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THE

CANADA FARMER

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The Field.

Notes on Spring Work.

Owing to the early setting in of hard frost last autumn there has been a smaller breadth of land prepared for spring crop by fall ploughing than is usual, and it will be necessary to begin operations early this year, if the work of preparation for spring sowing is to be well done. It is better to leave land that is in grass or clover untouched, rather than break it up in order to sow with spring grain, unless it can be ploughed the previous fall. If, however, the land must be used for growing grain, and we know it is very common to break up sod for peas or oats, it should be ploughed sufficiently deep to enable the newly turned surface to be worked with a two-horse cultivator, or sharp toothed harrow, to form a tolerably mellow seed bed, previous to sowing. Let the farmer understand that it is not well to try to get in a great breadth of crops in a hasty manner. A few acres well prepared and cultivated will give twice the yield, with only half the labour at harvesting, that could be obtained from a much larger area with indifferent tillage. "What is worth doing at all, is worth doing well," is an old tried maxim that every farmer should remember and be guided by.

PEAS are usually the first crop that can be put into the ground in spring. They do best on sod land that has been broken up the previous fall, and can be cross cultivated in early spring to make a good, yet compact seed bed. This plant derives a large proportion of its food from the atmosphere, rather than the soil, so that it often brings a good crop with careless cultivation, that would prove fatal to other grain. Yet it is a plant that well repays generous treatment, and likes a good mellow seed bed in preference to the hard ungenial one it usually obtains. There are many varieties of this plant differing mainly in the size of the seed, length of haulm, and earliness of maturity. As a general rule, that which comes earliest to maturity will yield the best crop, and we think that too little attention has been paid to this matter hitherto. We imagine that the *Daniel O'Rourke Pea*, a variety of medium length in haulm and size of seed, and one of early maturity, combining great productiveness with richness in quality, a great favourite with market gardeners, would prove a valuable variety for field culture. It is now so extensively grown for market purposes that the seed can be had for about $1 50 per bushel. It ripens in two months from seed sowing. The quantity of seed required per acre depends a good deal upon the size of the pea; of the small field pea, two bushels per acre are usually sufficient if they are all well covered in, while of the larger kinds from 3 to 4 bushels will be necessary. Peas that are grown thickly will give a large yield of haulm, which is nearly equal in value to clover hay, if cut before it is dead ripe and well saved. We believe that if peas were drilled in like wheat, but at a greater distance apart, say every other drill taken out, they would prove a more productive and sure crop than with the ordinary care they now get. It would be no difficult matter for those who have seed drills to try the experiment and report results. We believe that if early ripening varieties of peas were grown they could be removed from the land in time to grow a crop of late turnips, to be fed off to stock on the ground in November, leaving the soil clean and fit for spring wheat or barley the next season. The best way we know of saving peas from the ravages of the pea bug is to feed them to the fattening hogs early in autumn, before the bug begins its work. Pork can be produced at much less cost at that time than if the fattening process is deferred till cold weather, and will bring as good a price from the packers.

SPRING WHEAT is next in order and is sometimes sown before peas, especially on dry well drained soils, where the land has been prepared by a fallow crop the previous season, and can be easily worked as soon as the frost is out. Wheat requires a compact, yet deep seed bed, more so perhaps than any other crop grown on the farm. There are so many contingencies on which this crop depends that it is always a matter of some risk to grow it; of late years the Wheat midge has proved very destructive to spring wheat, especially since the varieties of Fall Wheat grown have been either so early in maturity as to become nearly ripe before the midge fly appears, or have a coating of chaff so thick that it effectually prevents the worm from reaching the kernel until it is too dry to be penetrated.

So far, we have not yet discovered any variety of spring wheat that can be properly called "Midge-proof," although there are some that appear to be partially so, and gave fair returns last year, in a few favoured localities. Spring wheat requires a soil that contains lime and clay in considerable proportion, and well repays good tillage. If drilled in, 1½ bushels of seed per acre is sufficient: broadcast, 2 to 2½ bushels will be required.

BARLEY.—This crop requires extra care in providing a suitable soil, and good friable seed bed, in order to ensure success. It does best in dry loamy soil that has been well prepared the previous year by a fallow or root crop. It does well after a crop of corn, potatoes, or turnips, to which barn-yard manure has been applied, and well incorporated with the soil. The land must be dry, and free from any liability to retain surface water, which has an injurious effect on barley. The usual way among good farmers of preparing the land, is to throw it up with the plough into ridges of about 15 feet wide the previous fall. As soon as the soil is dry in spring, the land is deeply stirred with a two-horse cultivator, and left a few days to get warm from the sun, It is then well harrowed, the seed sown—either with a drill or broadcast—if the latter. it should be harrowed once, and may then be rolled with a rather light roller, though we do not advise it. Barley is a tender plant, and should not be sown till the soil is warm enough to ensure a quick growth after germination, and

the season is sufficiently advanced to avoid danger from hard frosts at night. There are three kinds of barley, viz :—Two-rowed or Chevalier, four-rowed, and six-rowed. The first has been but little grown in Canada, though where tried it has given a large yield of extra good quality. It is the favourite kind in Great Britain, and produces the finest and heaviest kind of grain.

The four-rowed is the variety most commonly grown here, having a stiff straw and large plump grain weighing more to the bushel than the six-rowed.

The six-rowed has one decided advantage in view of the present admitted liability of the crop to be attacked by the wheat midge and to suffer from drought, viz :—it ripens ten days earlier than the four-rowed. Three bushels per acre is the usual amount of seed required when sown broadsast.

There is scarcely any crop on which special manures can be tried to so much advantage as barley. Super-phosphate at the rate of 200 lbs. per acre, sown on the land and harrowed in just before, or with the seed, will give it a rapid growth in the early stages and a tendency to early maturity, besides adding considerably to the productiveness of the crop.

OATS will do well on land that is too heavy or too light for wheat or barley. Rich alluvial flats will grow good oats, and can be at the same time seeded down to permanent grass with timothy and red top, Oats are, however, a foul crop, and except on low meadows should not precede grass or clover, but rather be grown on land that is intended to be devoted to a cleaning crop the next year. They can be sown earlier than barley, though often sown too late after the other grain crops have been attended to. We think they do not usually get a heavy enough seeding. 2½ bushels per acre is about the usual practice here. In England 3 to 4 bushels of seed are given. White oats do best on dry soils, black on moist. In Australia nearly all the hay is made from oats sown at the rate of 4 bushels per acre, the crop being cut and cured when the grain is in the milk. One seeding will giue three or four successive cuttings of hay in that climate, where there is no frost to kill the roots in the winter season.

SEEDING CLOVER.—There is so much uncertainty nowadays about getting a successful stand for clover, owing to the variable weather in spring, that many farmers become discouraged and have abandoned the practice of having a clover ley as part of the usual rotation in farm crops. The old rule of sowing clover seed on fall wheat before the last snow of spring melts does not work well. The seed germinates too early, and the young plants get killed out by the spring frosts. We prefer to sow clover on barley, as is done in England. The plan adopted is to sow the clover seed immediately after the barley has been harrowed in, and the first rain will cover it to a sufficient depth to ensure germination, while it would fail to grow if covered to half an inch in depth. Where clover is to be sown on fall wheat, it would be well to sow only half the quantity about the middle of April, and the balance twenty days after, sowing the second seeding across the first to secure an even distribution of the seed.

Cultivation and Preparation of Hemp.

We intended to give an editorial on this subject, and wrote to H. G. Joly, Esq., M.P., of Quebec, who has grown the article for the past few years, and takes a great interest in the advancement of Canadian agriculture, for information; and the reply is so good and practical, that we prefer to give it to our readers, in place of our own article on the subject :—

It is necessary that I should begin by stating, for those who may not be acquainted with the fact, that the male, or fecundating flower of the hemp, and the female, or seed-bearing flower, grow upon separate and distinct plants. So that hemp, unlike flax, whose every plant bears seed, is divided between female, or seed-bearing plants, and male plants, which do not bear seed, but are indispensable for the fecundation of the female plant.

I have never read nor heard that it was possible to distinguish the sex of the plant in the seed of hemp; male and female must, therefore, be sown and grown up together. There is nearly an equal quantity of each; if anything, the female slightly predominates. The male ripens about three weeks sooner than the female. It is known to be ripe when its stem and leaves assume a yellowish hue. That colour makes it easily distinguishable from the female, which, at that time, is still perfectly green.

There are no two countries—scarcely two localities in the same country—where hemp is treated identically in the same way; but I think all the various modes of treatment can be safely classified under one or another of the two following heads—the old-fashioned European, or the new-fashioned Kentucky mode.

The choice of the ground, the way to prepare it, the sowing of the seed, and the cultivation between seed time and maturity, are the same in both these modes of treatment, which, in fact, differ but on one point, the harvesting of the crop.

CHOICE AND PREPARATION OF THE GROUND.

I will quote some good authorities on that subject, whose words will carry much more weight than mine, merely stating that, from experience, I have found them to be perfectly correct :—

Mr. Bradford, of Kentucky, says :—

"The soil for hemp must be a strong, calcareous, deep, warm, loamy, and perfectly dry one, deeply and thoroughly prepared by ploughing and cross-ploughing, according to its previous condition, until a fine state of tilth is produced."

Henry Clay says :—

"The lands which produce hemp best are those which are fresh, or which have lain *some time in grass or clover. Manuring* is not much practised yet (in Kentucky). Clover is used in lieu of it. Fall or winter ploughing is practised with advantage. It is indispensable in old meadows or old pasture grounds, intended for producing hemp."

Sebastian Delamer says :—

"Hemp gives but a very unsatisfactory return on soils of too sandy or clayey a nature, on shallow soils, on those which are apt to be scorched by the sun, or are unable to receive their due share of atmospheric influence. Fresh broken lands, in the midst of woods and forests, are favourable to its growth."

SOWING THE SEED.

We sow hemp, in the District of Quebec, about the first week in May. You can safely sow yours, in Upper Canada, at least a fortnight sooner. Sow it broadcast, about one bushel to the acre (for hemp grown for rope-*making, which is the only kind, I think,* can be advantageously raised, for the present, in Canada). Harrow before sowing, and harrow and cross harrow lightly after sowing.

Never sow seed older than the preceding summer's growth, for it is admitted by every one that hemp seed loses its vitality rapidly. The seed must be plump and full, and rather *dark in colour. Whitish and greenish seeds* are always bad.

Last year I imported seed from Piedmont, north of Italy. It came to an absurd price, but, with proper management, it ought to be got here for four or five dollars a bushel. This year I import Kentucky or Missouri seed (I think it is the same), for which I expect to pay, delivered in Quebec, from three to three dollars and a quarter per bushel. Mr. Wm. Evans, of the Agricultural Warehouse, Montreal, imports all my seed. From experiments made last year, I am, so far, inclined to give the preference to the Missouri seed over the Piedmontese. Some of the plants from the latter are, it is true, much taller than any produced by the former; but the crop yielded by the Missouri seed was a good average length, and much more equal in height and thickness than that from the Piedmontese seed.

There is no cultivation whatever required *between seed-time and maturity; the rapid* growth of hemp chokes up all weeds; in fact, it weeds itself.

HARVESTING.

I have now reached the point at which the European and Kentuckian modes of treating hemp begin to differ from one another—I mean the harvesting—and I will proceed to show in what that difference consists.

In Europe, when the male hemp has become ripe, it is pulled by hand, plant by plant, allowing the female plant to stand, in order that her seed may ripen, which takes about three weeks from the time the

male is pulled. After being pulled, the male plants are laid out to *ret*, or, as it is more generally called in the country, to rot, either on the ground, or in water like flax. The same process of retting is followed both in the European and the Kentuckian treatment of hemp. When destined to be retted in water, hemp is put up in bundles, which must not exceed ten inches in diameter or thereabouts, at the thickest part, so that the water may act easily on the centre of the bundle. Five or six days in stagnant water, when the weather is still warm, is generally sufficient. It takes much longer in running water. When the water is cold, owing to the lateness of the season, it is better to ret on the ground. It takes from one month to six weeks to ret on the ground, the time depending completely upon the greater or lesser frequency of rain.

When the bark which contains the fibre can be easily detached from the wood, in long strips uninterrupted, from the root to the top of the plant, the retting is completed. Hemp ought not to be spread upon the field to dry the moment it is taken out of the water, for it is then soft and brittle, and might be injured. The bundles must be put up standing along a fence, a wall, or, if neither be quite convenient to the pond, some light scaffolding erected for the purpose, after slackening the ties, which can be readily done by pushing them up towards the thinner part of the bundles. They are left standing for a day or two, until the water has run out of them. The plants are then fit to spread on the ground in thin layers. When dried on one side, turn them over, and a few hours of sunshine will complete the operation. Do not take them in unless thoroughly dried.

When the seed hardens, the female plants ought to be pulled. It would not do to wait until the seed is quite ripe, because the bags containing it will then burst, and the seed drops on the ground, and is lost. The seed is allowed to ripen for a few days on the field, care being taken to prevent the head of the plant, which contains the seed, from resting on the ground. It must not be beaten out with the flail. It is too soft for that, and would be crushed. The best plan is to bring barrels or boxes to the field, hold the handful of hemp with one hand, the heads of the plant placed inside the barrel or box, and with the other hand, armed with a small stick, beat the heads until the seed drops, after which operation the female plants are retted in the same way as the male plants.

When the seed is extracted, it is taken under shelter, and laid in very thin layers, not more than a couple of inches thick, for it is very apt to heat when not thoroughly dry. It is well to turn it over from time to time. After a month or so, when well dried, the seed is winnowed and put up in bags or barrels.

Such is the European mode of harvesting. Now for the Kentuckian. In Kentucky, Missouri, and other parts of the States, the whole crop of hemp, male and female, is pulled, or more often cut, at one and the same time. The period chosen is about halfway between the maturity of the male and the female plants, say about ten days after the male has ripened. The instrument used for cutting hemp is something like a reaping hook, only the blade is much stronger, nearly straight, with the slightest inward curve, and about twenty inches long; the handle is straight, two feet in length.

If the crop is to be cut with the hemp-knife, the operator is required to cut at once through a width corresponding to the length of the hemp, and as close to the ground as possible, spreading his hemp in his rear, in an even, smooth swath. It is afterwards spread out on a meadow for retting. This is "dew retting."

I think you will agree with me that the Kentucky mode is preferable, for the following reasons:—

1st. Because it does not exhaust the soil, the seed not being allowed to ripen; but if it stands for seed, it is on all hands acknowledged to be an exhausting crop.

2nd. It saves one pulling, both male and female hemp being pulled or cut at once; and that one pulling saved amounts to more than one half the work of harvesting. It speaks to common sense that the first pulling alone, according to the European system, when you must choose and pull the plants one by one, takes more time than a general pulling or cutting of all the plants at the same time; and when they come in Europe to the second pulling, that of the female plants, as they do not stand quite close together (the male plants having been removed), the work does not proceed quite as rapidly, in proportion to the number of plants pulled, as it does in Kentucky.

3rd. When it is intended to ret hemp in water, the warmer the water is the more rapid and perfect is the retting. Now, as the season advances towards autumn, the water cools rapidly. The ten or twelve days during which the female hemp is allowed to stand after the male is pulled, and the time afterwards required for hardening and ripening the seed, and taking it off (which is often protracted to one or two weeks by rain, for the seed cannot be knocked off unless the plant is perfectly dry), may cause a long delay, during which the water often gets too cold for retting the female plant (as happened to me last fall), and then you must ret on the ground, when the colour is not so fine. This applies more particularly to Lower Canada, where the seasons are shorter.

4th. I think the fibre of the female plant is stronger when pulled before the seed is ripe.

The high price of labour on this continent accounts for the new mode of harvesting adopted in America. The Kentucky hemp is quite as strong as the Russian, but its colour is not as clear, owing to its being retted on the ground, and it accordingly compels the rope-maker to employ tar of a lighter colour, which is more expensive than that required for the Russian hemp. Their water in Kentucky is not soft enough for retting hemp.

The Kentuckians sacrifice the seed, but they have found out that the saving in labour both in the pulling, and afterwards in the curing of the seed, more than compensates for the loss of the seed. In other places, where labour is cheaper, it may be otherwise. We have still got a great deal to learn from experience.

For those who will try the European plan (as both plans ought to be fairly tried) and save the seed, I will state that, taken equal weights of flax seed and hemp seed, hemp seed will yield in oil two-thirds of the quantity that flax seed does. This statement, however, must not be looked upon as conclusive. It is merely a personal opinion, based upon the results of one experiment made this last fall at Messrs. Turcotte's oil mill at Beauport. Those gentlemen had never worked hemp seed before. As we gain in experience we may expect more favourable results. But, even calculating upon that, if an acre of hemp yields, say, twelve to fourteen bushels of seed, and I think it will do that if carefully worked, that yield would be an important item, well worth the farmer's consideration, where cheap labour can be obtained. The oil is employed, in Europe, for painting. I got ours tried here by a reliable painter, and it gave much satisfaction. It appears, however, to change the colour of white lead a trifle more than flax oil does, but it is just as good for every other paint. The hemp cake is fed out to cattle with the same results as flax cake.

We have seen that by following the Kentucky mode of harvesting, the seed is sacrificed. In order to procure the seed necessary for the next seasons's sowing, they lay out a small patch of good land in hills, a couple of feet in diameter, disposed in straight rows, three feet apart each way. They plant seven to eight seeds in the hill. The same rules observed for the cultivation of Indian corn will apply in the after culture of hemp-seed. Those plants, with plenty of room to expand laterally, will throw out, in every direction, branches that get covered with seed. Of course, their fibre is quite worthless, owing to those same branches, but the yield in seed is extraordinary. I took myself, from two plants, about one pint apiece of clean seed. You can form an idea of how small an area of ground would be required in order to yield one bushel of seed.

As to the pecuniary returns from hemp, grown for the fibre, per acre, I must base my calculations upon the price paid our farmers last summer, namely, half a copper a pound for unretted hemp, and one copper for retted, delivered at the mill. One man was paid at the rate of sixty dollars per acre, irrespective of the value of the seed, but

that was the highest. Those who had well selected the land generally ranged between that rate and thirty-five dollars. The drought in our part of the country was extraordinary. The hemp crop suffered very severely from it, as did the flax, so that our success was far from complete. Some farmers, who had sown their hemp in good soil, but such as Sebastian Delamer describes as "apt to be scorched by the sun," were disappointed. Some others, who pitched it carelessly in poor soil, without due preparation, and expected a miracle, were more than disappointed. One must be prepared to meet these checks with patience. However, the general results of last summer's trial, allowing for the great damage done by the unusual drought, which at one time made me fear that all was lost, were of such a nature as to encourage those upon whose help we must mainly depend—the careful, intelligent and enterprising farmers, whose example will tell in the course of time upon the others.

When the male and female plants are pulled separately, the female being kept for seed, the price of half a copper a pound for unretted hemp is not unfair to the manufacturer. Both plants are then brought to him ripe; the sap is dried up; the leaves are gone, and in that state it will not lose more than half its weight in retting, which will bring it to one copper per pound for retted hemp. True, the manufacturer has got the trouble of retting it, but it may be worth his while to have ponds, and ret it in water, which will give him a superior article, the farmer generally retting on the ground. But that same price of half a copper a pound for hemp not retted, when both the male and female plants are pulled at once, is more than the manufacturer ought to pay; for while the male is dry, and worth that price, the female is still green and loaded with leaves, and will lose more than half the weight in retting; there ought to be some deduction in that case, say one-fifth or one-sixth on the whole; if the crop has been cut down with the hemp knife, the deduction ought to be much smaller, if any, because the manufacturer has not then got to pay for the weight of the roots, which is a considerable item. For my part, until the whole business is more practically understood by us, I would prefer it if the farmer were to ret his hemp himself, even on the ground, and deliver it at the mill at the rate of one copper a pound, as some have done At that rate one acre, well cultivated, ought to yield him about fifty dollars. It would not impoverish the land if both male and female plants are removed at one time, and would prepare it for wheat.

Of course, it is useless to start the growth of hemp on a large scale, where you are not prepared to dress it. In Europe, they dress it by hand. Labour is too expensive here for such a slow process. We must have recourse to machinery, as they do in the States. A hemp mill worked by water, such as I put up at Lotbiniere last fall, given the motive power (water-wheel, steam or other; it appears that in Kentucky they use horse-power, in the absence of water-power) and a shaft on which to hang two pulleys, one for the break and one for the scutchers, will cost from three hundred to three hundred and fifty dollars, at the most.

The whole machinery consists in a six-roller break (Sandford & Mallory's pattern) manufactured by Mr. Wm. Moody, at Terrebonne, near Montreal, and sold by him for $240, and of two scutching pulleys, with five knives on each, (the pulleys made of birch and pine, and the knives of well-seasoned maple or spring steel). Hemp requires much less scutching than flax, I think two scutching pulleys, with five knives each, will be sufficient for the former, where five such pulleys are required for the latter. Put over the machinery a covering, consisting merely of a roof without sides, so that the dust will not trouble the men.

The scutching pulleys, with the knives attached to them, must be raised off the ground a good deal higher than for scutching flax. The shaft of those pulleys ought to be at least four feet from the floor of the mill, the men who scutch standing on stools. The reason is that, if you leave your scutching knives as low as for flax, the ends of the hemp will lie on the ground (it is often eight or nine feet long) where the knives, in their swift revolutions, pick them up. The hemp then gets entangled, and ultimately rolled up round the shaft, and is lost, as I found out to my cost.

The outlay of $300 to $350 for the machinery of a hemp mill, though not very considerable, is more than one would like to incur for the simple experiment of a new thing, especially when undertaken with some doubt as to the final success. But, without incurring any expense, the trial can be made—as I made it before building the hemp mill—either at any flax-dressing mill, or, in the absence of such a convenience, with the common old-fashioned flax-break, worked by hand, so well known to every farmer. If there be a flax-dressing mill at hand, you can make use, for your experiments, of the flax-break, taking care to slacken a little the screws that keep down the upper rollers. Hemp, being thicker than flax, requires more room between the rollers. If your flax-break is not very strong, to avoid injuring it it will be well to cut off the roots of thick hemp before passing it through the break, but you are not obliged to go to that trouble with a regular hemp-break. Once broken scutch the hemp with your flax scutching knives, on revolving pulleys, taking great care that the long ends do not get entangled; or with a common hand scutching knife. Six pounds of retted hemp, at the rate of one copper a pound, cost the manufacturer five cents, and will produce one pound of clean dressed hemp. The cost, delivered at Quebec, of Russian hemp of the same quality as our Canadian hemp, was, last fall, about 9c. per pound, which I am told is not a very high price in this market. This would leave a margin of four cents a pound for dressing and delivering here; and I think we could give it cheaper than the Russian, hemp requiring much less scutching than flax. It is indispensable that it should be sufficiently retted, whether that be done by soaking in water or exposure to dew.

We are now beginning to dress our stock of hemp at the mill, for Mr. Onslow's rope-walk at Quebec. By the spring, I shall be able to state with more accuracy the cost of dressing hemp, and the yield of retted hemp in dressed hemp. I should not be surprised if, on an average, it took something less than six pounds for one. Some people tell me that they have found it to be five pounds for one. Experience will show.

I earnestly trust that the results of these experiments will be such as to encourage the cultivation of hemp on a large scale, and that it will be found profitable both to the farmer and to the manufacturer, in Canada, as it has been found in so many countries.

Quebec, Feb. 12, 1869. H. G. JOLY.

Note by Editor—Mr. Joly is kind enough to say he will send us one bushel Piedmontese hemp seed, and two bushels of Missouri. We will distribute it in small quantities to any of our friends who may be desirous of making a trial of growing hemp in Ontario, in order to introduce the cultivation of this very desirable crop.

Practical Drainage.

BY ALLAN MACDOUGALL, C.E.

I.

The subject of drainage has been so often dwelt upon, that any remarks on it may now seem superfluous; but to a country like this, where so much land lies yet unbroken, and even on many farms fields are often to be found that are useless in early seasons from their wet state, a few practical remarks may be acceptable to those who are anxious to improve their lands, and would wish to make a commencement this spring. The following remarks are intended to show that, little by little, a farmer ought to drain his lands, using his own and sons' labour with that object, and not run into a large scheme that he may not have means to complete, and so be disheartened at an unfinished work, and blame a project the working of which is bad on account of its incompleteness. Let the work of drainage be commenced on a small scale, doing one field only at a time, and as the improved crops show the advantage, and the purse gets longer, larger portions can be done. It is very necessary, to ensure a proper result from the operations carried on, that each field, as it is drained, is thoroughly drained. One or two large drains from the wettest portions of a field, with a few small ones at varying depths, to wet places, do not fulfil the conditions of proper drainage. They answer for the time being, and for a certain distance on each side draw off the water; but the rest of the field is left without any means of being relieved of the superfluous water, and the consequence is an unequal and irregular crop, while the return to the farmer is little or nothing. Let a plan be resolved upon on which operations are to be conducted; fix on a field that from its position affords a good and easy outfall; it may be to a stream, or the field may bound a road where a drain already exists, or some waste land or mill pond may afford a reservoir for the water.

Outfall is the first thing to be looked to, as on this depends the whole success of after operations; it is not necessary that there be a great slope in the land; water, following the laws of gravitation, will always seek the lowest place, and on many fields that look quite level, or only appear to have a slight fall, so long as it is a uniform one, water will be freely discharged.

If it is necessary to lead the water through one or more fields to get an outlet, then the outfall drain should be taken down the sides of the fields it goes through, so as to be useful in draining the fields on both sides. In laying out the lines of the drains, the eye will always be a very good guide, as one can easily see how land slopes, and in small operations there is no great fear of going wrong, and when the trenches or grips are being cut, a little observation will soon show if the water has a fall or is level, so that an intelli-

gent workman can soon learn how to bring up his drains.

The best time for commencing draining operations is when the weather is dry, particularly where the soil is silty, as the workmen's feet in the grips would cause the silt to purge, and fill up the trenches as soon as they were cut; or the silt, not being dry, would get into the drains, and choke them up. The time for putting in drains ought to be regulated by the cropping and other circumstances. A good time would be as soon as spring has completely taken the frost out of the ground, and the land is sufficiently dry to allow operations to be carried on; or they might be put in when the crop has been taken off the land, about the end of August or beginning of September. They ought then to be slightly covered over with earth, and allowed to remain so for a month or six weeks, as thereby the operations will be greatly assisted, and the work of the drains advanced one season. It is a bad plan to cover up drains immediately after they are laid in. By keeping them open, the trenches or grips let the air get into the ground, which it can only do after they have been filled in, when the drain by its working has drawn out the water, which does not take place thoroughly, sometimes, for two or three years. Thus the action of the drain is retarded, and more especially on land that is only being broken in, and the return for the money is longer in coming in.

Seeding to Grass.

If we wished to have good pasture, and intended the land to be broken up by the plough at the end of two years from the time of seeding, we would sow nothing but clover at the rate of twelve to fifteen pounds per acre. We know many will say this is a heavy seeding, and it is about double the amount usually given by the generality of farmers; but it must be remembered that only a liberal seeding will insure success in obtaining a good stand with so uncertain and capricious a plant as clover, when it is sown alone. As soon as the young plants are well up, a dressing of one bushel of dry unleached wood ashes per acre, sown broadcast, will greatly help them to get established in the soil and resist the drought of summer. Some advise sowing plaster, but it is best to be applied the succeeding year, when the clover has got fairly rooted in the soil. Sown on any grain crop, especially barley, which is the best on which to seed down clover, plaster has the effect of retarding the ripening of the grain, and increases only the amount of straw produced.

For a permanent meadow—one that is to be mowed and pastured alternately for a number of years—there is nothing equal to timothy grass. This plant is perfectly hardy, and withstands the severest of our winters without injury, and if sound seed and enough of it is sown, there need be no failure to obtain a good stand of grass, at whatever time it may be sown. It is a question as to the proper amount of seed required per acre of timothy. It lasts for years, growing in stools of bulbs that enlarge and spread from year to year, somewhat after the manner of a potato onion, and should never be too closely cut or pastured down. Owing to the fact that timothy, if too closely seeded, will grow weak and spindling, and that it seldom produces a good crop until the stools have begun to form and spread, it is advantageous to sow clover in the proportion of three-fifths by weight, or some other grass, along with it, to fill up the ground for the first year or two. The clover soon gets winter-killed out; and if not, the timothy, as it spreads over the ground, displaces the clover. Red-top is sometimes sown with timothy, though more generally it springs up spontaneously. We, however, do not like red-top grass, and for hay alone we prefer the timothy only, or with a small admixture of clover. Timothy, although a very nutritious and fattening grass for stock, gives but little aftermath when mown for hay, and therefore, in seeding down land that is required for permanent pasturage, especially for sheep, other grasses must be introduced that will afford a constant succession of herbage throughout the season.

