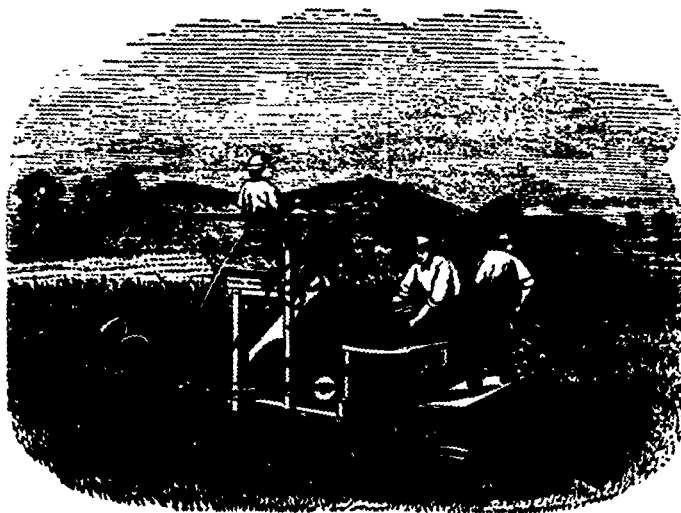
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**GEORGE BROWN,**  
Managing Director.