We think the English practice of sowing several kinds of grass seed together might be carried out here to advantage for permanent meadows. So little has been done in that respect here, that it becomes a difficult matter to know what grasses to recommend, with a certainty that they will succeed in our climate, and few farmers are inclined to try the costly experiment of procuring seed from England to test the matter. Probably the best grass we could obtain, as giving a large amount of nutritious herbage during the latter part of summer and through the autumn, is the *Poa pratensis*, known under the names of *Spear Grass*, *Smooth Meadow Grass*, *Green Grass*, and in Kentucky as *Blue Grass*. It is in a measure indigenous to the country, although said to have been introduced from Europe, and springs up spontaneously in old rich meadows. This is the most valuable natural grass of America, and its prevalence in pasturage is a sign of the land being in good heart and well tilled. On poor or badly tilled land it is rarely seen. The seed is very small and light, weighing about four pounds to the bushel, and difficult to obtain in any quantity. The farmers of Kentucky and Pennsylvania find it comes in of itself on land that has been limed and well manured before being seeded down, so they do not try to save the seed of it. It is of very luxuriant growth, forming a thick heavy sward when once it takes possession of the soil, driving out all other grasses, and lasting for many years, spreading out by means of its perennial creeping roots. Where seed can be procured of this grass, a bushel per acre is the quantity sown—generally in the fall on winter wheat, or very early in spring, before the snow melts.

Of the English grasses, the best known here and most used at home is the Orchard Grass, *Dactylis glomerata*. Sown at the rate of one bushel per acre, this is one of the most valued and common of the pasture grasses, not only of Europe, but also of Asia and Africa. It grows rapidly, to a height of three feet, ripens earlier than timothy, and furnishes a rapidly-growing, dense and nutritive aftermath, and resists the effects of drought remarkably well, but should be closely cropped when used as pasture.

Italian Rye Grass, *Lolium Italicum*, is another European grass of value. It requires two bushels per acre, stands drought well, and is adapted to moist clayey soils, where it gives a heavy yield of herbage of good quality.

On the Application of Land Plaster.

Having been interested in the manufacture and practical uses of land plaster for over thirty years, and after studying its effects upon the various crops to which I have applied it from time to time, I am induced, for the benefit of the farming community, to submit the result of my experiments and experience with gypsum, as a top-dressing for clover, roots and barley, to which crops I have applied it with excellent results.

It is also a useful adjunct in barn-yards, stables, pigsties and cesspools, where it ought to be freely and constantly used, to prevent the escape of the ammonia evolved from decaying urine and animal matter.

There is no doubt that its action, when sown as a top-dressing upon growing crops, is wholly atmospheric, that its affinity for the ammonia, with which the common air is highly impregnated, by the gases constantly thrown off from decomposing matter, causes it to attract and fix those floating essences, for the use and benefit of the crops to which gypsum has been so applied; and though it may have no direct affinity for pure water, still I find that green crops, especially clover, which have received a top-dressing of gypsum, in attracting the ammonia during the night, also retain the dew in which it is embodied; for, in walking over a plastered clover field in the morning, I find my feet saturated with water, whereas, in an adjoining unplastered field, they would as surely come out perfectly dry.

My farm was originally a sandy loam. It has decreased in vegetable mould, and become more adhesive by arable culture for the last 35 years, to which latter effect the intermediate pasturing of sheep has also contributed.

On this soil, 100 lbs, of plaster to the acre is the maximum quantity required, and when applied in excess, no greater effect is produced.

Used on barley, especially in dry seasons, its effects are beneficial; but when mixed

with two barrels of common salt per acre, the combination keeps the soil moist, strengthens the straw, and produces a better and heavier grain.

On turnips and carrots, a mixture of 100 pounds each of plaster and wood ashes, with two barrels of salt to the acre, applied as a top dressing, will greatly improve the crop both in quantity and quality, and will enable the roots to stand a drought such as they were subjected to last year, and keep green and growing all the time.

In the township of Waterloo the German farmers are applying it in the fall, upon their winter wheat, as they inform me, with good effect. I have not as yet tried it myself, but as they have used it more extensively last season, I presume the experiment is satisfactory.

The evaporation and escape of gases from manure heaps, stables, &c., &c., can be prevented by frequent sprinklings of gypsum, which absorbs these subtle elements, and precipitates them into a fixed salt of ammonia (hartshorn) for the use of the crops to which it may be afterwards applied.

The annual loss to farmers by the waste of evaporation is enormous, as the best and most subtle elements of their manure heaps, and urinal washings, are lost from want of proper economy and care, and, like the riches of a spendthrift, are dissipated to the wind for the benefit of others, and to the ultimate ruin of himself. In manure, upon which plaster has been from time to time applied, decomposition is retarded; but its whole strength is retained intact, and afterwards, when turned out in the field, effluvia is hardly perceptible. This proves that gypsum acts on the gases and ammoniacal matter alone, that it is an effective chemical agent in adapting these elements to the use of growing crops, and that it exerts no influence whatever on the soil itself.

T. W. C.,
Paris.

Liquid Manure.

In Holland, Belgium, and to some extent in England, one of the great elements of success in obtaining heavy and continuous crops of grass, and green forage for soiling milch cows, from the same piece of land for several successive years, is found in the judicious and extensive use of liquid manures, applied to the land by means of water-carts or force-pumps. This liquid manure is not merely such as can be saved in the drainings of the urine from the stables and farm-yards, but much of it is obtained by dissolving the solid excrements of animals in tanks constructed for the purpose. The tanks are so situated as to drain the urine from the yards and buildings, and from time to time the solid excrements are added. The whole mass undergoes fermentation, becoming a thick mud, to which water is added and stirred in, to make it thin at the time it is to be applied to the land.

Our farmers have not yet experienced the great benefits to be derived from this mode of using manure, which would be so peculiarly applicable in our hot, dry summers, and we hope at no distant day to see tanks for the purpose of collecting manure for distribution in this manner become a necessary appendage to every well cultivated farm. But, while we think this mode of applying manure to the soil, especially to grass crops, would be highly advantageous, and repay many times over the cost of tanks, water carts, &c., we imagine that the construction of tanks or cisterns in the farm-yard, in order to collect the liquid drainings of the stables, cow byres, and even the rain from the roofs of the farm buildings, in order afterwards to pump out the contents and spread them over the manure heap, at intervals during the dry weather of summer, would prove of signal advantage to the cultivator of the soil. Ordinary farm-yard manure, as made in Canada, contains a large admixture of vegetable matters, such as straw, corkstalks, &c., which, becoming dried up in summer, resist the decomposing powers on the small amount of excrements incorporated with them, so that by the time the farmer wants to haul the manure out on his fallow or plough it in for root crops, he finds the undecomposed vegetable matter greatly in the way of the efficient incorporation of the manure with the soil. Dried up manure heaps are also greatly liable to become fire-fanged, which destroys their value.

In Belgium these manure tanks are usually constructed by bricklayers, at a price proportioned to their capacity—the larger they are the less the price in proportion, the usual size of a tank or cistern being a capacity to hold 38,000 gallons. In Switzerland they make square holes in the ground, and line the sides with brick set in clay mortar. Where the soil is a tenacious clay, and there is no danger of the liquid manure percolating out at the sides or bottom, it is only necessary to construct the tank in such a way as will keep the sides from falling in, either from the effects of the action of frost or the trampling of animals near it. Where the soil is porous, it becomes necessary to make the bottom of stone flags, with the joints cut square, set on a puddling of strong clay. The wall is then to be built from and on this bottom, and hydraulic cement used instead of common mortar.

The cost of a tank containing, say 25 square yards of brickwork, would be about $50.

Harrows and Harrowing.

There are quite a number of patterns of harrows in use, but a really good harrow is yet a desideratum. There should be two classes of harrows used on every farm: a heavy, square-toothed harrow, to drag over newly turned soil and render the surface level, mellow, and at the same time deeply stir the soil; and a lighter and sharper-toothed harrow to cover in seed and break the crust on the surface, after the young plants have got a start.

We believe harrows might be used with more advantage than is usual among farmers, and we think that a round-toothed harrow, so constructed that the teeth may be raised or lowered by means of screws, to suit the depth they are required to penetrate the soil, would be a great advantage. Besides the usual work done by the harrow, it ought to be used more on fall wheat in early spring, to break the crust left by the washing of the fall and spring rains. Also, barley, or other spring grain, would be greatly benefited by a light stirring of the surface soil before the young plants get too high. Potatoes ought to get a light harrowing, lengthwise of the drills, as soon as the tops are through the soil.

But one of the most neglected uses of the harrow is that of scoring the surface of meadows and clover leys in early spring. It is very generally done in England, and has a wonderfully good effect in giving grass an early start. In old meadows, a little fresh grass seed is usually sown after the harrow has scored the surface, and this fresh accession of grass from seed keeps them in constant herbage to better advantage than trusting to a growth of natural and often inferior grasses, to take the place of those that run out through being too closely cropped by stock. To perform the operation of scoring the surface soil either on meadows or other crops, the teeth of the harrow should be slender and sharp, and so set as not to penetrate deeply enough to tear up the soil, and with it the roots of the plants; and we think that a round toothed harrow would be best for this purpose, being of lighter draft, offering less resistance to the soil, and, as it were, being self-cleaning. The work should be well done by harrowing twice, the one across the other.

Raising Early Vegetables.

Few farmers take the trouble to make a hotbed, or understand its management when made; but any one can obtain early plants of choice varieties of tomatoes, squash, cucumber, melon, cauliflower, &c., with little trouble and at small expense, in various ways. The most common is to sow seeds in boxes filled with rich soil that can be kept in a sheltered place exposed to the sun during the day, and in the house at night, to avoid danger from frosts. This plan, however, seldom produces stocky plants, and, besides, many are lost in transplanting, or from too much crowding.

A better plan is to procure a hundred or two of the smallest sized flower-pots, known as thumb-pots among gardeners. They cost $1 per hundred. Make a large shallow box, capable of holding from twenty-five to fifty of these pots, put a little coarse gravel for

drainage at the bottom of each pot, fill it up with rich earth, and plant from one to half a dozen seeds in each. Fill the box with clean horse dung, free from straw, and plunge each pot in it up to its rim. If handles are put on the box, it can be easily carried in at night, and put out in a warm sheltered spot during the day, watering regularly when dry. As soon as the seeds grow, pull all the plants but one out of each pot, leave that to grow and get strong, and when transplanting time comes you have only to have your holes ready, take your pot out, and holding it upside down, with the rim resting on your fingers, and the plant down between them, give a rap or two on the bottom with your other hand, and on lifting the pot, bottom up, the ball of earth in which the plant grows will be left adhering together, and can be put in the ground at once without disturbing the roots, or any risk of loss of the plant from transplanting, and it will do without shading. If properly put away after using, and cared for, these little pots will last many years.

J. M.

Alsike Clover a Permanent Pasture.

Some five years since, I sowed twenty acres of new land with Timothy Clover and Alsike. At that time Alsike Clover was very high priced, and as a natural consequence, only a few pounds were sown on the twenty acre field. The soil was clay loam, the land generally lay low, and wet, being a hemlock swamp. It was, however, well drained by surface ditches, and about 1st June was seeded with the above grass seed, sown with spring wheat on about ten acres, with millet on about five acres, and with carrots on the remaining five acres. The seed took well on all parts, but the growth on that part sown with carrots was monstrous. About one-half of the carrots were smothered. The remainder did pretty well, but about 1st November the Timothy was in many places two feet high, and plenty of it out in flower; yet although so rank a growth of grass had taken place, we harvested several hundred bushels of carrots. However, the carrots as a crop were certainly a failure. But from that hour to this year, the grass has been splendid, and far better on that first sown with carrots than anywhere else in the field. This fact I account for by the grass seed having such firm root and rank growth the first year. But what I particularly wished to call attention to was, that the Alsike Clover is ten times as thick now as it was when first sown. It seeds before Timothy, and possesses the power and inclination to "catch" in sod land, especially if rather low, and damp. In passing over the field each year about June, I notice thousands of young plants springing up everywhere; so much so, that I believe the Alsike will ultimately have all the land to itself.

C.

Experiments with Wheat in 1868.

For some years we have sown some small portion of our garden with various kinds of wheat, and have derived much amusement from watching its growth, and the date and peculiarities of the insect plagues. Last fall we sowed as usual, on the 7th September, eight different kinds of wheat, and up to the 4th of February of this year 1869, the wheat—notwithstanding the inclement season and entire absence of snow all through January—looked remarkably well. Not a blade seemed injured. It is, at the time I am writing, entirely bare of snow, and has been so for several weeks, and the wonder is that it is not injured past recovery. But more strange than this is the fact that some wheat presented to us by a friend, but too late to sow with the rest, is also uninjured, although not sown until the end of October. I examined it yesterday, and found it to consist of single tender blades—far too late sown to stool out in the least. If the general crop of Canada does as well as this unsheltered experiment, we have as yet derived little injury from the want of snow.

From these facts there would seem to be some other reason than frost and thaws to account for the destruction of the wheat crop, by "winter killing," in March, as we usually find the case. We rarely have such a freezing and thawing January as the one just past, to experiment on. If the young blade and that more mature survive the March trial, I will again communicate the result. The wheat in the experiment above mentioned is entirely unsheltered, and quite as much exposed as any wheat in the fields; and moreover, the wheat was harvested from the same piece of land in 1868, which was again at once sowed with wheat, but was well manured. I have long been convinced that wheat does not injure land to any extent by continuous cropping with the same grain, provided it is well manured.

C.

Goodrich and other Potatoes.

To the Editor.

SIR,—I have noticed several communications lately in your paper concerning the Goodrich seedling potatoes. One correspondent writes in the CANADA FARMER that "the Early Goodrich, Harrison, Calico, and Garnet Chili, are the best of all the seedlings originated and disseminated by the late Dr. Goodrich."

I differ from him in opinion with regard to two varieties, namely, the Calico and Garnet Chili. In 1867 I planted the Early Goodrich, Calico, Cuzco, Gleason and Garnet Chili, on the same quality of soil. The Calico did not yield as much as the Gleason, and the Garnet Chili did not yield over half as much. In 1868 I planted Early Goodrich, Gleason, Cuzco, and Garnet Chili, on the same quality of soil. From half an acre planted with Garnet Chili the yield was 97 bushels. From a quarter of an acre of Early Goodrich, 130 bushels. One-eighth of an acre Gleason gave sixty, and one-eighth of an acre Cuzco produced 83 bushels. I plant in drills, each piece of potato 15 to 18 inches apart. One of my employees dug from the production of one piece of the Cuzco twelve potatoes that weighed eleven pounds.

The quality for the table of all the varieties mentioned here is excellent so much so that I could sell them in Kingston, if I chose to do so, for fifteen cents per bushel above the market price of other potatoes.

I have never had any experience with the Harrison, but clip the following from the Napanee *Express*, Dec. 11, 1868:—

"A Pennsylvania farmer reports to the *Country Gentleman* that the Cuzco, for profit, outstrips any other potato he raises. He gets this year 500 bushels an acre, where the Peachblow goes less than 300 and the Harrison about 200.

FRED. MEMBERY.
Bath, Ontario.

How to Prevent Smut.

Many of our cereal grains are liable to a disease known as smut, which is caused by the growth of a cryptogamous parasite that fastens upon the grain in the ear, just after the bloom is past, and turns the seed into a mass of blackish dust. This parasite is produced from minute spores or seeds, that seem to adhere to the seed grain, and if not destroyed before sowing, will in some strange and unaccountable way reach up to the heads of the grain, and there become developed into activity. In order to prevent this, it becomes necessary to destroy the spores while they adhere to the seed grain. It is well known that salt acts as a destroyer of all fungoid life, so that by steeping seed grain for a short time in strong brine, or sprinkling a mild solution of sulphate of copper over it, the vitality of the spores of smut attached will be effectually destroyed. Brine is always safe to use, while sulphate of copper is dangerous, it being a deadly poison, and a small portion of the grain impregnated with the latter might accidentally get within reach of poultry or pigs, or even by chance get mixed with what is to be made into flour. When brine is used, it is a good plan to spread the grain, after steeping, on the barn floor, and sprinkle over it fine air-slaked lime, stirring all up together till every seed grain gets a coating of the lime. The operation is to be performed a day or two before the seed is to be sown. We have always adopted this plan with the seed of both fall and spring wheat, and found it greatly diminish, if not entirely prevent, any liability to smut.

Since trees have been planted in Egypt they are beginning to have rain. Plant trees—nut trees and fruit trees—they'll pay for their room and care in beauty, shade and fruit. Plant trees.

Duration of Vitality in Seeds.

There are few plants, the seeds of which will not grow in the second year after maturity, if kept in a cool place, neither too dry nor yet too damp. The seeds of most of the grains and grasses will keep their vitality for very many years. Instances have occurred of wheat having been grown from seed supposed to have been buried 2,000 years.

Par-nip and onion seed can only be depended on to grow the year after it matures. Beans are safe only for two years, as also are carrot, egg plant, and several of the pot-herbs. Radish, lettuce, spinach, parsley and asparagus, are good for three years. Celery, cabbage, cauliflower and turnip seed may be tolerably relied on for four years after maturity. Beet, mangels, tomato, squash, pumpkin, cucumber, and melon, are good for five to ten years, and the four last, which are bi-sexual, generally produce the largest proportion of female blossoms, and consequently fruit, when grown from seed that has been kept from three to six years.

J. M.

White and Grey Plaster.

To the Editor.

Sir.—In the February number of the Canada Farmer you have an article on Plaster, of which the following is an extract: –

"It is found in workable quantities in two localities in Ontario, namely, Paris and York, both situated on the banks of the Grand River.

"The whitest plaster is the best, and to be pure it must be beautifully white and semi-traneparent.

"The dark colour of the York or Grey plaster is owing to its being impure.

"The grey York plaster is the lowest in price, &c., &c."

In the above you have made a mistake, which please correct in your next issue.

The *grey* plaster comes from Paris, and the *white* plaster from York. We have *no grey plaster in the York beds.*

At the International Exhibition, London, England, 1862, specimens were received from different parts of the world, and those from Canada were sent from the several plaster beds at the expense of the Geological Survey. There was only one first-class prize medal given for plaster on that occasion, and *it was awarded to me.*

ALEXANDER TAYLOR.

Manufacturer and wholesale dealer in plaster, from his beds of pure white gypsum, York, Grand River, Ontario.

Caledonia, Feb 13, 1869.

Save the Manure.—Farmers are not aware how much is wasted on their farms, that with little care and trouble might be made into valuable manure. Everything that can be decomposed, either in process of time, with the assistance of the elements, or by the aid of chemical agents, should be saved for the compost heap. Select some place in the barnyard, or adjacent lot where it will be convenient of access, and there gather your compost, adding from time to time such solvents as may be necessary. Here bring all the weeds, sods, briars, thistles, &c., that you are compelled to dig and cut up through the summer, and add to these from time to time whatever you have of waste material, muck from the swamp, decayed fruits, potato vines, leaves, the deposit from the sink, &c., and at the close of the year you will be surprised at the size of your heap, and be able to see for yourselves how much is really wasted on your farms that might be turned to valuable account.—*Rural American.*

Oats.—To judge by the talk in the American agricultural papers about Norway oats Surprise oats, &c., and the big yields claimed by those who have the article for sale, the oat fever bids fair to outrival the potato fever. If any of our cousins across the line want a big thing in oats, let them send to Australia for seed. There they can obtain oats weighing fifty pounds per bushel, and giving sixty, eighty, and even one hundred bushels per acre, with the most ordinary care in culture, or almost no culture at all.

Experiment with Salt.—A correspondent in the county of Huron writes some of the results of his experiments with salt as a fertiliser. He tried it on fall and spring wheat in 1868, at the rate of one barrel to the acre. The time of sowing was the 18th of April, and it was sown on ridges in different parts of the field. The result on fall wheat was imperceptible. The spring wheat was treated at the same rate and same time of application. It was sown immediately after harrowing in the wheat. The result on spring wheat was "worse than useless." He gives as a reason that the salt brought the ridges, on which it was sown, forward of the rest, so that the midge ate every bit of it, and concludes with the advice to "experiment with caution."

Field Peas.—Peas will be extensively grown this year, in view of the demand for the article from the States, and the prospect that pork will command a price at which it will pay to fatten hogs. In answer to enquiries as to what variety is best to sow, we can hardly tell; so much depends on circumstances and seasons, that it becomes difficult to recommend one variety over another. Among the newer varieties of field peas lately introduced, the "Crown Pea" holds a high rank for quality and productiveness. The "Golden Vine" is a good variety for rather light soils. For a later ripening variety the "Black-eyed Marrowfat" is growing into favour. The Crown Pea has been extensively grown of late years in the county of Oxford, and a farmer near Ingersoll writes that "they are larger than the common pea, command a higher price, and will yield a third more. They are especially suited to rich strong soils, as they do not run to straw and lie down. They can be cut like hay. I cut mine with a mowing machine. The straw is much liked by stock, and they ripen earlier than most other kinds. I have grown them for the last four or five years, sowing at the rate of three bushels of seed per acre." The price of seed of the Crown Pea is $1 per bushel, delivered at Ingersoll station. Bags or barrels 30c. to 40c. each extra.

Beaver Meadows.—A correspondent, G. W. P., at Bathurst, desires information as to how to treat a beaver meadow that has been cut for forty years, and is now run out. Although we have seen many of these alluvial deposits, and had one on a farm of our own, we cut the natural grass without attempting to improve it. If any of our readers have had experience in breaking up and seeding a beaver meadow with cultivated grasses, we should be glad of the information as to how it can best be done. We think if the soil was dry enough—and if it is not, it might be made so by proper drainage—the natural grass could be turned under with the plough, and the land sown with oats, on which timothy and Kentucky blue grass might be seeded down. If the meadow is wet and mucky, and cannot be drained to advantage, it would be throwing away labour to try to grow cultivated grasses on it; the value of the muck upon it to use in manufacturing manure by composting in the barnyard, stables, &c., would be its chief advantage. Probably filling up the break in the old beaver dam, and thus flooding the meadow for a year or two, would kill out the grass in it, and when the water was let off after the operation, a new and strong growth of blue joint grass (*Calamagrostis Canadensis,*) which is one of our best and most common wet meadow grasses, would take possession of the soil as soon as it became tolerably dry on the surface.

Wood Ashes as a Fertilizer.—This is one of the most valuable fertilizers within the reach of the farmer. The unleached article has the more potash, but the leached is thought to be quite as valuable. In leaching they shrink a good deal, and lime is usually added, which increases their value. They are generally sold, too, at a less price. Ashes are well suited to all farm crops, and are very beneficial in the fruityard and orchard. Most farmers sell wood in the cities and villages, and rather than go home empty they should carry back ashes and other fertilizers, to replace the potash, lime and phosphoric acid that have been carried off in the crops and animals sold. Ashes show immediate effects from their application, and at the same time last long in the soil. They are very highly appreciated in the onion growing districts, but may be applied with equal advantage to ordinary farm crops. They should be kept as near the surface as possible, spread and harrowed into the seed bed or applied directly to the growing crops. Make a business of saving, buying and storing ashes during the winter for the next season's operations. *American Agriculturist.*

Rural Architecture.

Roofing Materials for the Farm.

NO. 2.

In a previous article under this head we gave some account of Tiles as a permanent roof covering. We now proceed to mention matters of a more temporary nature.

The Celt, in his native place (where, from some reason or another, which it is not the province of this journal to discuss, he seems obliged to resort to all sorts of shifts), is one of the most primitive of roof builders. Rough poles must, of course, be had for rafters, and these are joined without much symmetry; various matters, such as brush, sticks, and other things of temporary growth, form the material to cross the rafters, the whole being covered with turf sods, which in the moist climate grow more or less together, and form a rude means, though not always effectual, of turning off the water. So far does growth proceed in this way, that Walter Scott, in some of his works, points out the roof of the cabin of this construction as giving promise of better pasture than a great deal of the surrounding land. Turf and sods, however, as a class of covering, will, we think and hope, never become a national material in Canada.

The first covering to our settlers' houses is, nevertheless, very little better, and certainly not more lasting, being often formed of basswood troughs, split out of small trees, the round side remaining in its natural state, the flat or split side slightly hollowed with the axe, so as to form a continuous channel for the water. These are made of a length equal to the entire breadth of the building they are intended to cover. They are ranged side by side, the round side down, until the surface is covered. Other logs, similarly split and hollowed out, are prepared, and are made to cover the interstices of the bottom troughs. The vacant spaces are stuffed with moss to keep out the wind. The upper or reversed troughs conduct the water to the under ones, and they carry it free of the building. The troughs form rafter and covering in one, and for the time are a most serviceable roof. Being such as the settler himself can make, there is no outlay, and they do not require a single nail in the whole roof. These troughs are, for shanties, or buildings with only one slope to the roof, very popular in the bush, and are constantly used on the first settlement of new land; but they are not lasting, and seldom remain water-tight for more than five or six years, if so long.

The next Canadian materials are sheets of elm bark; but these are also perishable, and have the double disadvantage of requiring a roof frame to support them. Such as they are, however, they are extensively used in all very new settlements.

Shingles invariably follow in the wake of these expedients; but shingles require lumber or boards on which to lay them, and nails with which to fasten them, all which are serious considerations. The getting of shingles, then, is a question which involves a good deal of thought as well as of exertion.

There is one kind of shingles, called clapboards, which are free from these objections. They are made of oak, and split into lengths far greater than ordinary shingles. They are then laid side by side, lapping one another and breaking joint, and held in their places by a framework placed across them, loaded in some cases with stones of sufficient weight to keep them all in their places; but these may be considered rather a variety than a different species of the shingle roof.

Good pine shingles, well chosen, split thick, and carefully laid on, have been known to last forty years. Twenty years, however, is the general extreme duration of this roof: they wash away, rather than either rot or decay.

The great English, and indeed European succedaneum for the other kind of roof coverings is "thatch," and it is difficult to find a farm homestead in England, Scotland, or Ireland, without a specimen of this covering. In Canada, however, we must greatly improve in our agriculture before we can adopt the usual thatch of wheaten straw as an ordinary cover for buildings. Straw thatch denotes a superabundance of the article of straw: and here, unfortunately, we have universally a deficiency of that substance. Still, under most circumstances, it is cheaper than other materials. Thatch is made of every kind of coarse fibrous substance, and its equivalents---rushes, heath or heather, reeds, brush of all kinds when fine enough, broom, and even furze---are all used for the purpose, according to the plenty in which they are found, and the absence of other material. Indeed, in one part of England, where they grow a great deal of brushwood, and manufacture it into hoops for the West India and other tropical trades, to band sugar barrels with, the hoop shavings and splinters are fastened on the roofs of the labourers' cottages, and make a very tight and lasting, but extremely *bizarre* and ungraceful covering. They are put on to the thickness of at least fourteen to eighteen inches, and as they can neither be smoothed, nor trimmed at the eaves, they look as if the cottages were surmounted by coarse heads of hair, in most extraordinary confusion, and quite disproportioned to the houses.

There is no kind of common "stalky" substance that is not in some way or other used for thatch in Britain, but the chief article, as we said before, is wheat straw. This is used "threshed," for ordinary purposes, and unthreshed for the covering of dwelling houses, ornamental cottages, and other purposes of a superior nature. Unthreshed straw has the heads or ears of the grain cut off, and is then bound in bundles for the thatcher. Threshed straw is drawn by the hand from the heap or straw stack, then roughly sorted into untied portions or parcels called called "hands," roughly combed out with a rake, and piled up "athwart and across," in heaps, well wetted to make it lie close, and finally weighted by placing heavy substances on the top. Here it remains for a few days for the thatcher, and is finally laid on the building without other preparation. The actual method of thatching would take too long to describe in this place, though we may do so in a future article.

Thatching is of two kinds, "over-sparred" and "under-sparred;" the over-sparred takes the least straw, and is used for ricks and other temporary purposes. It is also used in repairing other thatch. Under-sparred thatch is used for permanent roofs.

The chief objection to thatch in Canada will always be, danger from fire. It is, where there are many sparks or chimneys, and where all use fires so extensively as we use them here, a very dangerous roof. It is, however, very warm and effective.

In some places in England, where building materials are dear and straw is cheap, the walls bear a most ridiculous proportion to the roof. Barns are often seen with a dwarf wall of from four to six feet high, and then a monstrous roof, reaching, perhaps, from twenty to thirty feet high, and with a great span. The celebrated "Tithing Barns," near Goodwood Park, South Hants, England, are of this nature, and similar buildings are often seen.

The same preponderance of roof over wall is also seen to a great extent in the low countries of Europe, such as Holland. The roofs are of tiles (of course supported by timber), and are often six times the height of the walls.

Slates are the next principal roofing material, but they will for many years be too dear for farm buildings. There is no doubt that slates form one of the best roofs in the world, and as we are yearly making new discoveries in the geological formation of Canada, slates may yet become a most important aid to the farmer.

Tiles, however, are likely to form the farmer's mainstay. Draining tiles we must have; and where they make drain tiles they can make roofing tiles with a mere change of mould, and either can be burned in a kiln of very simple construction or with bricks, as before described.

In England, many buildings are "tile-hung," that is, walls of inferior materials are covered with tiles to keep off the weather, like our clap boards, or shaped and formed like bricks, when the buildings can hardly be distinguished from the latter material.

VECTIS.

We are not certain that for this climate tiles may not be found more serviceable than even slates, which are very apt to split by the action of our severe frosts.

Veterinary Department.

Injuries of the Horse's Mouth.

Injuries to the horse's mouth are of frequent occurrence, and often prove very troublesome and annoying. In aged horses the teeth are unevenly worn, and become very sharp and projecting, thus injuring the cheeks and gums, and interfering with the process of mastication. The tongue is frequently injured from the bit in hard-pulling horses, and in some cases it is nearly cut in two. The fold of mucous membrane (*frenum linguæ*) which attaches the lower part of the tongue to the floor of the mouth, is occasionally injured by the tongue being violently pulled to one side in the administering of medicines, by careless people; and foreign substances now and again become lodged in the muscular substance of the tongue, towards the base. We recollect a case where a small needle had penetrated the tongue and become embedded there, giving rise to excessive swelling and irritation. The symptoms produced by these injuries are increased discharge of saliva, difficulty in masticating the food, and in severe cases the horse will altogether refuse his food. This is especially the case when either the *frenum linguæ* or the root of the tongue is the seat of injury. The tongue is occasionally swollen and protruding from the mouth, and the secretion has an offensive odour. When the irritation is the result of sharp and projecting teeth, the first symptom often noticed is the horse cudding his hay, which will accumulate between the grinders and the cheeks, in some instances to such an extent that it is necessary to remove it by the hand. As a consequence of this impaired mastication, and also an increased discharge of saliva from the mouth, the horse soon falls off in condition.

When these symptoms are presented, the mouth should be carefully examined, and in order to do so properly it is necessary to use the balling iron. When the ailment is the result of uneven wearing of the teeth, the remedy consists in the free use of the tooth rasp. If any irritant is lodged in the tongue, it should be removed, and the mouth should be gargled several times a day with tepid water, and a solution of alum, about one drachm to the pint of water. The horse should be fed on bran mashes for a few days, until the healing process sets in.

Occasionally the mouth is affected with an eruptive disease, called Aphtha or Thrush, which attacks the lips, the cheeks and gums. This disorder generally results from impaired digestion, or a debilitated state of the system, and is frequently brought on by eating hay or oats of an inferior quality. There is swelling of the mucous membrane lining the cavity of the mouth, and turning out of the lips. In a day or two after the first appearance of the swelling, small red spots appear, which finally become filled with pus, and turn to a yellowish tinge, then burst and discharge matter. This irritation of the mouth gives rise to an increased discharge of saliva, and the horse refuses his food.

In the treatment of aphtha a change of food is desirable, and a mild dose of laxative medicine may be given, as two or three drachms of aloes with one drachm of ginger. The mouth should also be gargled once a day with alum water, and the general comfort of the patient well attended to.

Diseases of the Digestive Organs of the Horse.

The pharynx is sometimes the seat of inflammation, in connection with sore throat or inflammation of the larynx, and it is occasionally injured by the careless administration of medicines. Some people are in the habit of giving balls to horses by means of a sharp pointed stick, and not unfrequently the pharynx is punctured, an accident which is speedily followed by acute inflammatory action, and often terminates fatally. The symptoms of this injury are alarming and well marked. The horse is quite unable to swallow either food or water, he suffers great pain, and is very much fevered, the pulse running high: the disease extends to the respiratory tract, and the breathing becomes distressing and laborious. There is also slight swelling externally, and the parts are very tender when pressed. The treatment should be such as to allay the fever and irritation, and this is best done by applying fomentations of hot water externally, which should be applied for hours to afford relief. Demulcents may also be given, and the throat and mouth gargled with a gargle composed of water eight ounces, laudanum half an ounce. The tincture of aconite should be given in doses of ten drops every three or four hours, according to the severity of the attack. We cannot too strongly condemn the practice of giving balls in the manner described, as many valuable horses have been destroyed by that means. Not long ago, one of the finest horses in the United States received injuries in the administering of medicines that proved fatal in the course of a few days.

The œsophagus or gullet is liable to become obstructed, which gives rise to choking. This occurrence is not quite so common in horses as it is in cattle. The obstruction may consist of a piece of carrot, turnip, or an apple, or it may be produced by chopped hay or straw, or by giving too hard balls. Choking may occur in any part of the œsophagus, but the obstruction is oftener situated in the cervical than in the thoracic portion. The symptoms of choking, in most instances, are very alarming. There is active suffocation, and if the animal tries to drink, the water is returned partly through the nostrils: there is spasmodic action of the muscles of the larynx and also of the muscles of the neck, and a discharge of saliva from the mouth, which is greatest when the obstruction is situated in the cervical portion.

In the treatment of choking, endeavours must be made to remove the obstruction: and in some cases, by giving small quantities of oil in gruel, the offending agent may become displaced. The bland fluid lubricates the part, and, in the endeavours to swallow, the foreign body will often slip down. Manipulation from the outside may also cause its dislodgement. In all cases, great care should be taken not to injure the pharynx. If these means fail, the probang must be used. In cattle the probang is easily passed, but in horses it is well to be very careful in passing it. If the probang is used incautiously, the walls of the œsophagus may be ruptured; and when such an accident occurs it invariably proves fatal.

Lice on Cattle.

In compliance with a request from a subscriber for further information on this subject, we once more bring it before the notice of our readers.

There are two species of lice which are said to affect cattle: First, the *Hæmatopinus Eurysternus*. This species is often met with about the head and neck, and, according to Denny, the young ones are more agile than the old. The second species is the *Hæmatopinus ani et cubræ*, which are found principally on the thighs and under the tail.

Lice appear to be generally in greatest numbers on animals that are in poor and filthy condition; therefor, to remove them, great attention should be paid to cleanliness. Many different remedies may be used which will effectually destroy these insects. A decoction of tobacco, about two drachms to a pint of water, may be used with advantage. Mercurial dressings are also beneficial, but must be used with caution, and only a small surface rubbed at one time. The following formula is also recommended as a safe and effectual remedy:

Stavesacre seeds, ½ oz.
White hellebore, ½ oz

To be boiled in a gallon of water until only two quarts remain, and applied with a brush to those parts where the lice are seen.

The following note on the subject, from a correspondent, also gives a good suggestion, and with the cautions he prescribes the remedy may be safely tried. Red precipitate is a mercurial preparation:—

"Should your prescription fail, I would recommend a trial of red precipitate well mixed in hogs' lard, a teaspoonful of the former to a pound of the latter, applied by dipping the finger lightly in the mixture, rubbing it on the shoulders and back in no more than five

or six places at a time. The animal requires to be kept warm during this course, which on that account may be preferable in the warmer seasons of the year. I have seen this course tried several times, and have never known it to fail short of the desired effect."

Veterinary Surgical Operation.

A London (Ontario) paper gives the following account of a remarkable accident and successful surgical treatment, which reflects much credit on the skill of the surgeon, Mr. J. H. Wilson, who last year passed a very successful examination, and received his diploma from the Toronto Veterinary College. Our contemporary says :—

"A remarkable case of veterinary surgery came under our notice a short time ago, resulting contrary to our expectations. The facts are as follows : A team belonging to W. R. Hodgins, of the 16th concession, London, got frightened at some object, and became entirely unmanageable. They ran furiously towards a barn, situated a short distance from where he was using them, and while running through the orchard, which is between the barn and the place of work, the near horse was thrown violently against a large apple tree, the concussion being so great as to fracture the right parietal bone, forcing the same downwards, and overlapping the frontal bone. On examination, it was found that the *dura mater* had been penetrated by particles of spicula, the *arachnoid* and *pia mater* (membranes covering the brain) escaping injury, and pieces of the wood and bark were extracted carefully by the surgeon, and the broken sections of the parietal bone were so adjusted as to cause little or no irritation of the brain. Great credit is due the veterinary surgeon, J. H. Wilson, of the village of St. John, who performed the operation, and saved the life of a valuable animal. This extraordinary operation ought to establish in the minds of the people of this Province the great use and necessity of proper education for those who profess the art of healing horses. Such an Institute is now in Toronto, providing the means, where the veterinary art is taught with great success."

GREASE IN HORSES.—A correspondent from Kelso, Quebec, wishes to learn what is a good remedy for this complaint in horses. Grease in an inveterate form is difficult to cure. In the treatment of all cases strict attention must be paid to cleanliness, and if the irritation is great, apply poultices of linseed meal for a few days, to which may be added a little yeast. The horse should undergo a course of medicine. A drachm of the iodide of potassium may be given once a day, until twelve doses are given. Any mild astringent applied externally will also be beneficial in hastening on the healing process. As we have before mentioned, in all bad cases it is well to call in the services of a qualified veterinary surgeon.

Apiary.

Impregnation of Queens—A Wonderful Discovery.

Intelligent bee-keepers have long understood that the queen bee is impregnated on the wing, that about the fifth day after she is hatched she takes her bridal tour to meet the drones in the air. And however desirable it may have been to control this matter, as we do that of cattle, this fact seemed to preclude all possibility of its ever being done. But since the introduction of Italian bees the minds of bee-keepers have been turned in that direction, in order to discover, if possible, some method whereby the impregnation of the queen could be controlled—some plan that would enable the bee-keeper to cause the queen to be fertilized by such drones as he might select.

It was seen that the advantages arising from such a discovery would be great indeed. There would be no difficulty in keeping Italians pure. Large apiaries could be Italianized in one season from one queen. There would be no loss of queens by going out to meet the drones in the air, as is frequently the case now. For a long time, however, there appeared no probability of such a discovery. Many methods were suggested and tried, only to prove failures. Much to the surprise of many, therefore, it was stated in the *American Bee Journal*, No. 9, for March, 1868, that Mr. Kohler had announced in the *Bienenzeitung*, a German paper, that he had discovered a process to prevent Italian queens from having concourse with common drones, and securing their fertilization by Italian drones exclusively. But as Mr. Kohler was poor and had a large family to support, he was advised to keep the process a secret until assured of compensation for his discovery. It was soon arranged, and eminent bee-keepers were appointed both in Germany and England to receive subscriptions for the process, at 10s. 6d. each, sterling. Learning that Mr. Woodbury, a Devonshire bee-keeper, was one appointed to receive subscriptions, I immediately wrote to him, enclosing the amount required. About the same time, I received from Mr. Gray, of Ohio, an extensive queen breeder, a process which he assured me was the Kohler process, he having obtained it through a friend. I immediately forwarded the same to Mr. Woodbury, who wrote to me, saying it was the Kohler process, also returning me the money.

The process was as follows : The stock containing a young queen to be fertilized was to be placed early in the morning in a dark cellar, along with a stock containing the drones with which it was desirable the queen should mate. Late in the afternoon, when all the drones, or nearly all, had ceased to fly, the stocks were to be brought out and placed on their stands, giving each a teacupful of warm honey. Having been confined through the day, the warm honey would excite them, they would rush out of the hives for a fly, and the queen would be fertilized, Of course, the hive containing the young queen should have no drones in it, unless they are such as you wish the queen to mate with, in which case it would not be necessary to put in another hive containing drones

As soon, then, as it became known that Mr. Kohler had discovered a process, for which he was to receive a recompense, there appeared in the *Bienenzeitung*, and several other foreign periodicals, full accounts of methods practised by others for securing the same results, which being identical with the Kohler process. Mr. Woodbury and others appointed to receive subscriptions, refused to do so any longer, and returned the money they had already received.

This process, although far in advance of anything heretofore discovered, is not al that is to be desired. It requires the bees to be confined for a day in the very height of the honey harvest, and heavy stocks require time and labour to move them to and from a dark cellar or room. It also requires a large number of drones to ensure fertilization. The queens are still allowed to fly out to meet the drones, and may be lost. I have the pleasure, however, of informing my bee-keeping friends that a process has been discovered by an American lady, who keeps a large apiary, and is a regular contributor to the *American Bee Journal*. By this process all difficulties are removed, and the bee-keeper is enabled to secure the fertilization of a queen by one of four or five drones he may select for that purpose. Though it has cost me some expense and trouble to obtain this process at so early a date after its discovery, yet so soon as I am free from the bonds of secrecy that I am now under, I intend to publish the process for the benefit of my fellow bee-keepers. Though I have never tested it, having but lately obtained it, yet I have full confidence in the veracity of the lady who discovered it. She says that during last season she tested it many times, and not in one instance did the queen fail to become fertilized. I might here say that myself and brother talked over the same plan several times during last season, but through a pressure of business failed to try the experiment. So while we were thinking, our Yankee lady cousin made the discovery, a discovery which must revolutionize the whole system of bee-keeping.

Through the assistance of a friend, she is endeavouring to secure some compensation ; therefore I am not at liberty to disclose it. I think, however, she will fail in doing so, for to my certain knowledge, several bee-keepers in the United States are in possession of the secret. I shall, no doubt, be able to publish it in time for next season's operations.

J. H. THOMAS.

Brooklin, Ontario.

Stock Department.

Early Fatted Hogs.

To the Editor.

Sir.—As the time is about at hand for making arrangements for the coming generation of swine, I should like to call the attention of our farmers to some points :—

1st. We require a larger number.

2nd. We shall require them very early the coming season.

3rd. I would very strongly urge on farmers to have a good breed, and this I should think a matter of easy attainment, as in every township there is a good boar, Berkshire, Essex, or some improved breed, and it would pay a farmer ten times over to drive twenty miles and pay $2 for service.

4th. Castrate very early. It is ruinous to the quality when they are allowed to run till they are 5, 6 or 7 months old.

5th. Spay the sows not intended for breeding, for they will fatten twice as quickly.

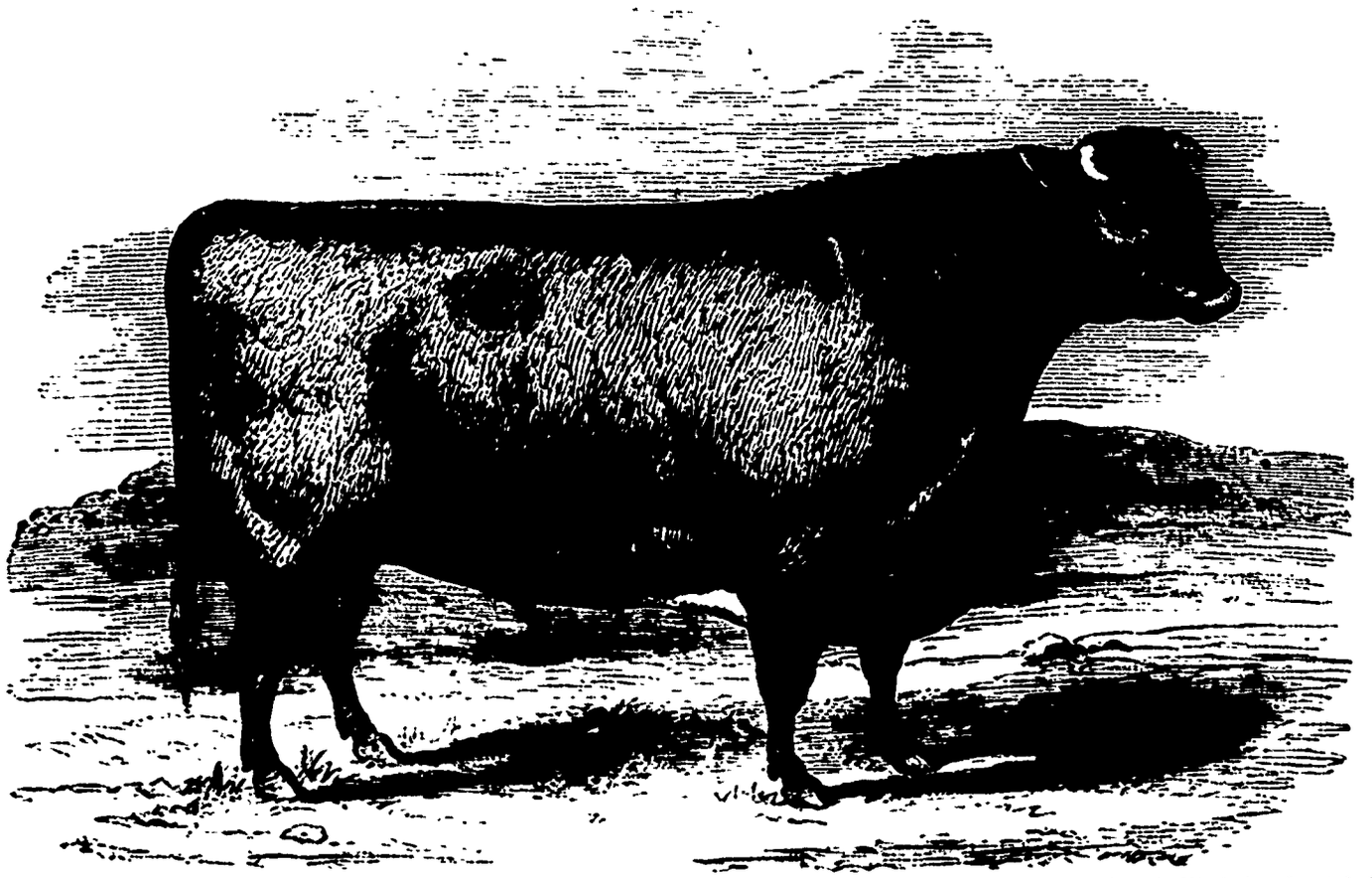
6th. Be sure not to let them run in the woods; it is ruinous to the meat, and it cannot be profitable to the farmer. I would particularly recommend farmers to grind the food for hogs; they do so much better on it than on whole peas.

Attention to the above will be the means of raising the standard of Canadian pork in the English market. We often hear the remark that it does not pay to fat hogs, and in many cases this is true. It does not pay to have a hog running round for two years and only weigh 200 when killed, but it does pay to keep good pigs and have them weigh 200 lbs at six months old. The Berkshire are a capital breed; they are healthy and hardy, and are fit for killing at six months old; and if a great weight is desired they will carry it.

Most of the heavy hogs are not only heavy but coarse, the shoulders and hams of which are so heavy as to be almost unsaleable. If there never was a hog over 300 lbs, it would be a good thing. A Berkshire pig of that weight, thoroughly fat, makes as good mess pork as can be desired.

W. DAVIES.

Toronto Packing House,
Jan. 11, 18[illegible].



Short-horn Bull "Minister."

In the January number of the Canada Farmer we gave a portrait of "Sweepstakes," a very successful prize bull belonging to Mr. J. H. Pickerell, of Harristown, Illinois, who lately visited this Province, and made extensive purchases from the best herds in the country. Mr. Pickerell was accompanied in his tour by another enterprising American breeder, Mr. W. R. Duncan, of Towanda Meadows, Illinois, who has now, partly by judicious purchases, and partly by careful breeding, collected an excellent herd of short-horn cattle. The annexed illustration is a portrait of the fine bull "Minister," at the head of this herd. His colour is red. He was bred by R. A. Alexander, of Kentucky. Since he came into Mr. Duncan's possession, he has been the winner of [illegible] and State fairs of prizes amounting, in the aggregate, to upwards of $1,500. His calves have also repeatedly gained distinction in the show-ring.

My Experience in Fatting Berkshires on Pea Soup.

Last year I put up five small-breed Berkshires to fat. They were about a year old, and had not been kept well, as we had but little feed. After the stubbles were picked clean, I determined to try pea-soup to fatten them. At that time they were in fair order, though rather small for their age. I dug a hole in a cradle knoll, and placed a potash kettle over it, with just sufficient room to light a fire under it. I filled it about half full of water, and fired up. The water was soon warm, and I went to the barn for some peas, after putting in what I had in the bag, and on my return was rather alarmed at the [illegible] I witnessed. There were no less than five pigs in the kettle, wedged by the peas in the bottom, and as the water was rapidly getting warmer each moment, the place was evidently literally getting too hot to hold them. The sloping bottom prevented their jumping out, and had the water been hot, all would have been scalded. With some difficulty I pulled them out one after another, and great wiggling of tails was the result. They were not much hurt, but I lost no time in fixing a strong cover to the kettle, as I did not think it advisable to scald pigs before killing them. From this time forward I boiled the peas every day and my Berkshires throve amaz-

ingly. After eating just five bushels of peas each, they were killed, and made 1,275 lbs. of as fine pork as I ever saw. The value of the pigs, before fattening, was estimated at $6 each, and that amount was offered for them for the American market, then very good. The peas were worth 60c a bushel.

The account would stand thus:

5 Berkshire hogs, at $1	$30
25 bushels peas, at 60c.....	15
	—$45 00

Cr.

By 1,275 lbs. of pork at 6 cts. per lb. $76 50

Showing a profit of $31 50, or about $6 25 each. The common idea is that to feed pigs on peas does not pay, as the pigs and peas are worth more than the pork: but my case was different. It certainly paid to raise pigs at $6 each when put up to feed, and it certainly paid to fat them on pea-soup, at a profit of $6 25 each.

C.

From some carefully collected and very extensive notes made by Lord Spencer on the period of gestation of 764 cows, it resulted that the shortest period of gestation when a live calf was produced was 220 days, and the longest 315 days; but he was not able to rear any calf produced at an earlier period than 242 days. From the result of his experiments it appears that 314 cows calved before the 284th day, and 310 calved after the 285th, so that the probable period of gestation ought to be considered 284 or 285 days.

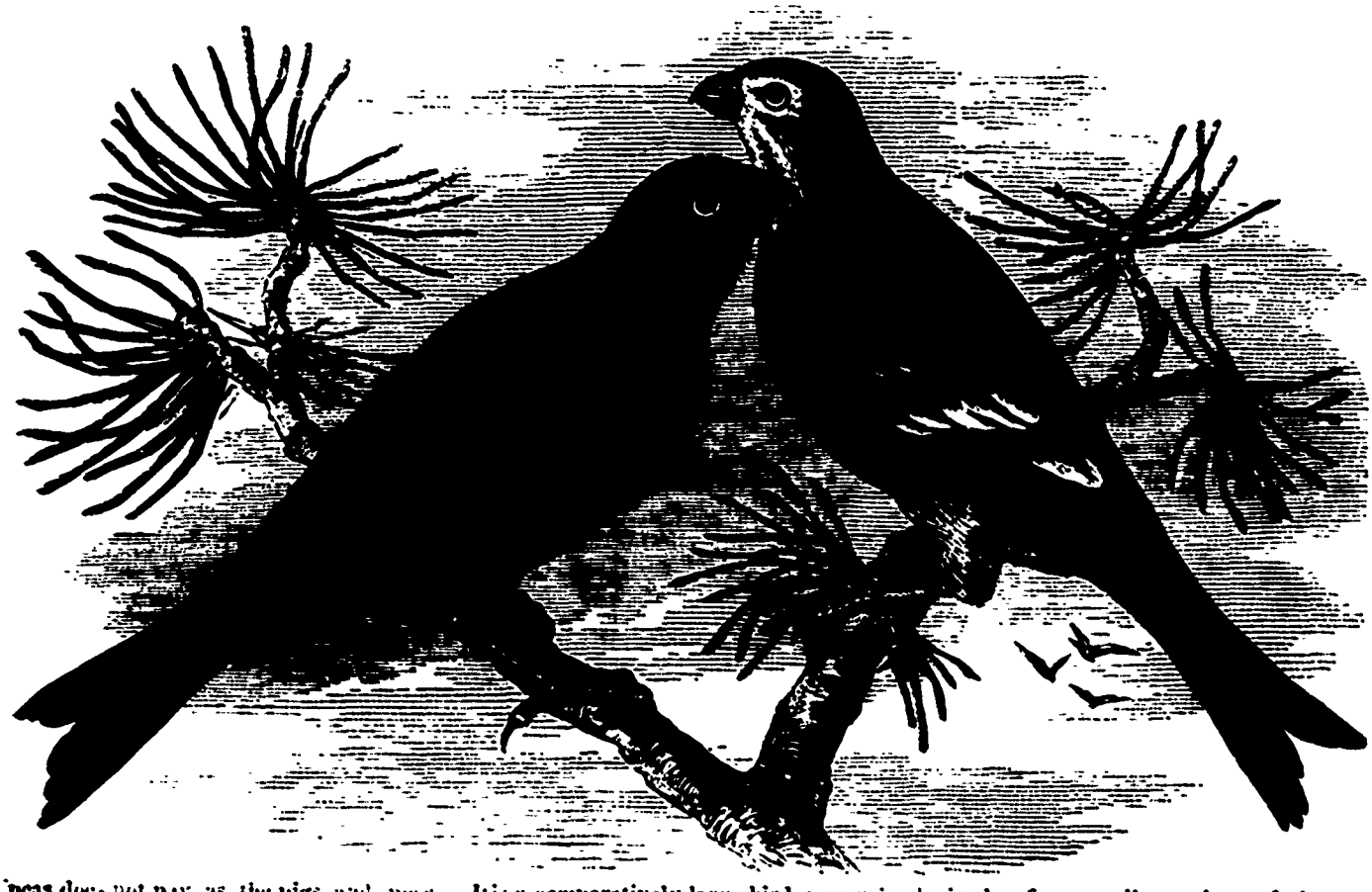
Natural History.

The Pine Grosbeak.

(*Strobilophaga enucleator.*)

During the present winter we have been favoured by a visitor from the north, the Pine Grosbeak.

This hand-some bird has been seen in several parts of the Province in considerable numbers, and has contributed not a little to enliven our woods. Its home in the summer is in the northern parts of our own continent and those of Europe and Asia. It generally visits Canada and some of the northern United States in the winter, and returns in the spring, passing Hudson's Bay in May.



It is a comparatively large bird, measuring about nine inches in length, and its plumage is unusually gay for the regions which it inhabits, the head, neck, and breast being of a rich crimson hue. The feathers of the back are black, edged with crimson. The female is somewhat smaller in size, and of much more sombre plumage, the prevailing colour being slate or grey, with a greenish yellow tinge in part taking the place of the crimson markings of the male. The young males very much resemble the females, so much so, indeed, as not to be easily distinguished, except on close examination, when they will be seen to be a little larger, and to have rather more and a somewhat brighter tint of the greenish yellow colour, especially along the back.

The male and female birds are represented in the accompanying illustration. The absence of colour in the engravnig makes the difference less conspicuous than in nature.

These birds live in pine forests, feeding on buds of various kinds, and on the seeds of the fir cones. Their note is sweet and clear, and Wilson, who had one for some time in captivity, says that it would sing for a whole morning, and imitated several of the notes of a Red-bird which hung near it. He describes it as being exceedingly tame, and states that it would ask for food or water with a continuous, melancholy, anxious cry.

Another bird, much smaller in size, but with plumage remarkably like that of the Grosbeak, has been frequently seen in Canada during the past mild winter. The similarity is so close that they have been commonly mistaken for a smaller variety of the same bird, whereas they are quite distinct, and belong to a different genus. This smaller bird is the White-winged Crossbill (*Loxia leucoptera*), and it can at once be distinguished by its very peculiar bill, which looks almost as if it were a deformity, the two mandibles crossing each other near the tip. This peculiarity, which gives the name to the species, is no *lusus naturæ*, however, or freak of nature, but a wise provision to enable the bird to extract more readily the seeds of fir cones, &c., from the situations in which they are embedded.

The White-winged Crossbill is a much rarer bird with us than the Grosbeak, yet both have been frequently seen together in flocks of various sizes during the present winter, in several parts of the Province.

Utility of Snowbirds.

To the Editor.

Sir,—Observing a few days ago a number of snowbirds perched on my apple-trees, seemingly very industriously employed, I felt curious to know what they were about. Taking care not to disturb them, I took a spy-glass, and saw they were busy pecking at the stems of the branches, but not touching the buds. I concluded they were picking off the lice, which, owing to the warm summer, seemed to have greatly multiplied.

After they left, I examined the trees, and found they had cleared them in good style, choosing the worst for their operations. The branches presented a white, speckled appearance after the operation, on the spots where the lice had adhered.

The surface of the snow being very crusty, and smooth, the shells lay thickly upon it, giving it the appearance of being thickly dusted with coarse pepper. Out of a few dozen of these shells picked from the surface of the snow, I could not with a microscope observe an egg in one.

This trait in the character of these birds not being generally known, I thought it might be interesting to some of your fruit-growing subscribers.

I have also observed what I call small flocks of canaries all through the winter. Their note is exactly the same, although they are darker in plumage than in summer. Perhaps some of your corresponding ornithologists may have observed the same, and will enlighten us on the subject, as I think it very uncommon. J. McL.

Owen Sound, February, 1869.

Note by Editor.—We have long been of opinion that the Snow-birds (*Fringilla hyemalis*), as well as other members of the Finch family, are eminently insectivorous, and hence useful to the agriculturist. They may, and probably do, often pick up a useful insect such as a Lady-bird, a Syrphus fly larva or a Spider, but still, with all due deference to Mr. Walsh, we believe they do more good than harm. In the case referred to by our correspondent, they appear to have made a severe raid upon the eggs of the apple-tree Bark-louse (*Aspidiotus conchiformis*), which are covered by a shell-like scale, the secretion of the female insect. They would probably devour also the eggs of the Apple Plant Louse (*Aphis mali*), which are laid in the interstices of the bark, and any other insect which chanced to be up and about on the occasional mild days of winter.

The canaries referred to are, as our correspondent supposes, the same birds as we have with us in summer, but in very different plumage. Few who see these dingy little birds about their gardens and orchards in winter fancy that they are the same as the gay yellow and black goldfinches, or wild canaries, of summer. Yet such is the case, as ornithologists well know. They, too, are useful birds, devouring the seeds of thistles and other weeds, and multitudes of plant lice and other minute insects.

Poultry Yard.

The Use of Poultry Shows.

To the Editor.

Sir,—The Ontario Poultry Society are trying to come to the front once more with their fourth exhibition, and their efforts have been most liberally aided by donations from several firms in this city, and there is every reason to expect that Hamilton and London will also contribute towards the prize list. But whilst soliciting contributions for this purpose, we are met with various objections (I use the pronoun "we," not that I have the least personal interest in the proposed exhibition, but that simply I wish a good beginning successfully carried out.) These objections are made, in some cases, even by those who themselves keep poultry. One says:—"I only keep common birds, and do not believe in your fancy articles." Now, the Society's aim is not to encourage poultry as a fancy merely, although in many instances such will be the result, but to foster a branch of stock-keeping that might prove a lasting, solid advantage to the country. What I am writing is a thrice-told tale, has been already written by myself and others, and I am afraid will yet have to be reiterated. People who keep fowls might, at least, as well have good saleable articles as mongrel rubbish, at the same cost.

Again, another will say, "what is the use of your points? Why is a Spanish bird with less comb not as good as another? Why should Aylesbury ducks be rejected because their bills have tinges of yellow and black spots? Why withhold a prize from Dorkings which have not five toes?"

There is an excellent reply to this sort of reasoning in the *Journal of Horticulture*, March 3, 1863, which I shall quote in my aid:—

"It has been necessary to lay down certain rules, which have been admitted for some years. The great end they answer is to form well defined marks, which may guide the enquirer and beginner. The use of poultry shows has been to publish the merits and properties of divers breeds, and to point out those that are fitted for certain soils and certain markets. The characteristics of a breed being pointed out, a purchaser cannot be easily deceived as to whether it will suit him or not. He will not buy a Dorking without five toes; but if he were to be told that Dorkings with four are as good as those with five claws, he has nothing to guide or protect him. He is at the mercy of any one whose fowls he sees for sale. Or take the Aylesbury duck. If the buyer is told the bird must have a pale bill, he will not buy one lacking that mark. If any bill will do, every white duck, to the uninitiated, becomes an Aylesbury. These are but two instances; many more could be given."

Has any good quality been given up to attain the standard of excellence as regards points? Have Dorkings lost size or constitution? Have ducks diminished in weight or lost appearance? Dorkings have gained much in size, and in weight over two pounds each, while Aylesbury ducks, whose average weight two years since might be three to four pounds, now generally weigh four to eight pounds.

Again, take Pencilled Hamburghs. Roup was thought to be their natural state. People avoided the breed. There was no inducement to take pains with them, till competition and the requirements of exhibitions supplied the spur, since which time they have been shown in perfect colour, shape and markings, and strong enough to bear any trial in the way of climate. These are facts that speak for themselves.

Before I conclude, I should like to try and persuade those that now keep fowls not good enough, as they say, for exhibition, but an inferior lot, to try some recognized breed suited to their taste and means. They will cost no more to feed than the mongrels, and will be infinitely more remunerative in the sale of eggs; or by sending to exhibitions two or three picked from the lot, a price can be obtained which will pay for the consumption of food by all the others.

I have kept, myself, fowls to some extent for home consumption. They cost something to feed. I cannot say if they paid or not; but on getting a pure breed, and picking out a few and exhibiting them, I was paid more than the keep of all the rest, and had eggs and poultry on table gratis, or next to it.

I trust these facts will convince sceptics, induce the support of poultry exhibitions and improvement of the breed, and lead to the abandonment of that heterogeneous mixture of sorts that results in a mongrel race of fowls, and keeps our markets badly supplied with the wretched specimens we are constantly meeting with.

If a thing is worth doing, it is worth doing well, as my grandmother used to tell me. Every man that keeps poultry should keep good birds, and every grain and feed dealer should do his best as well to support the exhibitions of poultry; and need I say, the farmer and his family, as sellers of grain and eggs, should do likewise.

F. C. HASSARD.

Ontario Poultry Association.

The Ontario Poultry Association will hold their fourth exhibition of poultry and pigeons in the Agricultural Hall, Toronto, on Wednesday and Thursday, April 21st and 22nd. It was a disappointment to many poultry fanciers that no exhibition was held by this Society last fall, but it is confidently expected that the ensuing spring show will outrival any of its predecessors. The number of persons who take an interest in poultry is increasing in this country, very marked improvement is manifest in the various breeds of fowls, and a number of fresh importations from Europe have been made since the last

exhibition. Many friends of the Association have shown a laudable liberality in contributing to the prize funds, and the Society have every reason to expect a successful show in April, an expectation which we cordially hope will be fully realized.

Persons intending to exhibit can obtain full instructions concerning the rules of competition by applying to the secretary, Mr. T. McLean, Box 25, P. O., Toronto.

For the information of those who have birds to exhibit, or who wish to become purchasers as well as to furnish a useful guide to Agricultural Societies, we give below the Prize list, omitting the repetition of the amounts which, in the class of poultry, are $1 for the first, and $2 for the second prize, and in pigeons, $2 and $1 respectively

PRIZE LIST.

POULTRY.

BIRDS TO BE SHOWN IN PAIRS.

CLASS 1—*Cochin China.* Buff or Cinnamon.
CLASS 2—*Cochin China.* White or any other colour.
CLASS 3—*Brahma Pootra.* Dark.
CLASS 4—*Brahma Pootra.* Light.
CLASS 5—*Dorking.* Coloured
CLASS 6—*Dorking.* White
CLASS 7—*Spanish.*
CLASS 8—*Game.* Black-breasted and other Reds
CLASS 9—*Game.* Duck-wing, Greys and Blues.
CLASS 10—*Game* White, Pile and any other variety.
(Prizes given by A. McLean Howard, Esq.)
CLASS 11—*Hamburg.* Gold or Silver Pencilled.
CLASS 12—*Hamburg.* Gold or Silver Spangled.
CLASS 13—*Polish.* Gold or Silver.
CLASS 14—*Polish.* Any other variety.
CLASS 15—Houdan, Crevecœur, La Fleche, and other French fowl—any age.
CLASS 16—*Bantams.* Gold or Silver Lace.
CLASS 17—*Bantams.* Game and any other variety.
(1st prize given by Wm. T. Goldsmith, Esq., St. Catharines).
CLASS 18—*Turkeys.* Any variety.
CLASS 19—*Ducks.* Aylesbury.
CLASS 20—*Ducks,* Rouen.
CLASS 21—*Ducks.* Any other variety.
CLASS 22—*Geese.* White.
CLASS 23—*Geese.* Coloured.
CLASS 24—Any other variety of fowl not mentioned in above classes—any age.

PIGEONS.

BIRDS OF ANY AGE, TO BE SHOWN IN PAIRS, EXCEPT CARRIERS AND POUTERS.

CLASS 25—*Carriers.* Cocks. Any colour. (One prize.)
CLASS 26—*Carriers.* Hens. Any colour. (One prize.)
CLASS 27—*Pouters.* Cocks. Any colour. (One prize.)
CLASS 28—*Pouters.* Hens. Any colour. (One prize.)
CLASS 29—*Tumblers.* Any variety
CLASS 30—*Jacobins or Frills.* Any colour.
CLASS 31—*Fantails.* Any colour
CLASS 32—*Barbs.* Any colour.
CLASS 33—*Turbits.* Any colour.
CLASS 34—*Trumpeters.* Any colour.
CLASS 35 Any other variety of pigeon not mentioned in the foregoing classes

The Judgment of Poultry.

To the Editor.

SIR,—Your correspondent, F. C. H., has written a letter upon this subject which will be read with interest, and thorough approval by every poultry amateur of the right sort F. C. H., may congratulate himself upon not having sent any of his Cochins to the last Provincial Exhibition in Montreal. They would not have been noticed by the judges, or if they had, they would have been awarded the prize for Jersey Blues, pehaps, as no animals of that species were shown, though under the special patronage of those who made out the prize list.

I was myself awarded a prize for Cochins, for a pair of dark Brahmas, at the last Exhibiton, and to judge from appearances, no pains are likely to be taken to prevent the recurrence of such mistakes, or "jokes," as they were termed. Henceforth dark Brahmas are to be Cochins, and Cochins no fowl at all; Jersey Blues to remain as they are until further orders.

At the Exhibition referred to, the rights of exhibitors were ignored in the most arbitrary manner by the appointment of judges, who in fact acknowledged that they did not know one variety from another, and who awarded prizes for birds that were not exhibited.

Nor were exhibitors in other classes treated with more consideration. I sent my Alderneys, fresh from their triumphs at home, yet, although they had been entered weeks previous to the Exhibition, when taken to the grounds, there was no place for them save a muddy shed which had been used as a place for washing cattle, without divisions or anything to which the cattle could be tied. No notice whatever was taken of the animals by the judges, but when it was seen that the Alderneys formed an attractive feature in the Exhibition, a tardy and graceless recognition of their merit came from the Board of Agriculture of Lower Canada. In the course of two or three days, a card with honourable mention printed upon it, was stuck up behind their tails, and I was also notified that a silver medal had been awarded, a medal which I have not received, although five months have elapsed since the Exhibition. My experience, and that of other exhibitors, showed that the managers of the last Exhibiton passed over without remark many abuses and acts of injustice.

S. SHELDON STEPHENS.

Montreal, Feb. 4, 1869.

Diseases of Poultry—Swollen Feet.

To the Editor.

SIR,—I am well acquainted with the disease mentioned by your correspondent in the CANADA FARMER of February 15th. I have not found it permanently to injure the birds. Beyond a slight lameness, they have not suffered by it. The hard swelling at the root of the toes becomes chronic if left alone, and the fowl assumes its usual paces. Outward applications are useless, and, I should think, to operate on the foot would be injurious. I have a hen which is always in a state of swelled foot. When she is quite unable to walk or stand, I place food and water near her, lift her upon the perch at night, and in other ways nurse her. She ceases to lay for a few days, but begins again all the better, and runs and walks till another attack comes on. She is never without the enlargement. Bumble-foot is a totally different affair, and requires prompt treatment. Bread poultice in the first stages, till the ulceration is developed. Then open the foot and cut away all the wart-like substance, allowing it to bleed freely. Change the poultice every day, with warm bathing, and encourage the foot to bleed. If matter seems forming, open the wound anew. Do not leave off the poulticing until the foot is healed and healthy-looking. Keep the bird all this time on nice clean straw, and give good food, with a little sulphate of iron in the drinking water. If the disease is taken in time, and the poulticing well kept up, the cure is certain. Rheumatism and cramp, with inflammation of the heart and lungs, which almost always follows, is a most dangerous disease, and one which has hitherto baffled all my efforts to cure. Fowls contract this disease from walking in and drinking snow water. I have lost two valuable Brahma chickens and a hen from it. Now I have a Houdan pullet under treatment. If she recovers, after seven days without being able to stand or eat, it will be a wonderful case. The inflammation flew to her heart and lungs, and the toes and legs contracted.

CHANTICLEER.

Chicken Hatching and Feed.

(To the Editor.)

SIR—The remarks on the above subject in your journal will be of some service to many. I have practised the process of hatching chickens more or less for some years, but I generally put them under the hen, as I think they dry more naturally there than in an oven. I do not at all agree with the writer of the article that Brahmas and Cochins are bad mothers. I think quite the reverse, after an acquaintance of some twelve years with Cochins. If you will keep the eggs properly moistened, and also get them fresh, your artificial handling will not be required, There is another important point. I say never put more than eleven eggs under any hen. Nine is my number, and if the eggs are fertile, nine chicks will appear. You can not guarantee more out of thirteen; because if the nest is deep, when hatched they are all huddled together at the bottom, and some will be squashed; and if the nest is very shallow, you will find an egg showing at various periods of incubation. This is consequently chilled, and probably spoilt; and it is not always the same egg. Many are

thus lost. At an average you will get more out of nine eggs than thirteen.

The writer does not consider four or five a brood. Well, that depends on the time of year. Late or early in the season, I never wish to see more than four birds with any hen. They cannot cover more at four weeks old, and then they get lung disease and die. You must hatch early if you wish to do anything at chicken shows, and the cold will not hurt them if they have the mother to run under, and at the commencement of the year a hen cannot shelter properly more than four chicks. In May, June and July, it is different, as they then do not require so much care.

Notwithstanding these criticisms, I consider the communication a very valuable one to many, and trust that no one will expose their ignorance of an important subject by a laugh or sneer, as I can certify that many birds I have raised owed their existence to my having extricated them from the shell: but let the eggs be fresh, and wet them daily, and they will be out on the 21st day, before you are up.

F. C. HASSARD.

Houdans.—A subscriber wishes to know where he can obtain any Houdan fowls in Canada. We believe that Mr. Varley, of the 13th Hussars, now stationed in Toronto, has some imported birds of this variety yet to dispose of.

Eggs for Hatching.—We frequently have enquiries as to where eggs of a pure breed may be procured. We have pleasure in referring parties in quest of such articles to the advertisements of Mr. T. McLean, the Secretary of the Poultry Association, and of Mr. Acres, also a member of the same society.

Fowls exposed to dampness are apt to be troubled with catarrh, which will run to roup if not attended to. Red pepper mixed with soft feed, fed several times a week, will remove the cold. Pulverized charcoal, given occasionally, is a preventive of putrid affections, to which fowls are very subject.

Chickens hatched in the early spring, where properly protected and tended, are generally more vigorous and healthy, grow more rapidly through the summer months, and make larger fowls than those arriving in later portions of the breeding season. And, furthermore, pullets which come in the early spring are so well matured that they will commence laying in the ensuing fall and lay through the winter, if they are duly fed and protected.

Golden Pheasant.—Mr. Whitehead, of Bradford, enquires, "where he can procure a setting of "golden pheasant" eggs, also a setting of game of the blue kind. We are not quite sure whether our correspondent means golden pheasant fowls, golden pheasants, or gold spangled Hamburghs, which sometimes go by that name. If either of the former is meant, we are not aware that they could be procured in Canada. Hamburghs could no doubt be supplied by Mr. McLean Howard, of Toronto, who would also, probably, furnish the game fowls.

Entomology.

Ravages of a Grape Insect in New York.

That a man should desire to raise his own Isabellas is laudable and praiseworthy, and I see no reason why such desire should exist exclusively in the breasts of our bucolic friends. The inhabitants of New York, as a general thing, clearly, are of the same opinion, as is evidenced by the number of grape vines ornamenting the doors and trellis-work of the houses of our citizens: not, of course, in the benighted regions of Wall Street, but up town, say from 16th street northward. A friend of mine, residing in 31th Street, showed me, in March last, a very fine vine, which he calculated would produce him sundry pounds of very choice grapes: and in the pride of his heart, he invited me to "call along," occasionally, and feast my eyes on the gradual development of the incipient bunches. Thinking that August would be a good month for my visit, I "called along," wondering in my mind whether my friend would, when the time of ripe grapes came, desire me to help myself out of his abundance, or whether he intended to surprise me with a little basketful of nice bunches, garnished with crisp green leaves. The first glance at the grape-vine banished all doubts on this point. There was an abundance of bunches on the vine, in a rather miniature condition, of course, but of foliage there was not a trace. Of course, I expressed my surprise, though, for certain reasons, I felt none, and asked my friend why he selected a species of vine for shelter, ornament and use which produced no foliage. He rebuked my ignorance pretty sharply, and told me that a few weeks before the vine was covered with leaves; but, for some inexplicable reason, they had all disappeared—eaten, he guessed, by something. He guessed right. There were at least a hundred of the larvæ of *Alypia octomaculata* [a rare insect in Canada, Ed.] the rear-guard of a mighty host, wandering about the branches, apparently for the purpose of making sure that no particle of a leaf was left undevoured. Pretty little things they were, with harmoniously blended colours of black, yellow and blue; but so terribly destructive. I had the curiosity to walk through all the streets of the rest of Third Avenue, as low as 23rd Street, and every one was in the same predicament. If grape leaves, instead of fig leaves, had been in request for making aprons, and our Alypia had been in existence at the time, I doubt if in the whole of the garden of Eden enough material would have been found to make a garment of decent size. The destruction of the crop for 1868 was complete.

This was bad: but it was not half so bad as the helpless ignorance which possessed nearly all the unfortunate owners of vines. Scarcely one that I conversed with had the remotest idea of the cause of the disaster; and when I explained that it was the caterpillar of a beautiful little black moth, with eight whitish yellow spots on its wings, which had eaten up the foliage, my assertion was received with such a smile of incredulity as convinced me that there is no use in trying to humbug such very sharp fellows as are the New York grape-growers.

It is a little remarkable, however, that the destruction was confined to the eastern part of the city. I saw several luxuriant vines on the western side: and across the river at Hoboken, and Hudson City, not a trace of the insect was discernible.

The insect, then, is very local in its habits, and it is a day-flier; and from these facts, I infer that its ravages may be very materially checked. A little poisoned molasses, exposed in the neighbourhood of the vine, would operate on the perfect insect, while a good syringing with soft soap and water would bring down the caterpillars effectually. I should like some one to try these remedies; and if their gratitude for my good advice should be so exuberant as to require an outlet, why, I have no objection to receiving a few bunches of their first ripe grapes, if such a step would afford them any relief.—*W. V. Andrews, in the American Naturalist.*

Ravages of the Midge in 1868.

The following is the official account of the ravages of the wheat-midge in this Province during the past year, compiled from the "Report of the Commissioner of Agriculture and Arts of the Province of Ontario, for the year 1868." It is contained in the analysis of crop returns furnished by the Secretaries of the various Electoral Division Agricultural Societies.

Algoma.—The midge has not made its appearance.

Bruce, South Riding.—First season of appearance of the midge. Damage supposed 20 per cent.

Bruce, North Riding.—Effects of midge considerable.

Bothwell.—25 per cent. damage by the midge.

Brant, South Riding—Not much damage by the midge.

Cornwall.—No mention of the midge.

Durham, East Riding—From 5 to 10 per cent. damage by the midge.

Essex.—Damage by the midge 25 per cent.

Elgin, East Riding.—Very little damage done by the midge.

Frontenac.—Damage by the midge considerable.

Hastings, West.—Damage by the midge trifling.

Hastings, North.—No damage reported by the midge.

Hastings, East.—No mention of the midge.

Huron, South Riding.—Fall wheat and much of the spring wheat received 50 per cent. damage from the midge.

Huron, North Riding.—Damage by the midge, say 33 per cent.

Haldimand.—Damage to wheat by midge about 8 per cent.

Halton.—No mention of the midge.

Kent.—Fall wheat free from damage by midge. Spring wheat damaged by the midge.

Lambton.—Damage by the midge from 15 to 30 per cent.

Lanark, South.—Wheat 20 per cent. damaged by the midge.

Lanark, North.—Not much damage by the midge.

Middlesex, East.— Damage by the midge not mentioned, but the following note by the Secretary of the Society is appended:—"It has long been my opinion that if the old Mosaic Law were enforced, and farmers were prohibited from sowing white straw crops each seventh year, we should thereby get rid of the midge and save millions of dollars to the country. I believe I could easily prove this did space permit."

Middlesex West.—No mention of the midge.

Middlesex, North.—50 per cent. of the crop damaged by the midge.

Monck.—No mention of the midge.

Norfolk, North.—Fall wheat not much damaged by the midge. Spring wheat nearly destroyed, the crop only averaging 5 bushels per acre.

Northumberland, West.—No mention of the midge.

Ontario, South.—Severe damage by the midge.

Oxford, South.—Not much damage by the midge.

Oxford, North.—In early-sown spring, 25 per cent. damage by the midge; in late-sown, very little.

Peel.—About 30 per cent. damage by the midge.

Peterborough.—Wheat very little damaged by the midge.

Prescott.—Wheat damaged by the midge

Perth, South.—Wheat, both spring and fall, considerably injured by the midge.

Renfrew, North.—Wheat not damaged by the midge.

Renfrew, South.—Not any damage by the midge.

Simcoe, North.—No mention of midge.

Victoria, North.—Damage by midge perhaps 20 per cent.

Victoria South.—"Platt's midge-proof" tried, but did not resist the midge. 20 per cent. damage by the midge.

Stormont.—Scarcely any damage by the midge.

Waterloo, North.—Nearly two-thirds of the "Soule" or "white chaff" wheat destroyed by the midge.

Waterloo, South.—No mention of the midge.

Welland.—Ditto.

Wentworth, North.—About 20 per cent. damage by the midge.

Wentworth, South.—Fall wheat not injured by the midge. The spring wheat injured 25 per cent.

Wellington, South.—Scarcely any damage by the midge.

York, West Riding.—Not over 5 per cent. damage by the midge.

York, East Riding.—But little damage done by the midge.

York, North Riding.—Not much injury by the midge.

From the remaining Societies no crop return is reported, which is much to be regretted. It will be observed from the above returns that, except in some few favoured localities, the midge has not disappeared to the extent that was fondly anticipated, but that its ravages, on the whole, have been something frightful to contemplate.

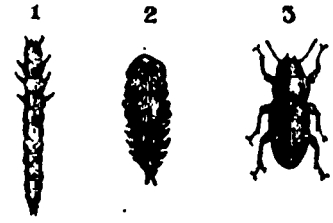
The Meal Worm.

"R. P.," writing from Ashworth, desires to be informed how to prevent a scaly worm, about an inch long, from breeding in his flour bins in summer. He says that he has a good bin himself, and some of his neighbours have them almost air-tight, but still they are unable to keep out the nuisance.

Our correspondent has not sent us any specimens of his insect trouble in any of its stages, whereby we might have known with certainty its order and species. There is, however, an insect called the "Meal-worm," that is so common in flour and meal, that we do not hesitate to ascribe his trouble to it. Should we have guessed wrongly, perhaps he will make good his omission by sending us some specimens of the worm.

The Meal-worm (*Tenebrio Molitor*, Linn.), like many of our greatest insect nuisances, is an imported animal from the old world, but by no means one of the kind of stock that tends to the improvement of the country. In this case we have the satisfaction—if we are selfish enough to think it a satisfaction—to know that America has given Europe, in this particular, "tit for tat." They have sent us their *T. Molitor*, and we have returned the compliment by sending them *T. Obscurus*, both of which are very destructive to all kinds of flour and meal. Mr. Carter says that the American worm, introduced in American flour, is now very abundant in London and the Provinces, and that it prefers the sound, dry flour, while their old *Molitor* is good enough to show a preference for that which is damp or damaged.

The worms of both species are very much alike, so that the same general description will answer for either. Though they belong to a totally different family (*Tenebrionidæ*), they yet bear a very strong resemblance to the well-known Wire-worms (*Elateridæ*), being, like them, hard, smooth, and cylindrical, of a shining yellow or pale brown colour, with russet bands on the rings of the body; they have two short feelers (antennæ) in front, and six legs near the head.



(Fig. 1.) When full-fed, they enter the pupa state (Fig. 2.), during which they neither eat nor move about, and at length turn into black beetles. These beetles (Fig. 3.) are nearly three-quarters of an inch long, oblong-oval in shape, of a deep black or very dark chestnut colour; the European species is a little polished and shiny, while the American is quite dull, without any gloss; the former is much the most common and destructive in this country. We have found these beetles swarming in flour-mills and store-houses in all parts of Canada, and not the slightest attempt appears ever to be made to destroy or keep them out. In one country mill, a few years ago, we saw a heap of meal perfectly alive with the beetles and worms, but the owner did not appear to care in the least. There is no doubt that they destroy hundreds, aye, thousands of dollars' worth of our most valuable article of food every year; and not only that, but what many will think still worse, we are quite sure that a very large number of these insects are annually ground up with the wheat, and enter into the composition of our bread!

For this, like all the nuisances about a house, cleanliness is the grand remedy. We can hardly help sometimes getting the eggs or larvæ of this insect in our flour from the mill; but a farmer who takes his own grist can, if he chooses, be sure of its cleanliness, and then, by the use of air-tight vessels or bins, keep out the intruder from his flour. When a bin is already infested with the pest, it should be thoroughly cleaned out, and then scalded with boiling water, or fumigated with sulphur. The lid of the bin should never be left open in the summer time, as then the parent beetles are constantly on the wing, "seeking what they may devour."

Anti-Curculio Plums.

In a recent number of that valuable publication, the *American Entomologist*, mention is made of two varieties of plums that may be successfully grown without any trouble from the depredations of the curculio:—

"The first of these is the Columbia plum, a variety of the European species (*Prunus domestica*). The second is the Miner plum, otherwise known as the Hinckley plum, Isabel plum, Gillet plum, Townsend plum, Robinson plum, &c., which is a cultivated variety of one of our American wild plums, distinguished by botanists as the Chickasaw or wild-goose plum (*Prunus chicasa*) The native home of this wild species seems to be the south-western states; but Dr. Latham quotes it as occasionally found in Illinois. It is altogether different from the common wild plum of the west (*Prunus Americana*), which has a much less elongate leaf, and differs in various other respects.

The Columbia plum is stated to be round, fully two inches in diameter, and to ripen in August in South Illinois. It is only of the second quality, either for cooking or eating, fetching $10 or $12 a bushel, when the best varieties command $16. The curculio is said to puncture and lay its eggs in this plum as freely as in others, yet the larva that hatches out is almost invariably drowned by the exuberant flow of juice that is peculiar to this variety.

The Miner plum is described as a deep red, round plum, about one and a half inches in diameter, of a firm texture, with a rather tough and thick skin. In Wisconsin it ripens from the last of September to the beginning of October. It is only worth in the West from $4 to $6, when the best cultivated varieties sell for $12 or $16; it cannot, therefore, be deemed even second-rate. Still, on the principle that "half a loaf is better than no bread at all" it may be safely recommended to those who have neither the time nor the opportunity to grow prime fruit.

Greenhouse Pests.

The Mealy-bug and the Red Spider, as we hear from the best authority, will stand any amount of tobacco smoke, while Plant-lice (*Aphis*) are easily killed by tobacco smoke. The Red Spider, however, may be got rid of by exposing the infested plants to the rain, and the Mealy-bug by a wash of cresylic soap, sufficiently diluted not to injure vegetation. Cresylic soap, a very useful agent for the destruction of many kinds of insects, can be obtained from the St. Louis Coal Tar Company, Third Street, St. Louis, Mo.—*American Entomologist.*

A Large Curculio.

In the Canada Farmer of July 15, 1868, p. 215, we mentioned that we had received a specimen of a large snout-beetle, or curculio, from Mr J. M. Bristol, of Virgil, county of Lincoln, Ont., and that we were unable to determine it. We have since made it out to be a specimen of *Lixus concavus*, Say, who gives the State of Indiana as its locality, but says nothing as to its food or habits. It must now be included in our list of Canadian beetles, and we trust that, in time, its natural history may become fully known to us. It is half an inch long, exclusive of the snout, which is long and curved, of a shining black colour, except where obscured by a thick yellowish down, which easily rubs off on the exposed portions of the body. It is chiefly remarkable for the large hollow at the junction of the thorax and wing-covers, whence it derives its specific name of *concavus* (hollowed).

Toads in Gardens.—In a lecture on "Insect Enemies," lately delivered by Mr. Treat before the Vineland Agricultural and Horticultural Society, the usefulness of toads in gardens was forcibly pointed out. The lecturer advised his hearers to carry all the toads they find into the garden, as they devour immense quantities of insects. A toad will swallow the largest specimen of a tomato worm, although sometimes he will have a hard time of it.

Transformations of Insects.—It is commonly and correctly said that there are four stages in the life of every insect: 1st, the egg; 2nd, the larva; 3rd, the pupa, and 4th, the perfect or imago state. In most insects the dividing line between these stages is well marked, the larva and imago being active locomotive creatures, capable both of eating and discharging feces; and the pupa lying still all the time and neither eating nor discharging feces. But in certain great groups, for instance the true Bugs and the Grasshoppers, the pupa is as active and locomotive and ravenous as either the larva or the imago, and sometimes cannot be readily distinguished by the inexperienced either from the former or the latter.—*Am. Entomologist.*

Entomological Annual for 1868.—It is proposed, should sufficient encouragement be given, to publish a Year Book of Progress in American Entomology, to be edited by Dr. A. S. Packard, Jr. Dr. J. L. Le Conte will contribute a chapter on the *Coleoptera*; Mr. S. H. Scudder, chapters on the Butterflies and *Orthoptera;* Baron R. Osten Sacken, a chapter on the *Diptera:* Mr P. R Uhler, a chapter on the *Hemiptera* and *Neuroptera*, and the Editor expects to receive aid from other entomologists. It is hoped it will prove a useful hand-book to every one interested in the study of insects. It will be published in 12mo size in the spring of 1869. An edition of five hundred will be printed, provided three hundred names can be secured. Will all entomologists desirous of aiding in the publication of such an annual send in their subscriptions in advance, that the means of publishing such a useful book may be afforded at the outset? Subscriptions, seventy-five cents a copy, received by W. S. West, Peabody Academy of Science, Salem, Mass.

Correspondence.

Emigration, and Hints to Emigrants.

To the Editor.

Many are deterred from emigration to Canada by the ridiculous ideas of our wooden country that have been so generally in vogue in Great Britain. Tales of our biting winters, our endless droughts, and interminable and impenetrable forests, are constantly going the rounds of English periodicals, and are eagerly drunk in by a multitude who delight in perusing the black side of the picture, rather than in sifting the probabilities and applying themselves to the work of ascertaining the true state of affairs, or discarding the exaggerations of the traveller, who, by adding fresh horrors to his tale, hopes to increase his prestige as a *voyageur*. We constantly see articles and correspondence in the public journals advocating immigration, and decrying the action of the respective Governments for their dilatory legislation on this subject. Such statements unfortunately stand upon good foundations: but let us remember that the Legislature is but a cumbrous machine, oiled and run by many engineers, each of whom brings different ideas to bear upon the improvement of the power. There is a way in which we may individually do a great deal to further the cause of immigration. Many, doubtless, of your readers, come from parts of the old, world in which, even after a long absence they are well remembered and respected. If such would make a special point of writing to their old homes, publishing such correspondence in the local newspapers, and set down in plain terms the advantages held out by Canada to the emigrant—the exact state of affairs here—and confute the exaggerated yarns of those whose only object in writing has been to appear great travellers, they would do much to further the cause of immigration, and to help the Government in any steps they might take in the same direction. Depend upon it, the ungarbled accounts of the actual settler, known personally to many of those whom he addresses, and with the evidence of his own prosperity to back his statements, would do more to turn hitherward the tide of emigration than the most elaborate policy of the wisest Government. The course suggested would be mutually advantageous to the struggling classes in the old country and to ourselves. The cry is constantly coming up for more hands, and a better regulation of wages. Every immigrant strengthens the hands of the farmer, regulates the tariff of wages, and is, in the words of a great American statesman, worth five hundred dollars to the country." Allow me, through your columns, to make a few remarks on this important subject, and briefly to notice several classes of emigrants, throwing out a few hints for their guidance in this country.

First—The farm labourer. Secondly—The emigrant to the back woods. Thirdly—The old country farmer as an emigrant, and fourthly—The emigrant with a limited Capital.

THE FARM LABOURER arriving at the port or place from which he proposes to start, should at once apply to the emigrant agency, finding out who may have notified their want of such services as he can fulfil, apply and settle, upon a place of service as soon as possible. The man unacquainted with the *modus operandi* of this country cannot expect high wages at first—he must undergo his probation. But he should hardly accept as a farm labourer less than $8 per month in winter and $12 per month in summer, with his board and lodging, allowing that he be a steady, able-bodied man. He must be prepared to discard many old country fashions. At home, where labour is abundant, every man is employed in some special capacity—as ploughman, as cattle feeder, as hedger, &c., but here we require our farm servant to turn his hand to anything and everything according as the seasons change. You are not an efficient farm servant unless you can put your hand to the plough, reap and bind in harvest, chop wood and attend to stock in winter—in fact, be willing and able to take up any job that may be placed in your hands. Devote yourself earnestly to acquire the art of chopping, for that is a necessary work for any Canadian farmer or his man. There is no difficulty in chopping, if you will take the advice that may be tendered by your fellow axemen. If you arrive in winter, and are placed in charge of stock, remember that to do justice to yourself and your charge there are certain essentials that should be carefully borne in mind, namely, warmth, regularity of feeding both as to time and quantity, and, above all kindness. Follow these, and the looks of your charge in spring will be your best recommendation to an increased wage or to a new master. Beware of whiskey, which is the curse of Canada. Not only is the mere habit of intemperance a stumbling-block in the way of progression, and a high road to ruin here and hereafter, but the greater part of the liquor dignified by the name of spirits is here simply an actual poison. Companions, either good or bad, are more easily formed here than in the old country. Men meet more freely, and, owing to there being less restraint upon the intermixture of classes, acquaintances are very much more quickly formed. In a land of strangers, removed from the circle of those with whom probably you and your forefathers have for generations borne a good character, and whose opinion hitherto kept you out of bad company—if you have not made up your mind to work steadily and with perseverance, you have been mad to expend your hard earnings in taking a passage to this country. You have made a fearful step in life, and you can expect no help in a land whose people know naught about you. Look forward, and bear in mind that many of your class have come to this land with an empty pocket, and are now the owners of fine farms, saleable at any moment for $5,000 or $6,000, with a family of educated children around them, and a home made by themselves, the reward of an honest perseverance and an upright course of life.

THE EMIGRANT TO THE BACKWOODS. I would advise the man whose intention it is to carve out a home in the backwoods of Canada to spend some time, even if he gets but small recompense for his labour, in the family of a Canadian, to fit himself for the peculiar work and learn to adapt himself to the ways and wants of the life of a backwoodsman. Indeed, a man, be he ever so strong, persevering, and willing to work, can hardly expect to surmount the difficulties to be encountered in a bush life without first obtaining a thorough insight into the ways and means of subduing the forest. By all means, he must become an expert in the swing of the axe, and understand the mysteries of logging, burning, fencing, and then cultivating the rough surface of the hitherto unbroken soil, and make himself sufficiently acquainted with the wants of the settler, shut out from communion with his neighbours for a long time by impracticable roads or deep snowdrifts, so that he may not be surprised inadequately supplied with the necessaries of life. If the emigrant, however, has determined to proceed straight to the interior, the following hints may be of some service to him: Provide more than one good axe. Do not buy poor axes because cheap. Get them from such a maker as Hourigan of Dundas or Henderson of Galt. Take a good grindstone, and bestow upon it great care, keeping it free from grease, and rounded off on the grinding surface. The clothing best adapted for our winters in the woods consists of woollen homespun, such being more durable, warmer and cheaper, than any cloth. For provisions, a good stock of cured pork and a supply of oatmeal and flour, are essentials, and it would be better not to forget to lay in a supply of groceries, &c., before proceeding to a part of the country where dealers in such goods are few and far between.

Provided with good axes and a few generally useful tools, clothing of homespun, a supply of pork, oatmeal and flour, a log shanty to cover your head, a good yoke of oxen, and above all, a stout heart, the backwoods settler may soon transform the howling wilderness into a blooming garden.

THE OLD COUNTRY FARMER AS AN EMIGRANT.—There are many tenant farmers in the old country, who under the rule of a harsh landlord or his tyrannical agent, would eagerly grasp any opportunity of emigration that might arise. To such I would say—as to members of, perhaps, the most prejudiced class in Great Britain—remember that there is a great difference between farming in Canada and in the old country. Throw aside your prejudices, and weigh carefully the merits of our system of farming as applied to our own climate and state of progression, and beware how you make light of advice given you by Canadians. I speak advisedly, for I know how Englishmen are apt to regard colonial efforts. Here labour is scarce and wages high. You cannot employ your time to advantage, as has been your custom, in riding around your farms overlooking the workmen. Here you must turn in yourselves and show your men by example how to work.

THE EMIGRANT WITH LIMITED CAPITAL.—A little capital will go a long way in this country, if judiciously invested. The frequent failure of this class of emigrants heretofore has caused many to assert that a man had far better sink his capital in the ocean, or at least leave it locked up at home, and commence life here moneyless.

It is true that a great many that have landed in Canada with a certain amount of capital, have found that the small stock of cash which they may posses here, goes so much further than an equal amount at home, that they have justified themselves in a rush into extravagance, had their fling, and sunk into an obscurity from which they seldom arise. But this will not be the plan adopted by men of sense. Invest a portion of your capital in a suitable farm, stock it thoroughly, for no farm will pay unless well stocked; but be careful that these outlays do not exhaust your treasury. I know of no business to which a working capital is more essential than to that of the farmer.

Many of our farmers are now working in Canada on a hand-to-mouth system, that has for years paralysed all their efforts at improvement. They must have a crop every year from all their farm to keep them going. They have not a cent in reserve, and cannot, therefore, give their soil rest, or the necessary manure. The wants of to-day debar the possibility of waiting for a crop, and if a bad year intervene, where are they? They have nothing upon which to fall back in that rainy day; they sink into a depth of debt from which it may take a lifetime to recover. Every day there are excellent chances cropping up to the immigrant with a small capital. There are plenty of farms thoroughly cleared, excellently situated, well provided with wood and water, which have become a drag upon the husbandman, who for years has constantly drawn upon his soil and deposited naught. These may be bought cheap. Let a man who has some capital invest in such a farm, holding back enough that he may not be driven to extremities by a bad season, and devote his time and attention, not to a futile attempt to surpass his neighbours' crops, but to the enrichment of his heretofore impoverished lands, and the general improvement of his farm. Rest assured there is in Canada no better or safer investment for capital. I know of a farm that was bought in the township of South Dumfries for $30 per acre. It was worn out. The purchaser was a man with some capital. After paying cash for and stocking his farm, he invested the residue in securities which brought him in about $500 per annum. For five years he devoted his time steadily to the

improvement of his farm. During the first three years the returns barely paid for the labour. In the fourth and fifth years manure and judicious cultivation began to tell. From that time he put by money yearly, and in the ninth year from the time of his first investment he sold the farm for $70 per acre. Suit your acreage to your purse, and be sure in buying and stocking to leave a large margin upon which to fall back, if crops should at any time force you to wait.

C. E. W.

Notes and Comments.

To the Editor.

Sir,—It is much to be regretted that your valuable journal does not find its way into every farmer's house in Canada. It is not, however, the trifling amount of the annual subscription which excludes your journal from many homes in which it is urgently needed, so much as a contemptible prejudice entertained by short-sighted and crotchetty farmers, who affect to scorn all information which has not been acquired by themselves or their ancestors in the dear school of experience. When men are above being indebted to printer's ink, or their neighbours, for new ideas, it is not surprising that so many should go to the wall. It is astonishing that such a spirit should prevail, and that the improvements and progress which men of broader views are making do not arouse others to enquire and investigate—to go and do likewise.

I was much interested in some of the contents of your January number. It is certainly very encouraging to learn, as we are told in the first article, that Mr. Johnson's "half-rotted sod" produced eight hundred bushels per acre! Most of us, I opine, would be thankful for such a return after a liberal dose of barn-yard manure, supplemented without stint by the usual "artificials."

I was on the point of writing to you for information as to the expediency of winter fattening sheep, instead of oxen, when I noticed the letter of J. M. Do you not think, however, that well saved straw and a few roots would be cheaper than, and yet as good food as clover hay alone, and that access to unsullied snow is a sufficient substitute for water? In this neighbourhood few sheep get anything else in winter wherewith to quench their thirst. In deciding upon the relative advantages of feeding sheep and oxen, it should be remembered that sheep require much less attendance and much less expensive shelter than horned cattle. As none of my neighbours have had any experience in the matter, I shall feel obliged if some one who has will inform me, through your columns, which class of stock he considers the more profitable to winter feed, all things taken into account.

"X. Y. Z." has furnished you with a communication extolling the "dignity of agriculture." I do not intend to call it in question. When the circumstances of the farmer do not impose on him (as, unfortunately, they too often do) the necessity for such a large amount of physical labour as to render him unfit for much systematic thinking, his occupation calls, or should call, into play more of the powers of the mind than any other under the sun. Besides which, he needs, and often exercises, more manual skill than any artisan. The pleasures and advantages which the farmer enjoys are numerous, real, and lasting. They are often dilated upon, and I need not refer to them now. But in fairness it should be remarked that the calling is not without its disadvantages, especially in a new country and in a climate such as ours. It certainly should not be chosen by a person whose gregarious instincts are very strong. Detained at home by press of work in summer, and blocked in by snow drifts in winter, he becomes shy and taciturn; and when, once in a while, he does go into "society," he is, however well informed he may be, totally eclipsed by the "dry goods clerk," who occasionally condescends to display his material wealth (which is all upon his back), and his brain power (which find its way to his tongue with wonderful facility) at a party in the country.

These drawbacks are, however, small, in comparison with the solid advantages of the farmer's calling.

F. HARMER, Jun.,
Nepean.

Selection of Judges and Officers of Agricultural Societies.

To the Editor.

Sir,—The letter of your correspondent on the "Judgments at Poultry Shows," will bring to the minds of your readers many similar instances of their own personal experience, showing the total want of capacity in many of the judges appointed by our Agricultural Societies, in every class. This arises mainly from the negligence of the Directors of the Societies in not appointing men practically conversant with the duties pertaining to the responsible position of judges at our shows. Much, we know, may be said as to the difficulty of obtaining suitable and capable persons to officiate as judges, who do not themselves compete in the different classes; and also of the lack, in some sections, of men who are properly qualified to act as judges in some particular classes, men, especially, having a knowledge of the points of improved animals. But this difficulty can be overcome, to a great extent, by the arrangement now practised in some counties, of exchanging judges with other societies, thus giving a wider range for selecting men properly qualified.

But, to commence at the beginning of things, our Agricultural Societies, to come up to any fair standard, must give more attention to the selection of their officers. What would be thought of a medical society composed of farmers in general, small lawyers, and grocers? Yet such is the very system worked upon by some "Agricultural" Societies. I know of a Society, whose list of officers, for years, was made up on this principle. Every broken-down merchant and political hack, in a wide extent of country, seemed to be represented in the list of officers of that Society. The result was that the Society's funds were frittered away in ridiculously small premiums, and nobody knew where. Nobody took pains to bring into the county any of the improved breeds of stock, and, as a consequence, the agriculture of that section is an age behind the time. The Society had done nothing towards the creation of a taste for better breeds of stock, and little for the improvement of husbandry in general.

But a change has come over the spirit of their dreams, and the Society has this year at its head an energetic, thorough farmer, with a practical understanding of the requirements of our agriculture, and it is the intention of the officers to agitate the question of devoting the funds of the Society for the importation of a horse for the use of the members; and we may yet see an improvement in the agriculture of the district as rapid in progress as it was slow and backward before.

When members of Agricultural Societies see to electing efficient and capable officers to preside over their affairs, we shall find little cause to complain of the selection of judges to determine and award the prizes, and less in the management of the Societies in general. There is certainly great room for improvement in many Societies in these respects. W. Y. Z.

Ontario, Canada, February, 1869.

Keeping Ice.

To the Editor.

Sir, In your issue of 15th February, page 76, I find an article entitled "Preserving Ice," by J. M., in which the writer details the *modus operandi* of preserving ice and building ice-houses. It is not my purpose in this note to enter into any details about buildings fitted to keep ice, but simply to state a few facts, which can be fully substantiated, showing that ice may be kept for several years in any sort of house or shed, provided the ice is well packed around with sawdust. There is to be seen at this date (February 22nd) ice three years old, being the crop of 1866-7, at the residence of Hon. D. L. Macpherson, Chestnut Park, which ice is as sound and good as when first put in: not that age in ice is any advantage, but this goes to show what can be done towards its preservation.

I will briefly describe the whole secret, trusting it may be of some service to dairymen and others, to whom a good supply of ice in summer is important. The house, or rather shed, is of wood, 12 by 14 feet inside measure. It was excavated about 14 inches below the surrounding surface, this space being filled up, or nearly so, with pine saw-

dust, upon which are built the blocks of ice to the required height, filling in all openings carefully with small broken pieces, and leaving all round the outside a space of about ten inches, which is filled up with sawdust and pressed down with the foot, as each alternate tier of ice is built up, with about the same thickness of sawdust spread over the top when the house is filled. There are two Louvre board ventilators one at each end, near the roof, which are always open to admit air, besides a chimney-shaped ventilator over the roof, also open night and day.

The great secret, I hold, is in the sawdust being a non-conductor, and not in the house itself nor its situation. The house here spoken of stands facing the south, fully exposed to the sun the greater part of the day. Straw of any kind I consider a complete nuisance, as it soon rots, whereas the sawdust may be used for a number of years. The only precaution necessary is to see that when any ice is removed, the exposed part is covered up again, and all will be right. Finally, I would say to one and all who wish to keep ice for years, try the sawdust.

Chestnut Park. G. VAIR.

NOTE BY EDITOR.—In the former article above alluded to, straw was recommended not as the best, but as the most easily procured material, always at hand on the farm, and it will answer the purpose nearly as well as sawdust for one season

Commendatory.

To the Editor.

SIR,—I have read the first number of the CANADA FARMER for 1869, and cannot help making some remarks on the same. I have been a subscriber from the commencement of the paper, and well pleased with all the first series, but I consider the last an improvement on its predecessors, and think it strange the paper is not taken by every householder in the Dominion. I would especially call attention to three articles, which I consider of more than ordinary value. The first, in the stock department, on page 7, "on the Winter Management of Live Stock;" second, "the Culture of the Apple," on page 11; and third, "Entomology," on page 30. I have had each volume nicely bound for 30 cents, and the volume of 1869, will make a more handsome book, as it will be more compact. I am well pleased with the former books, as it is impossible to open one of the five without finding something interesting on agricultural or horticultural pursuits. Had the same facilities been at my disposal in times past, I should now have quite a library. According to my judgment, the price being the same, I would without fear or favour choose the CANADA FARMER to-day in preference to any of the United States journals, excellent as many of those are.

PETER SHISLER.

Bertie, March 5, 1869.

Mr. Simon Beattie.

To the Editor.

SIR,—I see in the CANADA FARMER, Dec. 15, a proposal for getting up a testimonial of some kind to Mr. S. Beattie, for what he has done in the way of importing thorough-bred stock of various kinds into Canada. I believe he has done more in this way than any other single individual, and I am sure many like myself will be happy at having the opportunity thus offered of showing their obligation to Mr. Beattie, which they could not do in any other way.

But I owe Mr. Beattie a debt of gratitude of a different kind, which I have much pleasure in mentioning here. Two years ago my father, Alex. Kerr, of Westminster, who is since dead, in going to Mr. Snell's sale of stock, arrived at the Brampton station of the railway at 11 o'clock p.m., the night before the sale, and in stepping off the car to the platform, it being dark and ice on the steps, and the car still in motion, his foot slipped and he fell between the car and the platform, with his legs across one of the rails. The next moment he would either have been crushed to death or had both his legs taken off, when this Mr. Beattie, who happened to be near, at considerable risk to himself, took hold of my father and drew him up on the the platform, and thus saved his life. I know, if my father had been alive, he would have been happy at this proposal in honour of Mr. Beattie, and I shall be glad to have a small share in it as soon as the course is pointed out. JOHN KERR.

The Canada Farmer.

TORONTO, CANADA, MARCH 15, 1869.

Agricultural Pursuits.

An evil against which we cannot too often and too clearly speak, is the tendency among the young men of our country to concentrate in our large towns and cities. The vulgar question of "How to make a "living" is one which very naturally presents itself to young men at the threshold of life, at the point where they find themselves confronted with the realities of life, and have to fight its battles. With many, it is simply a question of living—of providing food and clothing; with others, who have little fear on this point, it is a question also of how to get on, so as to make their mark in their day and generation. With the former, it is a matter of necessity; with the latter, one partly of necessity and partly of ambition. Both classes, however, have to face the subject of their future calling or avocation; and as the matter affects both themselves and succeeding generations it is a most important one.

The occupations of a city life are admittedly very different from those of a country one, and there are special advantages appertaining to each. We do not complain of men who have special aptitude for commercial, banking, speculating, or other such pursuits betaking themselves to their proper specialty. That is not only becoming, but in most cases essential to success, and generally advantageous to the country. As a rule, no man should go into a business for which he is not fitted and has no special liking. The trouble is that, in too many cases, men will try what they are unfitted for, and consequently fail of success. In this country, a noticeable tendency—as we have intimated—is that of men whose fatherf were farmers seeking to displace the paternal avocation with something—as they suppose—more genteel and more profitable.

Now, we hold it to be a matter for congratulation that we have a fine agricultural country. We have broad and fertile acres, and many of them. As compared with the British Isles, the extent of our country can only be properly characterised by the school-boy's superlative degree, especially if we count in the vast and fertile regions of the Red River and Saskatchewan valleys. No country—other things being equal—could possibly fail to compete advantageously in the race of life, which has a large agricultural population. Cicero said so, and he had far weaker reasons than we could adduce, for the assertion. Our main dependence must be on our agricultural resources, and on the stout hearts and brawny arms that develope them. The pursuit of agriculture, therefore, must with us ever be an honourable and profitable calling, because it is the mainstay of the country, and success lies in its path.

Holding these views, we cannot admit it to be wise or politic for country lads to be sighing after city life. Cities and towns will only bear a certain number advantageously, and when that number is exceeded, the result is most disastrous to young aspirants for "situations," or for "genteel" avocations. It is notorious that the legal and medical professions are becoming overcrowded. In this very city there are many belonging to these professions who can barely make ends meet, and not a few, we fear, who cannot be said to do even that. In some cases this is, perhaps, attributable to want of ability and tact; but the great cause is, undoubtedly, the number who enter those callings. Young men on the farm sigh to themselves—"be not like dumb driven cattle; be a hero in the strife,"—and the inspiration drives them to aim at what they are probably un-

suited for. The daily routine of toil is tiresome. The rewards, though sure, are somewhat slow, and lack the zest and excitement which, it is supposed, accompany other pursuits. And it must be said, too, that many parents are at fault in this matter. They encourage their sons in this idea. Some well-to-do farmers, forgetting or ignoring the safe road by which they attained to competency, look upwards, and seek the luxury of seeing their sons dubbed Rev., M.D. or Barrister-at-Law; or, failing in that, aim at seeing them in neat attire and with soft white hands, counting out money over the Banker's table, or exhibiting to dashing young ladies the latest fashions in dress.

The whole thing is wrong. Farming is not only a useful, important and honourable calling, but it is also a sure and profitable one. There is ample and ready market for all that is produced, and the business is attended by comparatively very few risks. All that is needed, in order to secure competency or even independence, is energy and industry. The farmer is one of the least dependent of men. He is little in danger from the quicksands of trade, the rascalities or whims of men, or the general uncertainties appertaining to the busy marts where scheming and smartness are in full play. Contrast with this the position of the clerk. He is at the mercy of his employer, and may have to be humbly seeking employment several times in a single year, and be glad to get it where he can at from $6 to $10 a week. He lives from hand to mouth, and if, besides saving nothing, he is not preparing the way for business on his own account, he is simply dooming himself to a life of abject dependence, if not sycophancy, and loses all manly self-reliance. John Stuart Mill tells us of the regret he experiences whenever he sees a well-built, brawny fellow dealing needles and laces and trinkets over the retail counter. And admitting that there must be many exceptions in practical life to any theoretical view dictated by the fitness of things, we may well ask, would it not be better—would it not, in many cases, comport better with the manhood of man—to go boldly into our back country and work up a safe and independent business there, than be whining helplessly in crowded cities, jostling among the throng that rush for every "vacancy," or earning but a scanty and precarious livelihood? The prizes in commercial or professional life are attained by but a few, and only those should look in that way who have special capacity, or whom special circumstances favour.

Canada must rely in the main upon her agricultural population, and while there is such ample room, we hope to see our farmers and their sons and their sons' sons apply themselves vigorously to the farming business. The question of immigration is forcing itself more and more upon the attention of public men, both in this country and in Britain, and we are glad it is so; but its main use will be, while relieving the old country of a surplus population, to plant upon our soil a sturdy class of men, to cultivate and utilise our wild lands—men who will not fear honest labour, and who will be the mainstay of the country in peace or in war. Happily we have a country eminently fitted for just such a class of men. Canada proper contains any amount of forest land, and in a short time we shall also have the immense prairie land of the Red River Territory. We shall thus be in a position to offer the immigrant his choice. The Western States have hitherto proved a wonderful attraction to immigrants, and the reason was undoubtedly their prairie land. Most new-comers have but limited means, and can ill afford to spend two or three years in clearing the forest before reaping the reward of their labour. A prairie region admits of immediate returns. The North-West Territory affords all the advantages of the Western States in this respect; and, we doubt not, will ere long, under the wing of the Dominion, attract a large proportion of the stream of immigration from the old country. That is the field for our able-bodied, industrious young men. If they deem the paternal estate too limited or dread going further back into "the bush," let them go to those western prairies, and not to our already overcrowded cities.

Report of the Commissioner of Agriculture and Arts, of the Province of Ontario, for the year 1868.

We have received the first annual report which has been issued from the present Bureau of Agriculture. It has been brought out under the disadvantages inseparable from the first year's operations of a new organization, and of unavoidable incompleteness of arrangements in various departments; but contains, nevertheless, much valuable information, and gives promise of efficient management in the future. The publication makes a thick octavo volume, comprising altogether 272 pages. The report proper is very brief, and adverts to the constitution of the Bureau, the main features of the new Agricultural Bill, and the official operations of the year, which have been necessarily initiatory and to a certain extent experimental. The bulk of the volume is made up of various appendices, of which the first is a catalogue of the library. This is open to the public, and already contains many valuable books, and will in time it is hoped, be so largely augmented as to become an institution worthy of the Province.

Next follows a very interesting report of Professor Buckland's visit to England, giving an account, among other things, of the Royal Society's Show and other important agricultural exhibitions. There is much in this part of the report that should be suggestive and instructive to Canadians. In particular we would commend the admirable management by which all crowding, confusion and hurry are avoided. This result is mainly secured by allowing plenty of time both in the preliminary arrangements and for the main object of public inspection. All entries are strictly closed by a certain date, prior to the opening of the exhibition, and ample space and commodation are provided for visitors as well as for stock and implements. An important feature is the trial of implements previous to the award of any prizes. These trials in connection with the Royal Society's show occupied a week, although the competition was confined to implements used in cultivation. Those employed in the subsequent operations of harvesting, threshing and preparing for market, will be tested at the Exhibitions of 1869 and 1870. Much attention was given to steam cultivation, which is yearly gaining ground in Britain, and will doubtless ere long be employed in most of the important operations of the farm. The recent progress in agricultural mechanics generally, has been well illustrated in the history of the Royal Society's Exhibitions. At the first show in 1839, there were only 20 exhibitors of implements; at the Leicester meeting in 1868, the number of exhibitors was 397, occupying 337 stalls, comprising 6,369 articles under a shed 16,700 feet in length, and covered by nearly 50,000 yards of canvas. A very large proportion of these implements are of quite recent invention. The same excellence and progress were manifest in other departments, especially in the show of stock.

We are convinced that in this country, to make our exhibitions practically valuable, more time must be allowed. We agree also with the Commissioner's suggestion, that in many instances an amalgamation of the smaller shows with the larger, so as to diminish their number, and at the same time raise their standard of excellence, would be attended with signal benefit.

Professor Buckland's report goes on to speak of the important matter of the introduction of fresh seed, one of the chief ob-

jects of his visit to England; and on this subject he gives some judicious cautions respecting the necessity of careful experiments before investing largely in such ventures, as the difference of climate and other causes sometimes lead to very discouraging results. The importation of seed wheat from Russia, in particular, should be intrusted to a reliable agent in that country, for much of the wheat exported thence is kiln-dried and totally unfit for seed, besides consisting of a mixture of different varieties.

Some arrangements have been made, we are informed, for obtaining specimens of British agricultural implements, and the Messrs. Howard, of Bedford, very liberally granted the loan of a number of their implements for the Agricultural Museum of this Province. The British manufacturers complain very naturally of the high import duties levied on their machinery here, and which no doubt keeps out of this country many most valuable implements, which under a more generous system of legislation would be available to Canadian farmers.

Professor Buckland's report, after advertising to arrangements made by him for the interchange of reports with British Agricultural Societies, closes with some judicious remarks on the subject of emigration, which is now attracting so much attention in Great Britain. He deprecates, as we do most strongly, the introduction into this country of the refuse population of English cities, and the incapable or vicious portion of the pauper burden of the old country. For suitable classes of emigrants, however, there are here ample room and great inducements. We most earnestly hope that the Government of Canada will give this subject that careful attention which the present crisis especially and most urgently demands.

An analysis of the reports of Agricultural Societies throughout the Province comes next in the contents of the volume under notice. These accounts are almost entirely confined to financial statements. We are glad to learn that printed forms have been prepared for these reports in future, which will secure fuller information and greater uniformity for the purposes of comparison and analysis.

Next follows a summary of crop returns from various societies, but these, on account of the short notice given, and other causes, are very incomplete. Some more efficient system than any hitherto adopted must be put in practice before we can obtain any general and reliable statistics on this important matter.

Statements and abstracts in reference to Mechanics' Institutes come next in order. A fresh impetus has been given to these useful institutions by recent legislation, and the assistance now offered under certain conditions by grants from the Government will no doubt largely increase their numbers and their efficiency.

The report of the Fruit Growers' Association, which follows, occupies considerable space, and contains much valuable matter. Some of this has already been published in the pages of the CANADA FARMER, but much of it has not been made public in any shape. Of this class is a very valuable report by Mr. Saunders, on fruits in the neighbourhood of London, with interesting notices of a great number of injurious insects. It would be very desirable if these transactions and papers could be printed separately and distributed among the members of the Association, and others interested in the important subjects of fruit-growing.

At the end of the volume is given, in the form of a supplement, a full account of the recent investigation into the financial position of the Board of Agriculture. This matter is now too well known to need any further comment. The facts of the case amply vindicate the course adopted by the Commissioner of Agriculture, and show that he has acted throughout in a manner that entitles him to the thanks of the community. We trust that the new Council of the Agricultural Association will wisely exercise the powers entrusted to them, and that the next report of the Commissioner of Agriculture will show material progress in the most important interest of the country, and the basis of our national prosperity.

The Emigration Question.

There is considerable discussion going on just now in the columns of the press, and among the public in general, as to how we are to obtain some increase to our labouring population, and divert to our country a portion of the tide of emigration, setting in a steady stream from the older countries of Europe to the shores of America. The English journals are also taking up the question, and after showing that every working man in England "carries a pauper on his back," they very considerately, on philanthropical grounds, we presume, propose to relieve the pressure upon their workmen, and the parochial rates at the same time, by sending a few shiploads of paupers to Canada.

There can be no doubt of the fact, that we are greatly in need of steady and industrious labourers to work in the cultivation of newly opened lands, as well as to take the place of a large number of our young men, principally farmers' sons, who most unadvisedly, as we could show, have left the paternal home disgusted at the worse than do-nothing policy of the Canadian Government in the matter of Crown Lands, and one to the Western States, where land could once be had cheap, and every encouragement is given to the settler in preference to the speculator. Many a farmer now plods wearily alone who once had grown up boys to assist him in his work, and would be but too glad to give a home and helping hand to a steady, industrious labourer, who would be willing to give a fair amount of work for a fair day's wage.

But it would be very unfortunate indeed for us, if under the seeming guise of a blessing, we should find, when too late, that we are receiving a curse, and instead of obtaining labourers to till our fields and help to gather in our bountiful harvests, we are unwittingly taking the weight of the pauper from the Englishman's back to carry it upon our own. To those who have seen the working of the system of parochial relief in England, and the class of persons too commonly supported on public charity, it will be no matter of surprise to learn, that for pig-headed, obstinate laziness, an English pauper stands unrivalled.

We have recently read many articles in the British Agricultural papers on the labour question, and from them we gather that all efforts to improve the condition of the agricultural labourer at home, are in a measure rendered nugatory by his own ignorant prejudices, and that while labour is seemingly cheap, it is found less costly to employ expensive machinery to do the work of the farm, wherever it is practicable to do so.

There is, however, an exception made in favour of the Scottish labourer, and we see it stated that the cost of working farms in Scotland is much less per acre than in England or Ireland, because while a Scotch labourer will obtain double the wages, he actually performs four times the amount of work that an Irish labourer does, and two men on a Scotch farm do all the work that it requires eight men in Ireland to perform. It is an old and true saying that "heaven helps those who try to help themselves," and while we have no desire to add to our already too large stock of idlers, we could not go far wrong if we were to give a measure of assistance to such of the industrious poor at home as desire to better their condition by coming among us, and at the same time have some small means of their own—enough to place them above losing self-reliance—yet perhaps not sufficient to enable them to come across the ocean with their families, without sacrificing their little all in the effort to reach their new home, and finding themselves in the humiliating position of being obliged to suffer from want, or be treated as beggars. These are the class of persons that we can encourage to emigrate to our shores with a reasonable prospect of their becoming useful to us at the present, and a credit to themselves and their adopted country in the future. They would require to be shown the advantage that would accrue from their taking the step, without, at the same time, being misled by overdrawn accounts of high wages, &c., and to have some direction from a properly qualified agent, who should also arrange all matters of transit for them, and we should have homes ready to receive them on

arrival at their destination. This is substantially the plan pursued by the Australian Colonies to obtain the bulk of the labourers and artizans required to carry out works of public utility, and help to bring under cultivation the agricultural lands, which were sold by the crown to actual settlers only, at £1 per acre; the proceeds to be devoted for a certain time to the encouragement of immigration. They employed well-paid agents at British ports, men of honour and ability, who were careful to see that none but persons of the right stamp were sent out. Half the passage money was paid by the agent, the balance by the passenger. Some such scheme of assisted emigration would be well adapted to the present wants and condition of Canada, and in this way the Government might most profitably expend a portion of the public money.

Notes on the Weather.

February has been colder on the average than January, but is warmer than the average of several years past. There has been an abundance of snow, more than enough and considerably drifted, so that travel is rather impeded than helped. There have been 11 clear days, 17 cloudy days, 14 days on which snow or rain fell. The highest temperature was 49° on the 12th, the lowest 0° on the 27th, the prevailing winds W. and W. S. W. The ground is now covered with snow to an average depth of two feet, and the prospect is that March will prove cold. spring come in with a sudden and rapid , and as the frost has not penetrated deeply into the soil, we may look for an early and favourable spring.

Register of Rural Affairs.—We have just received a copy of this favourite annual, published by L. Tucker & Son, of Albany, N.Y., the proprietors of that sterling agricultural journal the *Country Gentleman*. It is the most perfect thing of the kind yet got up, and we wonder how they can afford to give such a neat volume of 335 pages, with 130 engravings, for so small a sum as 30 cents. We have only had time to glance through its pages. The first article, on the "Culture of Wheat," is alone worth double the price of the book, and the next, on the "Management of Hedges," is good and practical. Then there is "Culture of the Potato," "Rural Improvements," "Strawberry Marketing," "Grape Houses," "Packing Grapes for Market," and about thirty other articles on various subjects pertaining to the farm, garden and household, any one of which is worth the price of the book.

In England many farmers support large families on the produce of six English acres of land, besides paying heavy taxes. Many in Germany do even better than this.

Horticulture.

EDITOR—D. W. BEADLE,
CORRESPONDING MEMBER OF THE ROYAL HORTICULTURAL SOCIETY, ENGLAND.

General Meeting of the Fruit Growers' Association of Canada.

HELD AT HAMILTON ON THURSDAY, THE FOURTH DAY OF FEBRUARY.

The meeting was called to order a few minutes after ten o'clock, a.m., the President, W. H. Mills, Esq., in the chair. There was a very good attendance of members, several from Toronto, London, Paris, St. Catharines, Cayuga, and Niagara, being present.

The minutes of the last meeting, which was held at St. Catharines, were read and approved. The President read a short address touching several matters affecting the interests of the Association, and congratulating the members upon the progress already made, and particularly upon the very valuable and instructive character of the report.

On motion of Mr. John Gray, seconded by Mr. George Leslie, Jr., it was resolved

"That Horticultural and County or Electoral Division Agricultural Societies be allowed to affiliate with this Association on payment of two dollars annually, and be allowed to send two delegates to each meeting, and be entitled to two copies of the report of the transactions of this Association."

On motion of Rev. Mr. Burnet, seconded by J. C. Rykert, Esq., it was resolved

"That the Secretary be directed to keep *in retentis* the record of remarks on subjects for discussion at the meetings of the Association, and that he simply enter in the minute book the acts accomplished."

The meeting took up the list of Pears, and proceeded to discuss the merits of the several varieties, with a view to the revision of the list.

Bartlett: Mr. Burnet, of Hamilton, thought it hardly sufficiently hardy, and would suggest that the *Ananas d'Ete* be cultivated in its place.

Mr. D. Murray, of Hamilton, believed it to do very well about Hamilton, and said it was early, very valuable, and quite as hardy as any other, both on the pear and the quince stock.

Mr. Ball, of Niagara, found it sufficiently hardy, and that if plucked when half grown, and put away in the house, it would ripen well.

Ananas d'Ete; Mr. Burnet said it ripened about a week later than the Bartlett, was a superior pear, does not rot at the core, will keep for a considerable length of time, and is a good market pear.

Mr. Leslie, of Toronto, has had better specimens of this variety than of the Bartlett; it is a first class pear, thrifty grower, good bearer, and will stand the climate better than the Bartlett.

Mr. Gray, Toronto, said it was a better pear than the Bartlett, and considered it one of the finest early pears; could not speak of its keeping qualities.

Beurre Giffard; Mr. Leslie, Toronto, thought this the finest early pear, most delicious flavour; has it as a dwarf tree, and it came into bearing at three years of age.

Mr. Gray, Toronto, said this was one of the very best of the early kinds, ripening before the Bartlett; the fruit is of medium size.

Mr. Holton, Hamilton, considered this a fine early pear, ripening two weeks after the Madelaine; it was a very spreading, ugly, slender growing tree, and required very severe pruning.

W. H. Mills, Hamilton, remarked that this was a good pear, of good flavour, a thrifty grower, and bearing young; he had had it as a standard four years, growing in a gravelly loam soil; it was very hardy.

Belle Lucrative; Mr. Gray—This is the best pear grown. Mr. Ball—Is a good bearer and grower, and an excellent eating pear. Mr. Mills—It is one of the best. Mr. Burnet—In August, when the winds are high, the long stalk of the fruit is apt to break, and the fruit fall to the ground. It should be grown in a well sheltered position. Mr. Holton—For dwarf culture it is one of the best; is a good permanent pear on the quince; it is a rapid grower, as good as Louise Bonne de Jersey.

Beurre Bosc—Mr. Burnet said that if pruned in the fall the wood suffered from the winter; it was a good pear to eat, but the tree backward in bearing. Mr. Leslie—It stands and bears well in Toronto: quite hardy there, specimens not large. Dr. Cross said it grew well with him at St. Catharines. Mr. Holton had very little experience with it; it blights with him; had a tree in his grounds for eight years; then it blighted and died. Mr. Beadle thought it quite tender in the north; it is one of the best pears grown, ripens in October, does not come into bearing as young as the Bartlett, will bear at five and six years. Mr. Freed said it was not desirable as a dwarf, did best as a standard, is a good pear. Mr. Arnold had it on trial at Paris many years, but did not succeed with it.

Beurre Superfin; Mr. Leslie said it was very much like the Beurre Diel, that he could not say much about it. Mr. Freed thinks it a good pear; has tried it, found it not very sweet; a good keeper, had them until the week before Christmas, quality variable. Mr. Burnet—It is a good pear, like Belle Lucrative in shape and colour; tree tender.

Beurre Clairgeau; Mr. Springer, of Hamilton, has fruited it for one year; it is a good pear. Mr. Saunders, of London—It is of good size and appearance; have grown it only a short time. Mr. Leslie—It is very tender, dies out very rapidly. Mr. Burnet—It is a good market pear, very showy but coarse-grain[illegible] end of October.

Beurre Gobault; Mr. Gray would not grow it; it is very gritty. Mr. Saunders—Have fruited it, is finer than the Buffam, ripens with the Bartlett. Mr. Holton thinks the flavour not good: it ripens with the *Buffam, not worth cultivating*, not very early, and comes at a time when there are plenty of better pears.

Beurre d'Amanlis: Mr. Gray thought this a very good pear, requires to be severely pruned, medium sized fruit, ripens early in September, tree hardy. Mr. Leslie said that it is a very early bearer, quality medium, fruit showy. Mr. Burnet said the tree was quite hardy: he had not yet fruited it. Mr. Holton said it was much like Beurre Diel. Mr. Freed—The flavour is only middling.

Beurre d'Aremberg: Mr. N. Hamilton, Paris, thinks this well worthy of cultivation, hardy tree, good grower, very fine fruit, ripens late in the fall or early in winter, of a vinous flavour, very fair size, larger than Belle Lucrative. Mr. Ball—It is a good Christmas pear, a heavy cropper, fruit requires thinning out. Dr. Cross said it was a hardy late pear. Mr. Smith, of Grimsby, said the fruit was liable to crack, but it was a good pear, the tree a slow grower. Mr. Gray had given up cultivating it: the fruit was very gritty, he would not recommend it. Mr. Murray said it was very coarse and gritty, and ripened late. Mr. Beadle has cultivated it for twenty years, but only as a standard: is very productive, and apt to overload with fruit, so that the pears are small. Has seen it on the quince, where, when well cultivated and thinned out, it grows as large as the Bartlett. Some years it is very good, of a juicy, vinous flavour.

Beurre Diel: Mr. Burnet—This variety is very apt to drop from the tree, is a good fruit, can keep until Christmas. Judge Logie—Best late autumn pear, very hardy, good grower. Mr. Holton—It inclines to be gritty, a good bearer, do not call it a good pear. Mr. Freed—Does not think it of very good quality, is a good bearer, and will keep till Christmas. Mr. Beadle—Esteemed it one of the best of the season, quality is variable, and in no way to be compared to the White Doyenne; the tree is hardy, thrifty, and a good bearer; the fruit is always of good size and fine appearance. Mr. Leslie—It grows well at Toronto.

Beurre d'Anjou; Mr. Burnet has fruited it many years; is very handsome in appearance, of good flavour, and the tree bears early. Mr. Arnold—It is a very fine pear, ripe in November, a good keeper. Mr. Leslie said it did well at Toronto, a good keeper; tree bore at three years after planting. Mr. Gray had found it slow in coming into bearing, but thought it a good pear. Mr. Saunders had fruited it after four years planted. Mr. Freed preferred it to the Beurre Diel. Mr. Beadle was very much pleased with it.

Brandywine; Mr. Burnet had fruited it; thought it first class, is a new pear, will keep only a short time; but when in prime is very fine; had gathered it on the 19th of September. Mr. Leslie has it in bearing, ripens early in September, poor keeper, tree hardy. Mr. Murray thought it a nice early fruit. Mr. Freed said it was a very handsome pear, but required to be eaten at the very moment it *was ripe; would not recommend it.* Mr. Beadle had fruited it four or five years; it bore enormous crops, was quite sweet and fine flavoured; the fruit would not keep; he would value the variety much if it should prove to be hardy.

Bloodgood; Mr. Arnold would strike it from the list as not worthy of cultivation. Mr. Holton agreed with him. Mr. Leslie said it was mealy and of no use.

Buffam; Mr. Leslie said it was a good pear, and should be grown on the pear stock. Mr. Arnold said it was well adapted to light soils. Mr. Holton said the tree was very ornamental. Mr. Burnet had found the fruit to crack on clay soil, though some years it was very good; the tree was inclined to blight. Mr. Beadle said it was one of the few varieties that were peculiarly adapted to sandy soils.

Catillac; Mr. Beadle said it was a large long-keeping pear, only fit for cooking. Mr. Burnet—It can only be used for cooking.

Dearborn's Seedling; Mr. Holton—Is a good bearer, but ripens too late, when there are plenty larger and finer. Mr. Burnet—A good cropper, fruit not stung by curculio; ripens in September. Mr. N. Hamilton, of Paris, thought it a very fine sweet pear.

Doyenne d'Ete; Mr. Holton said it was the finest very early pear, quality very good, ripens two weeks earlier than Beurre Giffard, thrives best as a standard. Mr. Leslie—It is a good pear, earlier than the Madelaine, does well as a standard and on the quince stocks. Mr. Burnet considered it the finest early pear.

Doyenne Sieulle.—Mr. Gray—This is a very good winter pear. Mr. Leslie—Have kept it until Christmas, esteem it a very good variety.

Duchesse d'Angouleme; Mr. Burnet would rank this as first class. Mr. Martin thought none equal to it on clay soil. Mr. N. Hamilton had not found it to do well with him, though he had given the trees the best of care. Mr. Arnold said it was a fine large showy pear. Dr. Cross had noticed that the blossoms were easily blasted in the spring by unfavourable weather; the fruit was large and showy, but not of the best quality. Mr. Leslie thought very highly of it. Mr. Beadle thought the fruit of very poor quality.

Easter Beurre; Mr. Gray considered this one of the best of the season, comes early into bearing, would particularly recommend it. Mr. Murray—It is the best winter pear, keeps well into February. Mr. Burnet had kept it until May. Dr. Cross said it would keep until March, but did not value it. Mr. Arnold never saw one fit to eat, has kept them through the winter. Mr. Beadle has kept them until April, but did not think them worth much.

Glout Morceau; the testimony of nearly every one was to the effect that this variety is very subject to blight, though the fruit is of fine quality, and a great favourite with some.

A recess was ordered until half-past two. At that hour the President called the meeting to order, and appointed Messrs. Holton, Arnold, Hamilton, and George Leslie, Jr., a committee to examine the fruit on the table and report thereon.

It was resolved, in order to facilitate the business of the meeting, that a vote be taken on each of the several varieties yet remaining in the pear list, without discussion as to their merits, and that they be classified accordingly.

In this manner the pear list was finished, and the list of apples gone over, with the following result:

PEARS.

RECOMMENDED FOR GENERAL CULTIVATION.

1 Bartlett,	2 Belle Lucrative
3 Beurre Diel,	4 Buffam, on sandy soil,
5 Dearborn's Seedling,	6 Doyenne d'Eté,
7 Duchesse d'Angouleme,	8 Flemish Beauty,
9 Grey Doyenne,	10 Howell,
11 Louise Bonne de Jersey	12 Napoleon,
13 Pound Pear, for cooking,	14 Rostiezer,
	15 Seckel,
16 Sheldon,	17 Osband's Summer,
18 Swan's Orange,	19 Tyson,
20 Vicar of Winkfield,	21 White Doyenne,
22 Winter Nelis,	23 Windsor or Bell Pear.

PROMISING WELL.

1 Beurre d'Anjou,	2 Doyenne Sieulle.

FOR FURTHER TRIAL.

1 Ananas d'Eté,	2 Beurre Bosc.
3 Beurre Giffard,	4 Beurre Superfin,
5 Beurre Clairgeau,	6 Beurre d' Aremberg.
7 Brandywine,	8 Catillac,
9 Doyenne Boussoc,	10 Easter Beurre,
11 Figue d'Alengon,	12 Glout Morceau,
13 Golden Beurre,	14 Marie Louise,
15 Oswego Beurre,	16 Passe Colmar,
17 Soldat d'Esperin,	18 Urbaniste,
19 Washington,	20 Columbia,
21 Clapp's Favourite,	22 Edmonds,
23 Payency,	24 Bergamot d'Esperin
25 Archduke Charles,	26 Fulton,
27 Belle Williams,	28 Duchesse d'Hiver,

APPLES.

RECOMMENDED FOR GENERAL CULTIVATION.

1 Baldwin,	2 Duchess of Oldenburg
3 Early Harvest,	4 Early Strawberry,
5 Esopus Spitzenberg,	6 Fall Pippin,
7 Fall Jennetting,	8 Gravenstein,
9 Golden Russet of Western New York,	10 King of Tompkins Co.
	11 Maiden's Blush,
12 Northern Spy,	13 Pomme Grise,
14 Rambo,	15 Rhode Island Greening
16 Ribston Pippin,	17 Roxbury Russet,
18 Red Astrachan,	19 Sweet Bough,
20 St. Lawrence,	21 Swaar,
22 Snow Apple,	23 Talman Sweet
24 20 Ounce Apple or Cayuga Redstreak,	25 Wagner,
	26 Siberian Crab

FOR FURTHER TRIAL.

1 Alexander,	2 Benoni,
3 Beauty of Kent,	4 Bourassa,
5 Colvert,	6 Canada Reinette,
7 Early Joe,	8 English Russet,
9 Golden Sweet,	10 Hawthornden,
11 Hawley,	12 Holland Pippin
13 Hubbardston Nonsuch,	14 Keswick Codlin
15 Lowell,	16 Lady Apple,
17 Newton Pippin,	18 Primate,
19 Peck's Pleasant,	20 Porter,
21 Pearmain,	22 Red Detroit,
23 Red Canada,	24 Seek-no-further,
25 Summer Rose,	26 Autumn Strawberry,
27 Swayzie Pomme Grise,	28 Tetofsky,
29 Vandevere,	30 Yellow Bellflower,
31 Loudon,	32 Rome Beauty,
33 Dominie,	34 Barton,
35 Saxon,	36 Yellow Newton Pippin.

The committee appointed to examine the fruits upon the table reported that they found several seedling apples, shown by Ezekiel Smith, of Grimsby, all sweet, and possessing no distinctive features to warrant their being disseminated.

Two varieties for a name, shown by A. M. Smith, one a sweet apple, firm flesh, and, apparently, a very good keeper, as improvement on Talman's Sweet. The committee do not know the name, but consider it worthy of cultivation. The other variety is a small, round, red apple, with numerous light dots, name not known to committee.

Some samples of Northern Spy, Golden Russet, King of Tompkins County, and Rhode Island Greening were shown by Mr. Woolverton, all fine specimens, except the Greenings

Some medium samples of Baldwin and Newton Pippin, shown by Mr. Ball

Five seedling apples, shown by Mr. J Cowhead, of Brantford—No. 1 is considered good for cooking, though the sample having been frozen, the committee could not say definitely.

No. 2 did not seem to possess anything to recommend it.

No. 3 was of peculiar flavour, and worthy of trial.

No. 4 is very good, long keeper, tree said to be very hardy and a great cropper. The committee consider it a very promising apple, and well worthy of extensive trial.

No. 5 has a pleasant sub-acid flavour, but not superior to other apples of same season now in cultivation.

Also, three very fine specimens of Northern Spy, shown by the President.

A sample of Prince's St. Germain Pear was shown in a bad state of preservation.

Moved by Mr. Holton, seconded by Mr. A. M. Smith.

"That whereas it is desirable to encourage the propagation and introduction of seedling fruits of merit, suited to the climate of Canada.

"Be it therefore resolved that the sum of FIFTY DOLLARS be given by the Society for the best new seedling late winter apple: THIRTY DOLLARS for the best seedling harvest apple, and TWENTY DOLLARS for the best seedling autumn apple—these to be at least equal to the old popular varieties now in cultivation.

"Successful exhibitors shall place at the disposal of the Society scions of the prize fruit for distribution among its members, together with such information as to soil, location, growth of tree, &c., as the committee appointed by this Society to make the award may require."

Also resolved, "That George Leslie, D. W. Beadle, and the mover, be a committee to whom all such fruits shall be submitted, and who shall examine and report to the Society from time to time the results of their examination. Carried."

On motion, adjourned to 7 30 o'clock, p.m.

EVENING SESSION.

This session was first occupied in discussing the methods of gathering, packing, and preserving apples. Mr. O. T. Springer, who has had considerable experience, says that he picks and handles carefully his winter apples, packs them in clean barrels, heads them up, and then places them on their sides, keeping them in an out-shed as long as they can be left without danger from freezing, and then places them in a cellar that is as cool as possible, and at the same time free from frost.

Mr. Latshaw, of Paris—The picking should be very carefully done, when the fruit is dry, always gathering the fruit from the lower limbs first, and progressing upwards until all are gathered, packed into barrels as gathered, sorting the fruit carefully, and allowing no leaves to get into the barrel.

Several other members expressed similar opinions with regard to the best modes of gathering and preserving winter apples.

The Roxbury Russet and Golden Russet, of Western New York, were mentioned as being the best of the long keeping sorts. The Esopus Spitzenberg was considered by all to be one of the very best of the winter apples, being of fine appearance and superior flavour, but not a variety to be planted for profit.

A lengthened conversation was had upon the habits of certain insects injurious to fruit trees and fruit, in which much interesting and useful information was imparted by Mr. Saunders, of London, Entomologist to the Association.

It was moved by Mr. Burnet, seconded by Mr. Saunders.

"That the best thanks of this Association are due, and are hereby tendered, to Thos. Swinyard, Esq., Manager of the G. W. Railway, for his courtesy in granting the members return tickets over the road at quarter fare." (Carried.)

On motion of Mr. Burnet, seconded by Mr. Arnold, Resolved,

"That the Hon. J. Carling be elected a life member of this Association." (Carried.)

On motion of Mr. Arnold, seconded by Mr. Saunders, it was resolved,

"That the thanks of the Association be returned to the County Council of the County of Wentworth for the free use of their Council Chamber, for the purposes of this meeting."

At 10 o'clock p m the meeting adjourned

Meeting of the Directors of the Fruit-Growers' Association of Ontario.

Present—W. H. Mills, Esq., President J. C. Rykert, Esq., Vice-President, Rev. R. Burnet, Chas Arnold, J. R. Martin, W. Saunders, Lewis Springer, A. M. Smith, and the Secretary.

Minutes of last meeting read and approved.

Communication from Mr. J. Freed, respecting the offering of premiums for Strawberries was read.

Resolved, that it is inexpedient to adopt the suggestions contained in Mr. Freed's communication at present.

Resolved that the President and Vice-President be requested to lay before the Commissioner of Agriculture the importance of obtaining an Annual Report on the subject of insects injurious to fruit and grains by a competent entomologist.

Resolved, that a prize of THIRTY DOLLARS be offered for the best essay on the cultivation of the Raspberry, Blackberry, Strawberry, and Currant, and a further prize of FIFTEEN DOLLARS for the second best essay. Each essay not to exceed eight printed pages, octavo, and to be forwarded to the Secretary, D. W. Beadle, Esq., at St. Catharines, on or before the first day of September next. Each essay to bear a motto, and to be accompanied with a sealed note having the motto endorsed upon the outside, and containing within the name of the author of the essay.

Resolved, that Messrs. W. L. Copeland and W. J. McCalla, of St. Catharines, be appointed Auditors of the Treasurer's accounts, with the request that when they have completed their audit they report in writing to the President.

Resolved, that the summer meeting of the Association be held in Galt, at a time to be fixed by the President, and that the subjects for discussion be the small fruits.

The Western New York Fruit Growers Society.

This society held its winter session in the city of Rochester on the 27th and 28th of January.

After the election of officers for the ensuing year, the following questions were adopted for discussion, namely:

1. What variety of quince is worthy of cultivation?

2. Can the cultivation of the gooseberry be made profitable?

3. What varieties of the gooseberry are worthy of cultivation?

4. What species of deciduous trees are most desirable to plant for shade and ornament, or timber?

5. What species of evergreen trees are most desirable for planting for ornament or protection?

6. Can the cultivation of the plum be made profitable?

7. What varieties of plums are most profitable for market?

8. What varieties of plums are best for the amateur?

9 Should the originators of new varieties of fruit be protected by law, in the same manner as inventors?

10. Is it more profitable to raise prolific fruits or high flavoured fruits?

11. What is the best material and form of trellis for training grape vines?

12. Is there any efficient and inexpensive mode of exterminating the canker worm?

It seemed to be the prevailing opinion that the best variety of quince was the well-known apple-shaped or orange quince, although no vote was taken.

With regard to the cultivation of the gooseberry, so much difficulty had been experienced from mildew, and of late years from the gooseberry saw-fly, which stripped off the foliage and destroyed the plants, that evidently not much attention had been given to the cultivation of this fruit, and nothing definite was arrived at upon the second and third questions.

The fourth question excited considerable discussion. The suggestion was made by Mr. Hooker that our forests should be regarded not as a thing to be preserved but to be renewed, and the timber regarded as a crop to be taken off when at its proper stage of growth; in short, that timber should hold its place in the greater cycles of rotation of crops.

The native elm was thought to be one of our most graceful and desirable ornamental trees; also the sugar maple, especially when planted in clumps; and the silver-leaf maple for planting singly. The Norway maple was highly esteemed as a beautiful species that grew rapidly. The tulip tree was very much admired, but it was difficult to transplant it. The different varieties of the linden or basswood were held in much esteem, particularly by bee fanciers. The horse-chestnut was mentioned as being suitable for lawns. The European larch was very highly spoken of as a rapid-growing and beautiful tree, and at the same time very valuable for timber. The locust was also very valuable, but of late years had been almost destroyed by the locust borer. One gentleman remarked that land worth fifty dollars per acre was too valuable to be planted with timber. One crop of wheat had returned him more money to the acre than the wood which he had cut from the same land, that had been a century in growing. Another suggested a material difference in the value of wood as fuel, and that which was truly termed timber, and suited to more valuable purposes.

In response to the 5th question, it appeared that the Norway spruce was the general favourite. Some favoured planting wide belts, and others only a single row, as a protection from the prevailing high winds. All agreed as to the beneficial effects of such a screen or wind-break, and the subject of planting for ornament was lost sight of in the more pressing thought of planting for shelter.

The 6th, 7th, and 8th questions were considered together, and no very definite conclusion reached. The old enemy of the plum, the curculio, came in for his share of consideration, and various methods of killing or driving him away were suggested. One gentleman thought he had succeeded in so offending his nostrils by placing corn-cobs soaked in coal-tar in the trees, that he left in disgust. The black knot also received attention, and the old question whether this was caused by the curculio was revived. That it is not caused by the curculio is now the more generally received opinion.

The 9th question elicited quite an animated debate. The proposition that he who expends time, thought, labour, skill and means in the production of a valuable new fruit, ought to be protected by a patent as justly as he who produces a new machine, was well and forcibly put. But the majority of the members, while admitting that the originator of a new and valuable fruit deserved to be rewarded, maintained that it could not be done by patent. Some maintained that the honour of being the originator of a popular new fruit was sufficient remuneration, and others favoured the granting of Government bounties to the originators. No definite action was taken on the question.

The tenth question was considered at some length, and the general tone of the meeting evidently favoured the growing of the more choice varieties of fruit. It was suggested that if these varieties were grown by all fruit cultivators, the quantity thrown on the market would be so great that the price that could be obtained for the highest flavoured fruits would be no greater than for the more prolific sorts. To this it was replied by Mr. Hogg, of Lockport, that the demand for the best fruits had fully kept pace and would keep pace with the supply, and he stated that the Delaware grape now sold for twice as much as it did ten years ago. Mr. Crane had kept an accurate account with two rows of Concord grape vines and two rows of Delawares, and found that the Delawares returned him twice as much as the Concords. Another suggested that very much depended upon the manner in which fruit was put up and sent to market, and that often by careful selection a high price can be obtained for one half or less of the fruit in a barrel, when the whole would hardly sell at any price.

The eleventh question was left undecided. A couple of gentlemen occupied the time in describing how they made trellises for grape vines. One of them had just patented a new spiral trellis

The discussion of the twelfth question made very apparent the fact that many intelligent fruit growers knew very little about entomology. The same insect was spoken of under names indicating several distinct species, and diverse species were spoken of as one and the same insect. The meeting very wisely appointed a committee of five, charged to obtain all the information possible in relation to the canker worm and all other varieties of worms that prey upon fruit and shade trees, and the best means of prevention or destruction, and report at the next meeting of the Society.

There was a fine collection of winter pears exhibited by Messrs. Ellwanger & Barry, of Rochester, embracing twenty-five varieties. There were also some horticultural implements, and boxes and baskets for packing grapes and berries for market, on exhibition, which attracted considerable attention.

Toronto Horticultural Society.

The Toronto Horticultural and Botanical Gardens Society held its annual meeting on Tuesday, Feb. 16, in the Mechanics' Institute, Toronto—the President, Hon. G. W. Allan, in the chair.

The Rev. E. Baldwin read the report, which showed that the sum of $157 90 had been added to the balance of $217 12, with which the past year was commenced, so that the Society begin this year with a balance on hand of $374 02, the gross receipts being $2,765 01, while the expenditure was $2,390 02.

After the adoption of the report, the following officers were elected:—

President—Hon. George W. Allan; 1st Vice-President, Mr. James Fleming; 2nd Vice-President, Mr. P. Armstrong: Corresponding Secretary, Mr. W. S. Lee; Recording Secretary, Mr. J. A. Simmers.

Directors—Rev. E. Baldwin, Messrs. T. D. Harris, George Leslie, sen., Professor Buckland, J. A. Simmers, George Vair, S. Platt, W. Ince, J. Paterson, J. Grey, F. W. Coate, J. Gibson, Isaac Gilmour, J. Forsyth and Alex. McNabb.

Auditors—Messrs. F. Small and G. W. Buckland were appointed Auditors for the ensuing year.

Unleached Ashes for Orchards.

A subscriber, writing from Hamilton, enquires whether ashes would be injurious to orchards if applied unleached. In reply, we would say, there is no objection whatever to the use of unleached ashes, only they must not be applied in as large a quantity at a time as leached ashes. Our correspondent's orchard being in sod, he might spread on the unleached ashes at the rate of sixty bushels to the acre, early in the spring, and carefully plough the sod under, cutting a thin slice not more than four inches deep, and allow it to decay. This will form an excellent top-dressing for his orchard.

Potato bugs have become very numerous and destructive in Ohio. Mr. A. C. Larcomb, of Portage, in that State, from less than an acre of potatoes, killed *four bushels of potato bugs* by actual measurement.

We know a cultivator who had heavy crops of plums for seventeen years in succession, his swine for these seventeen years, without a season's interruption, being allowed the run of the yard.—*Country Gentleman.*

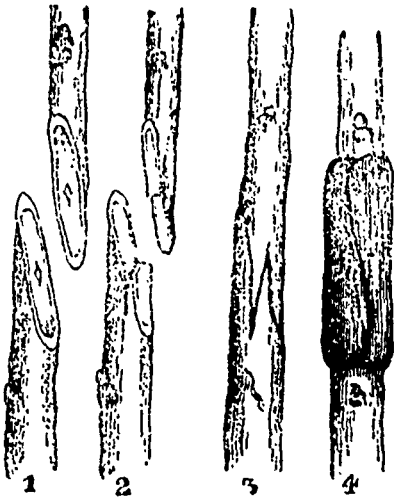
Grafting.

Enquiries on the method of grafting have been so frequently repeated lately, that although an article and illustrations on the subject were given in the last volume of the CANADA FARMER, there is no doubt that the following directions, which, together with the accompanying figures, are taken from the *Rural World*, will be acceptable to many of our readers.

In the early settlement of the country, fruit trees were generally propagated from seed. But trees propagated in this way, from kinds however good, gave *no assurance* that the seedling trees would produce fruit with the good qualities possessed by the parent. New varieties are thus produced, but generally, where one seedling tree produced fruit equal or superior to its parent, *many* would prove inferior, and frequently they are so degenerated that they are worthless. In order to obviate this difficulty, and to propagate those kinds only that are worthy of cultivation, grafting and budding are resorted to. Grafting was understood by the ancients. Fifty or more different methods were practised by the Romans. But since the demand for fruit trees in this country calls for them by thousands, but two different modes of grafting are generally practised, and these are such as can be performed with the greatest facility.

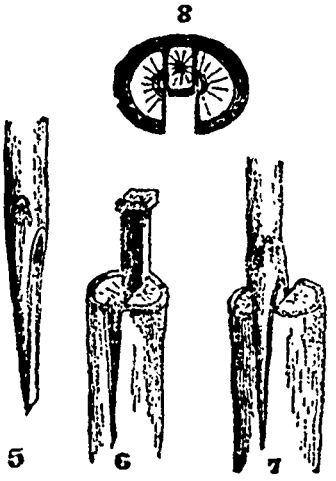
The most common method of grafting apple trees now practised by extensive nurserymen is to sow the apple seed either in the fall or spring. The seedling, on good land and properly cultivated, will, by fall, be large enough to graft. These are taken up and packed in the cellar, and the business of grafting is carried on through the winter. The grafts are packed in boxes, mixed and covered with moss, pulverized rotten wood or light earth, and placed in the cellar until the season of setting out arrives in the spring. Roots, grafted in this way, are cut into two or more pieces, according to their size and length, each piece forming a root for an individual tree.

If the graft is set in the stock or root, so that the sap may flow upwards without interruption, and that which is elaborated by the swelling bud and leaves may flow freely downward through the inner bark, the union is surely and readily formed. In order to secure this, certain requisites are to be regarded, the first of which is, that the operation be performed with a sharp knife, so that the parts may be cut smoothly, without mutilating the pores or sap vessels, and the two parts be brought into immediate and even contact. Secondly, that the parts be so brought together that a permanent and considerable pressure be applied to keep the parts in their proper places. Thirdly, that the union of the inner bark and the wood, both of the graft and the root, be brought together, so as to exactly correspond. Where the graft and the stock are not of the same size this union must be secured on one side. With a correct knowledge of the requisites for grafting, a little practice will soon make one perfect in the operation.



Formerly, the stocks at one year old were set in the nursery rows and cultivated one year, and then grafted at the surface of the ground. It is contended by some that trees propagated in this way are better and longer lived than those that are root grafted. Our experience does not enable us to answer this question. The last is a more tedious and expensive operation, and can only be done in the spring, when other operations are pressing. In some nurseries stocks are set in the way we have mentioned, and budded in the fall at a comparatively more leisure time.

Another method of grafting is extensively practised in seedling orchards, by removing the large limbs and inserting grafts in their stumps, or where it is desirable to have specimen fruit. A great variety of apples or pears may be inserted in the same tree.



The figures we give above will illustrate the various methods now generally practised in grafting fruit trees. Figs. 1 to 4 represent the successive stages of what is termed whip or tongue grafting, from the sloping cut of the graft and stock or root to the completion of the operation by binding. In practising this method of grafting, with one clean cut we make the proper slope, and, by reversing the knife, one cut downwards completes the tongue. In making the tongue, the cut downwards should be deeper than is represented in figures 2 and 3; it should be at least three-quarters to one inch deep. This increased depth adds greatly to the strength of the parts united. Figures 5, 6, 7 and 8 represent the respective parts of what is termed cleft-grafting, such as is usually employed in stocks planted in the ground, and in renewing the heads of old trees. Figure 6 represents the stock, opened with a wedge, ready to receive the graft. Figure 5 represents the wedge shape of the graft to be inserted, and figure 7 illustrates the graft in its place after the wedge has been withdrawn. It is only large stocks that require to be opened by a wedge. Nursery stocks are always grafted while they are so small that the graft itself will open the cleft. Figure 8 shows a cross section of the cleft graft. It will be seen that the graft is cut thicker on the outside than on the inside, in order that the points of union at the bark may fit the more firmly.

In figure 4 the band is represented. Our method of binding is somewhat different, and may be performed with great expedition.

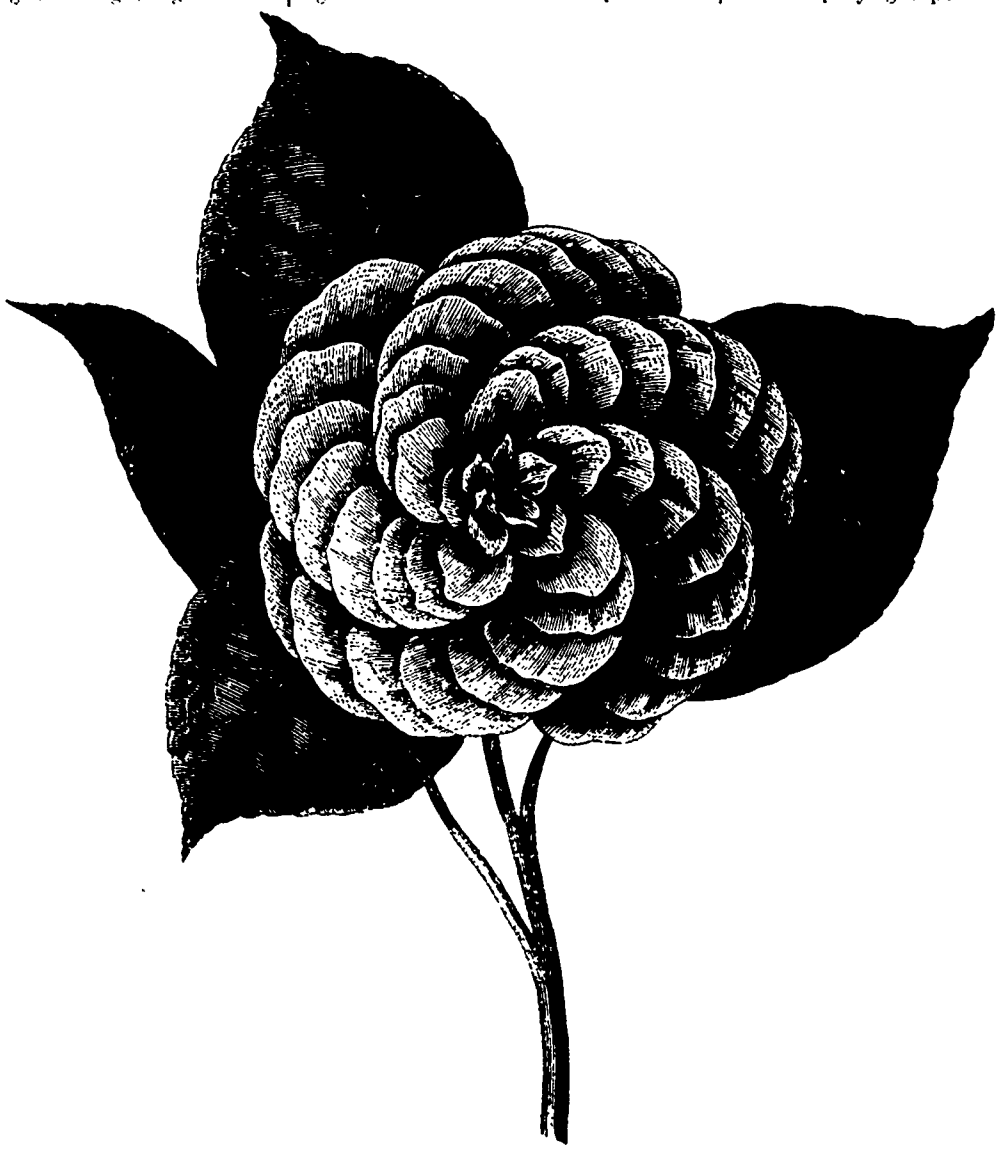
Take a piece of board with a planed surface, a yard long and nine or ten inches wide; draw a line with a pencil the entire length four inches from one edge, and draw another four inches from the first. These indicate the length of the bands. Along the edge of the board and along each line lay on with a brush a strip of grafting wax one inch wide. For making the bands provide common cotton cambric, worth 25 cents per yard. Draw the end of the cloth even with the second line made on the board, and stretch the cloth and press it on to the wax, so that it will adhere, and cut off the piece with a knife, even with the edge of the board. Then apply a coat of grafting wax one inch wide along the two edges of the cloth, and one inch wide on each side of the middle line. Then, with a sharp knife, across the board, cut the cloth into strips half an inch wide, and then draw the knife lengthwise over the middle pencil mark, cutting the bands into two lengths of four inches each. By a gentle fire the wax is kept at a proper temper, and the bands may be taken from the board as the binding proceeds, and applied to the grafts with the greatest facility.

When the stocks were of good size and the grafting well performed, we never found any great benefit from binding.

Grafting wax may be made by melting together about equal parts of beeswax, tallow and rosin: or the proportion of wax may be reduced for the sake of economy, and the rosin and tallow supplied in proportions that will give the proper temper to work readily and adhere well.

Camellia Count Esterhazy.

We present our readers with an engraving of a beautiful Camellia, from a plant in the collection of the Hon. D. L. Macpherson, Chestnut Park. Mr. Vair gives the following brief description of this new variety:—The habit of the plant is vigorous, leaves medium-sized; the colour of the bloom is a reddish crimson, deeper towards the margin: petals slightly veined or reticulated. But the great attraction is in the peculiar screw-like formation of the bloom itself, as will be seen by referring to the engraving.



Annual Report of the Fruit Growers' Association.

We would call attention to this very valuable report, which will be found as Appendix G. to the report of the Commissioner of Agriculture. It occupies something over fifty pages, and contains the constitution and by-laws of the Association, the President's address at the annual meeting, the prize essay on the cultivation of the apple, an article on hybridizing and crossing the grape, and another on the apple worm; a report on the Philadelphia raspberry, report on Mr. Bishop's Canadian seedling strawberry, besides reports on the different varieties of fruit from twenty different parts of the Province. It should be in the hands of every cultivator of fruit in Ontario. Every member of the Association is entitled to a copy of the report, and it alone is well worth the small annual member's fee of one dollar. Any person can become a member by sending to the Secretary, at St. Catharines, an intimation of his desire to do so, and enclosing the sum of one dollar. Every one interested in raising fruit will find himself well repaid by the information obtained in regard to the growing of the different kinds of fruit, and the best sorts to grow. Several meetings are held during the year in different places, and any place represented by twenty-five members is entitled to have a meeting held there, if desired. Hitherto the meetings have been held only in Hamilton, Toronto and St. Catharines, but as members increase in different sections of the country, the meetings will be held in other places. We expect that this Association will soon number among its members all the lovers of fruit in Ontario, and that it will prove of incalculable benefit in developing the fruit-growing capabilities of our Province.

The Nova Scotia Fruit Growers' Inter-Provincial Prize.

To the Editor.

Sir,—At the annual meeting of the Nova Scotia Fruit Growers' Association and International Show Society, held yesterday, I was instructed to forward to you for publication the accompanying report of the gentlemen who were judges on collections of apples competing for the Inter-Provincial prize at the late Exhibition in Halifax.

As a letter has recently appeared in The Globe on this subject, and one very desirable object in the Confederation of the Provinces of the Dominion is that we should become better acquainted with each other, and with the resources and capabilities of the respective Provinces, I may be permitted to add a remark or two with reference to this Exhibition and competition, more especially

as it is hard for many, who have not personal acquaintance with Nova Scotia, to believe that we have made such progress in fruit cultivation as will enable us to compete with other parts of the Dominion, or that our climate and soil will admit of it.

Allow me to say, then, that under an arrangement with Mr. Kilborn, the exhibitor of the Ontario collection, I took charge of the fruit on its arrival, unpacked it myself in the Exhibition Building, and had it carefully arranged and well placed, in the same court with the Nova Scotia collection, and that the apples were in perfect order.

The judges appointed were Charles E Brown, Esq., of Yarmouth, a gentleman who occupies the foremost place in that county as an experienced and successful cultivator of the finer sorts of fruit; Robert W. Starr, Esq., of Cornwallis, who is second to no one in this Province as a critical judge of apples, and who for several years past has devoted a good deal of attention to their nomenclature and classification, and Alfred Saunders, Esq., late secretary of the Royal Horticultural Society of the Island of Jersey, and now residing in Halifax. Only one of these gentlemen is a member of the Fruit Growers' Association, or in any way connected with it.

I think it will be admitted that from such a jury an intelligent and impartial award was to be expected: and while regretting any disappointment that may be felt in any quarter as to the result of the Exhibition, I am quite confident that no person who saw and examined the collection in Halifax will say that there could be any question as to the justness and propriety of their decision.

We can, and do, raise superior fruit in Nova Scotia, and in considerable quantities. It may be, however, that with longer notice, and more careful and extensive preparation, a collection of apples can be got together in Ontario which will entirely outshine anything we can produce. The fruit-growers of Nova Scotia will be happy to meet their brethren of Ontario at any future occasion in friendly and honourable competition; and whatever party bears away the palm next time, at least the great advantage will result that we shall be becoming better acquainted with each other, and doubtless be better friends in consequence.

JOSEPH R. HEA,
Sec. F. G. Association.

Wolfville, N. S., Jan. 20, 1869.

JUDGES' REPORT.

To the President of the Nova Scotia Fruit Growers' Association and International Show Society.

Sir,—We, the undersigned, appointed by the Council of your Association to examine and report upon the collections of apples in competition for the prize of one hundred dollars and a gold medal, offered for the "best collection of apples from any Province of the Dominion," having carefully examined the same as regards number, size, perfection and quality, beg leave to report as follows:

We find but two collections entered—one from Ontario and one from Nova Scotia. The one from Ontario numbers about sixty sorts. That of Nova Scotia contains over two hundred varieties.

In the comparison of standard varieties common to both collections, we find that those grown in Nova Scotia are much the largest and finest in the majority of cases, while in *some* instances the flavour of those from Ontario was superior to the others.

Of the described and recognized varieties there is a much larger proportion in the Nova Scotia collection than in that from Ontario. The number of standard or recognized varieties described by the American pomologists, Downing, Warder, Thomas, &c., contained in the Ontario collection, was about twenty sorts, while Nova Scotia had nearly ninety. Of those marked in their respective lists as native varieties and seedlings, Ontario showed eighteen, few of which were worthy of notice: and Nova Scotia about forty, many of which were superior both in appearance and flavour. The remainder of the Ontario collection was made up of medium and small-sized kinds, some of them very inferior in flavour and appearance, with apparently local names: but, in some instances, the names of superior fruit wrongly attached.

In the Nova Scotia collection, twenty-eight sorts were labeled with the growers' names only, being (as was explained to us) the produce of young trees imported from New York, and the names lost: some of these were very fine in appearance and flavour: the remainder appeared to possess local names, some of them being well known in the country.

In the comparison of the same sorts in the two collections, we find Northern Spy and Snow-apple equal in size and colouring, while the Ontario Snow-apple has the highest flavour. King of Tompkins County, Rhode Island Greening, Blue Pearmain, Talman's Sweet (misnamed Danvers Sweet, see Warder p. 557), Twenty Ounce Pippin (misnamed Baldwin, see Warder, p. 461), and Gloria Mundi (misnamed white Spaniah Reinette, see Downing, p. 214), of the Ontario collection, were much smaller, and in other respects not better than those grown in Nova Scotia. Ribston Pippin, and Yellow Bellefleur, of the Ontario collection, were quite small and inferior in appearance, while those of Nova Scotia were very large and well grown. The Gravenstein from Ontario, although much the smaller, was beautifully coloured and exceedingly high flavoured.

Of other varieties worthy of notice in the Ontario collection, we find Twenty Ounce Pippin (which seems to be the Twenty Ounce or Cayuga Redstreak of Downing and Warder), and Ramsdell's Sweeting, very large, good flavoured and handsome; Fall Pippin, and Black Detroit, large and fine; Yellow Newtown Pippin, Seek no Further, Butter Apple, Vandervere, Spitzenberg, Branslaugh's Seedling No. 4, and Fleming's Seedling No. 3, were of good medium size and flavour. Out of the numerous small sorts we only select two as worthy of particular notice, namely, James' Dessert, and Corwin's Winter Russet, both rich, and of high flavour.

In the Nova Scotian collection we find, of noticeable varieties, in addition to those already mentioned, the Emperor Alexander, Blenheim Pippin, Pound Sweet, Mammoth Russet, Broadwell, Early Bough, Keswick Codling, Dutch Codling, Sweet Russet, Drap d'Or, Golden Globe, Golden Ball, Canada Reinette, Colvert, Swaar, Hutchings' Seedling, Pumpkin Sweet, Golden Sweet, Cat Head, Ox Apple, and Micmac, which are large to very large, and many of them fine flavoured.

From the medium sized we select Autumn Strawberry, Porter, Williams' Red, Saxon, St. Lawrence, Munson Sweet, King of the Pippins, Calville Rouge, Early River, Autumn River, Rambo, Court-pendu-plat, Hubbardston's Nonsuch, Maiden's Blush, Æsopus Spitzenberg, Flushing Spitzenberg, Minister, Lyscom, Baldwin, Herefordshire Pearmain, Concord Pearmain, Delaware, Harvey, Striped Gilliflower, Summer, Bellefleur, Nonpariel, Roxbury Russet, Golden Russet, Hunt's Russet and Norfolk Beaufin, as well known standard varieties. From those marked native sorts, we select Calkins Pippin, Early Calkins, Sweet Calkins, Bishopsbourne, Sweet Redstreak, Morton's Red, Fall Pippin, Sandford's Blush, Port Wine, Johnson's Red, Jackson's Fancy, Pierce Apple, Pudsy Apple, Bellevue, Stair's Seedling, Black's Red, Segee, Willoughby, Margaret Pippin and Christmas Sweeting, for size, appearance and flavour.

Among the unknown varieties we particularly notice the kinds labelled Greenough, Lawson, W. Eaton, Ross, North, Harris, Woodworth, C. Sandford, Barss, Manning, Wilson and Dickie, as being large, handsome apples. We also notice a few of those small varieties which, although not profitable to the producer, rank high with the connoisseur as dessert fruit, namely, Pomme Grise, Golden Pippin, Royal Pearmain, Golden Reinette, Court of Wick, and Pomme d'Api.

In conclusion we would remark that, on the whole, the collection from Ontario cannot be considered a superior lot of apples, coming as they do from what we have always been led to believe was one of the best fruit-growing districts of the Dominion.

We, therefore, in view of the results of our comparisons—first, by number of kinds; second, by standard varieties: third, by identical sorts in the two collections; fourth, by size, appearance, and marketable value of the remaining kinds—have not the slightest hesitation in awarding the prize given by your Association, to the collection from Nova Scotia.

Given under our hands at the Exhibition Buildings in Halifax, this eighth day of October, A.D. 1868.

(Signed)
C. E. BROWN,
R. W. STARR,
ALFRED SAUNDERS,
} Judges.

Book Notices.

THE TRANSACTIONS OF THE MASSACHUSETTS HORTICULTURAL SOCIETY, [BOSTON] for 1868, forms a very neat pamphlet of over one hundred pages, containing some very interesting information.

From the report of the committee on fruits, by. W. C. Strong, Esq., our esteemed friend of earlier years, we learn that Hovey's seedling strawberry yet maintains its position among market men, but that the Wilson is steadily gaining upon Boston prejudice. The Jucunda gained friends last year. Agriculturist was unproductive. The new seedling raised by Hon. Marshall P. Wilder (considered worthy of being named "President Wilder") is reported "of largest size, superior in quality, beautiful in appearance, and firm enough for market purposes."

Cherries were scarce. Among currants the La Versaillaise is first on the list, yet this fruit is reported as becoming scarce in Boston market and enhanced in price. In raspberries, the Knevitte Giant "is the leading and prize kind." This fruit is also scarce and very high. The culture of the older sorts of blackberry is decreasing, and the newer varieties not yet exhibited. The Mountain seedling gooseberry was first among American kinds. In pears the Doyenne d'Ete appeared 1st of August. Beurre Giffard took the first prize on the 15th of August. Rostiezer was best August 29th and September 5th. At the monthly exhibition on the 10th October the best dish was Sheldon; second, the Urbaniste; third, the Beurre Bose. On the 14th November, the award for winter pears placed Caen de France first, Lawrence second, and Beurre d'Aremburg third.

There was an excellent crop of apples. The Williams received the first prize for summer, Gavenstein for fall, and Northern Spy for winter. In grapes, notwithstanding an extremely unpropitious season, there was a fair exhibition. The lowest wholesale price for Concords, of fair quality, was $12 per hundred pounds. The Framingham was reported identical with the Hartford, or so nearly so as to be undeserving a separate name. The "Main" is again pronounced to be only the Concord, and not a new grape at all. Israella and Adirondac took the prize as the best early grapes. September 11th. Arnold's new hybrid grapes were exhibited by Rev. W. H. Wilcox.

A special prize of sixty dollars was given to the pear "Clapp's Favourite," after a trial of five years, as the best seedling pear.

The report of the committee on plants and flowers is by Mr. J. C. Hovey, but there is very little in it of interest to the general reader. If in addition to stating that the first prize for the best collection of forty varieties of hardy perpetual roses was awarded to J. C. Chaffin, the worthy chairman of the committee had mentioned the names of those varieties, we should have been able to have informed our readers which roses were held in most esteem among Boston rose fanciers. The Gloire de Nancy geranium is mentioned as being one of the best double flowered varieties yet introduced.

From the report of the committee on vegetables, by C. N. Brackett, we learn that the General Grant tomato is early, productive, solid, and of fine flavour, and received the first prize over all others for two successive years, and that so far as can be affirmed from a single year's experience, the Early Rose Potato is the most promising early potato, of the finest quality, and wonderfully productive.

The report of the committee on gardens is exceedingly interesting, and from reading it we infer that this Horticultural Society has a standing committee whose duty it is to visit such gardens as are brought to their notice, under certain regulations, and to recommend the award to the proprietor of any of these gardens of such sum as they may think to be merited by reason of any feature in the cultivation, or of any particular skill displayed or success attained. For example, the committee award to Col. Wilder twenty dollars for his successful experiments in hybridizing *Lilium lancifolium* with *L. tigrieum*, and, what was more astonishing, the impregnation of the Japan lily by the *Gloriosa superba*. We commend this feature to the consideration of the members of our own Horticultural Societies.

TILTON'S JOURNAL OF HORTICULTURE.—The numbers for January and February were laid on our table together, though copies were sent us promptly at date of issue. Owing to the failure of the copies first mailed to come to hand, we have not been able to notice this handsome magazine earlier The January number contained a coloured lithograph of the "President Wilder" strawberry, which has been highly commended by the Fruit Committee of the Massachusetts Horticultural Society. The publishers have purchased the entire stock, and a plant of it will be presented to every subscriber to the magazine for 1869. Both numbers are finely illustrated with engravings of flowers and fruit, and filled with very interesting and valuable articles by such eminent horticulturists as Marshall P. Wilder, John Ellis, Joseph Brook, &c., &c.

THE "GARDENER'S MONTHLY," for February, contains a large amount of interesting horticultural matter. It gives a timely caution to its readers on the subject of Orange quince trees, one that may be of value to some of the readers of the CANADA FARMER. The planting of the quince has been largely on the increase, and the demand for Orange quince trees had exceeded the supply; and there are men who will send out the Angers quince to fill orders for Orange, because the Angers quince of that size costs them no more than $60 per thousand, and the Orange quince can scarcely be had at $250 per thousand. An article by the editor on the "Feeding Roots of Trees," goes far to sustain the views of our esteemed correspondent "C." It says that the root fibres of trees are only annual; that, like the leaves, they die every year; and that these root fibres will be found to be nearly all on the surface, decreasing in number and importance with every inch of depth, so that at a depth of one foot from the top scarcely a fibre will be found, only large roots—tap roots—but no root of the slightest benefit to the nutrition of the tree.

THE GRAPE CULTURIST, a monthly journal devoted to grape culture and wine making, edited by George Husmann and Charles H. Frings, is published at St. Louis, Missouri, at $2 per annum in advance. The January and February numbers have just been laid on our table, and are full of practical articles of great interest to those who are interested in the culture of grapes and the making of wine. The publication of such a journal is an indication of the great interest taken in the culture of the vine in the United States, and will be of great value in affording a medium of interchange of experience, as well as by imparting to beginners the stores of knowledge which its able editors have amassed in the course of many years' devotion to the science.

THE GRAPE-GROWERS' GUIDE, a plain and practical work upon the management of the grape vine. By J. Kuch, Waterloo, N.Y., price 25c. The system adopted by Mr. Kuch is the same as that recommended by Mr. Fuller in his treatise on the grape.

Catalogues Received.

Frost & Co.'s Descriptive Catalogue of Select Green House, Hot House and Bedding Plants, Bulbs, Dahlias, &c., cultivated and for sale at the Genesee Valley Nurseries, Rochester, N.Y.

Frost & Co.'s Descriptive Catalogue of choice Flower Seeds, imported in the spring of 1869. Genesee Valley Nurseries, Rochester, N.Y.

Frost & Co.'s Wholesale Catalogue or Trade List of Fruit and Ornamental Trees, Shrubs, Roses, Bulbs, &c., for the spring of 1869. Rochester, N.Y.

VICK'S ILLUSTRATED CATALOGUE.—By an oversight, we omitted, in noticing this excellent catalogue, to publish Mr. Vick's address, which is Rochester, N.Y., U. S.

Annual catalogue of choice and select Garden, Flower and Field Seeds, cultivated for and sold by John Vanderbilt & Brothers, No. 23, Fulton Street, New York.

Ellwanger & Barry's Wholesale Trade List of Fruit and Ornamental Trees, Shrubs, Roses, Dahlias, Bulbs, &c., &c. Rochester, N.Y.

Annual Trade List of the Cherry Hill Nurseries, West Chester, Penn., spring of 1869. Hooper Bro. & Thomas, proprietors.

Catalogue of Arnold's Canadian Hybrid Grapes and Raspberries, from Charles Arnold, Paris, Ontario. This is a descriptive list of the new seedling grapes and raspberries raised by Mr. Arnold, and now for the first time offered to the public.

P. M. Watson's Catalogue of Select Fruit and Ornamental Trees and Shrubs, Roses, Bedding Plants, Greenhouse Plants, &c., &c. Old Colony Nurseries, Plymouth, Mass.

This catalogue also embraces a list of garden seeds, fruit and ornamental tree seeds and flower seeds.

Ellwanger & Barry's Descriptive Catalogue of Fruits, illustrated with engravings of dwarf fruit trees and of small fruits. It is a very full and useful list of the fruits now in cultivation in one of the most extensive and enterprising nursery establishments on the continent, giving, in a few words, the quality and value of the several fruits. Rochester, N.Y.

SIMMERS' CULTIVATORS' GUIDE FOR 1869.—A descriptive catalogue of Agricultural and Garden Seeds, by J. A. Simmers, Toronto, containing brief and clear directions for the cultivation of vegetables and flowers, and much useful information on a variety of horticultural subjects. The catalogue is profusely illustrated. Mr. Simmers advertises for sale, among other novelties, the Early Rose Potato.

Hovey & Company's Illustrated Catalogue and Amateur Cultivator's Guide to the Flower and Vegetable Garden, &c., &c., 53, North Market Street, Boston, Mass.

This catalogue occupies nearly one hundred and fifty pages, closely printed, containing directions for the cultivation of annual, biennial, and perennial flower-seeds, with special directions to amateur cultivators, and plans for flower-beds, descriptions of flower and vegetable seeds, of gladiolus, Japan lilies, and other bulbous flowering plants, and is profusely illustrated with engravings of the most interesting plants, flowers, and vegetables, and ornamented with two coloured lithographs. Price 25 cents.

WASHBURN'S AMATEUR CULTIVATOR'S GUIDE TO THE KITCHEN AND FLOWER GARDEN.—We thought, on receiving Vick's Catalogue, there was nothing to equal it, but we were mistaken. The above Guide and Seed Catalogue is a handsomely got up volume of 152 pages, illustrated with cuts, and also eighteen lithographs of some of the new varieties of potatoes, tomatoes, and flowers, some of these coloured after nature. It is published by Washburn & Co., of Horticultural Hall, Boston, Mass., the oldest established seedsmen in America, and sent on receipt of 50c. We notice that they keep for sale seed of all the favourite English grasses and forage plants.

John A. Bruce & Co.'s Descriptive Catalogue of Agricultural, Garden, and Flower Seeds, Culinary Roots and Flowering Bulbs, 52 King Street West, Hamilton.

This is Mr. Bruce's eighteenth annual edition, and contains, besides the usual list of farm and garden seeds, a special list of all the novelties in that line, including the new potatoes, the report of the judges on the Wentworth turnip match, lists of hardy native and select foreign grapes, strawberries and garden implements.

Mr. Bruce's establishment in Hamilton contains besides an excellent assortment of the above articles, standard works on Agriculture, Horticulture, and Rural Economy.

Ferre Batchelder & Co.'s Catalogue of Seeds, Vegetable and Flower Garden Manual, comprising a list of all the valuable varieties of American growth, together with many rare varieties, novelties, &c., with special directions for their cultivation, to which is added a list of summer flowering bulbs and small fruits, containing 80 closely printed pages. Price 10c. 231 Main street, Springfield, Mass.

Longevity of Fruit Trees in Britain

During my visit to England last summer, I was not a little surprised at finding, in the lower part of Kent, a gooseberry bush in full bearing, which originated from a cutting I sent from Lancashire forty-two years ago! There can be no mistake as to its identity, it having been in the possession of the same person for the greater part of that period. Several other bushes of different kinds, raised from cuttings sent from the same place and at the same time, were alive and bearing but a few years since. The soil is a good clay loam, and the situation freely exposed to light and air. The bushes were annually thinned by judicious pruning, and otherwise well cared for. Insect depredations were vigilantly kept down, and mildew all but entirely unknown. The variety in question is the "Roaring Lion," a sort very popular many years ago; the berries last summer were, notwithstanding the drought, of good size and flavour, amounting, I should suppose, to considerably more than a quart. The tree, for several years, has gradually evinced symptoms of decline, but for aught that appears at present to the contrary, may survive, with the exercise of the same care, some time yet. It should be borne in mind that the climate of this part of England is much less suited to the gooseberry than that of Lancashire, the south being both drier and warmer than the north-west.

I well remember the gooseberry shows of Lancashire and Cheshire thirty or forty years ago. The size of the berries exhibited was something enormous. I am afraid to state the weight and measurement, lest my memory should mislead. The fruit raised for these competitions was chiefly grown by hand-loom weavers living in the country—a class of men now almost extinct, after a severe and prolonged struggle with steam-power. Horticulture, in several of its branches, owes not a little to this class of work-people, some of whom made considerable progress in the study and advancement of various branches of natural science—botany and entomology in particular. A weaver working in his house could throw down the shuttle at any moment, and attend to the productions of his garden immediately surrounding. He would take as much care—in some instances, perhaps, more care—of his gooseberry bushes, as of his children, reduce the number of berries to a very few, and surround the stems at the surface with muck or moss, and in dry weather moisten it frequently with water, or manure in a solvent condition. On a show day he would often walk many miles with a dozen or two of berries carefully packed in a basket. A copper teakettle was a prize commonly offered in gooseberry competition, and I have seen the ceiling of a country weaver's kitchen literally covered with this article, the results of many years' competition, and the owner would point to these trophies with strong feelings of justifiable pride.

The durability of fruit trees, and perhaps of forest trees, in England, is generally much greater than on this side the Atlantic. I observed peaches, nectarines and apricots, trained to open walls, still bearing, that had been planted 30 or 40 years; and also filbert trees of a similar age, still bearing. I gathered some pears of good size and quality of the Poplar variety from the only surviving branch of a tree which was, to my own knowledge, in a decaying condition half-a-century ago! It would appear to be a law of organic life that slow growth and durability are connected as cause and effect.

It is worthy of remark, in travelling through Britain, a distance of only a few hundred miles, say from Cornwall to Sutherlandshire, how exposure and elevation of the surface, rather than mere latitude, affect both animals and plants. Cattle have quite different coats on the eastern to what they have on the western side of the country, arising in great measure from differences in atmospheric humidity. In Cornwall I partook of ripe strawberries grown in the open air in May, and journeying northwards found that delicious fruit coming progressively into season, and finished with some of a most agreeable acid flavour in the north of Scotland, as late as September.

Notwithstanding the abuse which the English climate frequently comes in for, I am of opinion that in no other country in the world has the horticultural art been carried to so high a state of excellence, or it might be said, perfection. From the humble cottage, with its neat little garden of vegetables, fruits and flowers—honeysuckles and roses entwining around its doors and win

dows—to the extensive and picturesque grounds of the lordly mansion, with the necessary adjuncts of orchards and capacious conservatories the love and progress of this useful and refining art can be distinctly traced. The explanation must be sought for in the harmonious balancing of capital, science, and practical skill, under the general guidance of a correct and elevated taste.

GEO. BUCKLAND.

Bureau of Agriculture, }
Toronto, Feb. 7, 1869. }

The Apple in Quebec.

To the Editor.

SIR,—I was glad to see in the CANADA FARMER of January, an article on the culture of apples, which I so much want to see attended to down here. I am only theorising, but do think that this Canada East which has so hard a name—these few acres of snow—might be rendered vastly more prolific in the comforts of life. One of the chief of these is in my opinion the *apple*. It is supposed to have been the forbidden fruit, and I am sure that to most people in Quebec city it is such, because of the high price of our imported apples, *and they are all imported*. I argue that they could be produced as far east as this city, for the following reasons :—

1st Our climate is very like that of Montreal, and Montreal is famous for its apples. We are a little later in the loss of our snow, but that I hold to be an advantage, as it is the late spring frosts, coming after early spring vegetation, which damage fruit trees.

2nd. If nature produced a certain sort of trees in one place, in which place, say, apples will succeed, we have a right to expect they would grow in another neighbourhood in which we found the same sort of trees. Now our bush is exactly the same as that about Montreal.

3rd. If one man can grow an apple tree, so can another under similar circumstances. Further, if one will grow, so would 1,000, or a million. I have known five or six farmers with one or two apple trees flourishing in a district condemned (ignorantly but persistently) as unable to produce the fruit. Here and there in the neighbourhood of this cold corner, apples grow and flourish. I heard yesterday of a gentleman at Charlesbourg, (close to Quebec), possessing an orchard, one tree of which produced eight barrels. I know a gentleman, H. G. Joly, M. P., who within twenty miles of the city has an orchard which yields very fairly. This gentleman produces greengages in the open air and has a collection of most delicious plums, larger than an egg, which, together with cherries, are produced in good quantities Now if one man can do this, I can see no reason why many could not do the same. As I said just now, I am only a theoriser in this matter, because I have had no opportunity of being otherwise at present, but I should be neglecting my duty to my country if I did not call attention to its undeveloped resources, and I do think it a shame that there is so little variety of produce where there might certainly be much more. I hope the extending circulation of your valuable paper will bring about some of these results. If he deserves the blessings of his race who causes two blades of grass to grow where one grew before, much more does he deserve it who induces many men to bring such desirable results about. I know no man who deserves so well of his country as the one who diffuses reliable agricultural information and induces improved cultivation of the soil.

PHILA.

Quebec, Feb. 3, 1869.

A Select List of Well-tested Apples.

SUMMER.	
Red Astrachan,	Early Harvest,
AUTUMN.	
Duchess of Oldenburgh,	Gravenstein,
Fall Pippin,	St. Lawrence,
WINTER.	
Baldwin,	Fameuse or Snow Apple
Northern Spy,	Esopus Spitzenberg,
Pomme Grise,	Rhode Island Greening,
Ribston Pippin,	Golden Russet,

What Pears to Plant.

A subscriber from London makes the following enquiry : —

"I will thank you, through your next number of the CANADA FARMER, to inform me, to the best of your knowledge, of the names of the most approved kinds of standard pears, as I wish to plant some this spring. Good sized fruit, and to ripen either summer or fall (no winter kinds).

"Also, please say if the spring is a good time to top-dress an orchard with long dung, made this winter."

REPLY BY THE EDITOR—Spring is a very good time in which to apply such a top-dressing to the orchard. It is gratifying to see that sufficient value is placed upon the orchard to induce the inquiry, for heretofore orchards were expected to yield fruit without manuring. The well tried and most approved varieties of standard pears, are, for summer and fall :—

Doyenne d'Ete,
Beurre Giffard,
Osband's Summer,
Tyson,
Bartlett—Beurre d'Anjou,
Belle Lucrative,
White Doyenne,
Flemish Beauty,
Seckel—Sheldon.

The four first named are small-sized in fruit, as are all the earliest sorts. The Seckel also is small, but unsurpassed in quality. The other varieties are of good size, best quality, and give a good succession.

What Shall We Plant?

As spring approaches, the inquiry, "What shall we plant?" is uppermost in many minds. To aid those who are distracted by the claims of the thousand and one things that are all "so beautiful and worthy of a place in every collection," according to the nurseryman's list, we propose to select a few of the trees and shrubs that are planted for ornament, that can be readily obtained, and that have been proven to be really ornamental and valuable. It is not intended at this time to discuss soils, situations, styles of planting, or purposes intended to be served; but presuming the planter understands these details, we now briefly enumerate the most suitable and valuable in our climate.

Of large-growing, deciduous trees we name the European Ash, English, Scotch, and American Elms, Horse Chestnut, European Larch, European and American Linden, Sugar Maple, Silver Maple, Norway Maple, and the Tulip Tree. These trees are well adapted for streets and avenues, and for planting extensive grounds and parks.

The Purple-leaved Beech, Red Flowering Horse Chestnut, Judas Tree or Red Bud, Purple-leaved Maple, Mountain Ash, English Oak, Virgilia or Yellow Wood, Rosemary-leaved Willow and European White Birch, will be found to meet the wants of those whose grounds are of but limited extent.

Those wishing drooping trees will find them in the Cut-leaved Weeping Birch, the Camperdown Weeping Elm, the Weeping Mountain Ash, New American Weeping Willow, and Kilmarnock Weeping Willow.

Our list of evergreen trees is yet quite incomplete. Many of the most beautiful varieties have not yet been planted in Canada a sufficient time to test their ability to endure our climate. But yet there are some beautiful specimens in this class that can be planted with confidence. Of the large growing sorts we can recommend the White Pine, Austrian Pine, Scotch Pine, Balsam Fir, Norway Spruce, White Spruce, and Hemlock. Those that attain to a medium size are the American Arbor Vitæ, Siberian Arbor Vitæ, Red Cedar and common Juniper; and of those of a dwarf habit we have the Trailing Juniper, Savin Juniper, Tom Thumb Arbor Vitæ, and American Yew.

Are there not some gentlemen of taste who will plant some of the many interesting and beautiful evergreen trees and shrubs that give promise of enduring our climate, and report their success or failure?

The following list of shrubs will be found to comprise those which are most desirable and hardy: The Purple-leaved Berberry, White Fringe, Rough-leaved Deutzia, Double Crenate-leaved Deutzia, Tartarian Honeysuckle, Persian Lilac, Purple Fringe, Japan Quince, Double Plum-leaved Spirea, Double Lance-leaved Spirea, Fortune's Spirea, Rose-coloured Weigilia, and, no doubt, the new Prunus trilobata.

Fruit Competition.

(To the Editor).

SIR—Will you allow me to answer, through the columns of your journals the challenge of Mr. Harris, of Nova Scotia. Now, Mr. Editor, this challenge is given in such a way as to make it impossible for us to accept. In the first place, it meets my eye for the first time on the 6th of February; and his proposition is only for the last year's crop of fruit, and the trial to come off in Nova Scotia; and further, he must have just such varieties as he happens to have on hand, and which, perhaps, not another man in the whole Dominion would have at this late season of the year. Again, he does not give us his rules as to judges, &c.; so that before all those items could be arranged the fruit would be spoiled—especially as our apples would have to be subjected to the accidents incidental to such a journey at this time of year, especially the pounding over 1,000 miles of railway. Now, if Mr. H, or any other Nova Scotia friend, would really like to have a fair competition, we will submit a plan, and appeal to all intelligent and fair-minded pomologists if it is not eminently fair to all parties. Meet us half way—say at Montreal—select 20 of your best varieties, 10 of fall fruit and ten of winter fruit, 12 of each variety—10 varieties to be baking apples and 10 dessert fruit- quality to rule; but stipulate that the samples shall not fall below the medium size, as laid down by Downing. Each of the contestants to select such varieties as may be considered the best from his own Province Judges to be chosen from the United States. The defeated party to pay all necessary expenses of the contest.

Yours respectfully,

J. C. KILBORN.

Beamsville, February 18.

Pear Growing.

"Cultivateur" writes as follows:—

"Not having any experience in pear growing, I write to you for information. What are the best varieties of summer, autumn, and winter pears for the country in the vicinity of Toronto, say two of each. The soil is a heavy clay? The reason why so few pears have been grown is that we have so few hardy and productive kinds."

Will some of our readers, living at Toronto or vicinity, who have had some experience in growing pear trees, have the goodness to give "Cultivateur" the benefit of their experience?

"How can pear trees be raised from the seed? I have sown the seed several times in the fall, on good soil, but the seeds never germinated, Is there any different manner of sowing them? Are not pear trees raised from the seed more hardy and productive than grafted trees?"

There is no better way. Seed sown in the fall ought to grow. Was it sound seed when sowed? for if it is allowed to heat in the pomace it will not germinate. Or did "Cultivateur" cover it too deep? It needs only a very slight covering. No doubt some of the seedling pear trees will be hardy, perhaps more hardy than those in cultivation; but the quality of the fruit will be very uncertain, unless hybridization or cross-fertilization is resorted to. With a little attention to this, and judicious selection of parents, the results will be as certain as those of the stock-breeder, and good quality, quantity and hardihood be secured in the seedlings. The Buffam, Beurre Diel, Flemish Beauty, Louise Bonne de Jersey and Summer Bon Chretien, have the reputation of being our most hardy pears, and particularly the Flemish Beauty and Bon Chretien. With such varieties as these, there should be no difficulty in securing a hardy and valuable race of seedlings.

New Material for Strings.

A correspondent of the *Ohio Farmer* speaks in high terms of the value of the plant known by botanists as the *Yucca filamentosa*, one of the varieties of the Adam's Needle, for supplying strings as tough as leather, useful for every purpose of the farmer and gardener where strings are needed. He says it grows wild on the Southern Ohio and Mississippi, sending up leaves from three to four feet long. Perhaps it may be profitable to gather the leaves and prepare them for use in these northern parts, where the plant is not found.

TO PROLONG FLOWERING.—By cutting off the seed vessels of flowering plants, as soon as the petals drop, the plants will be kept in greater vigour, and the season of flowering be considerably prolonged.

POINSETTIA PULCHERRIMA POISONOUS.—As a warning to hothouse gardeners, I think it my duty to inform you of an accident which occurred to Mr. Buck, my gardener. On the 8th of this month, as he was pruning a plant of *Poinsettia pulcherrima*, he cut his thumb, but took no notice of it at the time, so slight was the incision. On the Thursday following, however, he felt an unpleasant prickling sensation in the thumb, which soon extended up the arm. On Friday it was succeeded by great numbness in his right arm and leg, and upon consulting a medical man he found that the poisonous juice of the plant produced these painful sensations. His leg was so much benumbed as to render it useless, but upon further applications of the fomentations and other remedies prescribed, the baneful effects have now subsided, leaving only a few spots on the lower part of his thumb, similar to those of the small pox. OSWALD MOSLEY, Bart., Rolleston Hall.—*The Journal of Horticulture.*

Agricultural Intelligence.

Agriculture and Arts Association of Ontario.

FIRST MEETING OF THE BOARD

The newly-elected Council of the Agriculture and Arts Association of Ontario met for the first time since the re-organization of the Board under the provisions of the present Act, at the office of the Association, on Wednesday, February, 24th. The following elected members of the Board were present — The Hon. David Christie, Paris; Hon. J. Skead, Ottawa; Andrew Wilson, Maitland; John Walton, Peterboro'; Geo. Graham, Brampton; James Cowan, Waterloo; J. C. Rykert, M. P. P., St. Catharines; Robert Gibbons, Goderich; Lionel E. Shipley, Kirkirk; and Stephen White, Charing Cross, Kent. The following were present *ex-officio* — Professor Buckland, Professor of Agriculture, University College; Dr. Beatty, President of the Mechanics' and Arts' Association, and Mr. W. H. Mills, President of the Fruit-Growers' Association. Messrs. Edwin Mallory, Napanee, and Geo. McDonell, Cornwall, the remaining elective members of the Board, were absent. Mr. McDonell telegraphed to say that, owing to the storm, he would not be here before noon next day. Mr. H. C. Thomson, Secretary, acted as secretary to the meeting.

To allow time for the arrival of the absent members of the Council, the meeting adjourned till the day following, but before the members left the room, Mr. Mallory arrived, making only one absentee.

On the re-assembling on Thursday, Mr. Hugh C. Thomson, the Secretary, took the chair. No particular business was transacted during the morning, as it was deemed desirable to wait till afternoon for Mr. McDonnell. Mr. Christie, who had been nominated for President wished his name withdrawn, as he had determined not to become a candidate.

In the afternoon, after another adjournment, business was resumed, and Mr. Edwin Mallory having been elected President of the Council, took the chair. Mr. Lionel E. Shipley was elected Vice-President.

After considerable discussion, Mr. George Graham, of Brampton, was elected Treasurer, the salary being fixed at $400 per annum.

The Bank of British North America was selected in which to deposit the funds of the Association.

Mr. RYKERT moved, seconded by Mr. McDONELL, that four securities of $5,000 each, the Treasurer himself in security of $10,000, should be given by the Treasurer. Carried unanimously.

Mr. MACDONELL moved, seconded by Mr. RYKERT—That a new seal be procured for the Board. Carried.

The question of appointing a new Secretary was then brought up, and excited considerable discussion, but the motion to that effect, as well as another to postpone the decision, were lost, and Mr. H. C. Thomson was retained to fill that office.

Mr. RYKERT moved that Messrs. Christie, White, Cowan, Mills and Dr. Beatty, be appointed a Committee to approve the Treasurer's security, and that they meet at the office of the Board on the 17th of March.

Mr. CHRISTIE moved, seconded by Mr. McDONELL, that Professor Croft be consulting chemist, that Andrew Smith be veterinary surgeon and referee; that James Fleming be seedsman; that W. A. Cooley be general superintendent of the exhibition; that J. E. Pell be superintendent of the arts and manufactures departments, that J. Fleming and W. H. Mills be superintendents of the grain, roots, and horticulture departments. Carried.

At this stage of the proceedings, the minutes of the Board were read and approved of. The Secretary then read the Auditors' report.

The Auditors appointed at the Annual Meeting of the Agricultural Association of Ontario, held at Hamilton, in September, 1868, would first remark, that under existing circumstances, they have felt it their duty to allude to matters which occurred prior to the year 1868.

The classified account of receipts and expenditure, prepared by the Secretary from his books, and those of the Treasurer, together with the vouchers, will show, -

The balance [illegible] to be	$12,493 67	
The receipts	19,539 85	
Total		$32 021 52
The payments		25,116 38
showing a balance on hand		6,908 14
The Treasurer brings down a balance in his books of	559 11	
To which add 1 two items twice charged	11 00	
		570 11
By adding the charge for commission made by the Treasurer in 1867		6,538 00
Making		$6,908 11

It will be seen the accounts so far agree.

Add to this,

Interest on renewals of Note, 1867	159 26	
Interest on renewals of Note, 1868	150 59	
Commission charged by Treasurer in 1868	$800 00	
		1,109 85
These together		8,017 99
There is a Note held by the Bank of British North America against the Board, under the seal of the Board, signed by the President, Treasurer and Secretary		8,017 99
And, now under protest, for	3,800 00	
Interest and Protest for 23rd February, 1869	143 86	
		3,943 86
There is also a balance left from the Paris Exhibition Fund, reported to us to be about		1,022 02
There is also a balance left from the fund given for the entertainment of the Maritime Guests, at London, in 1865, reported to be about		300 00
These together make		13,283 87

Which sum remains in the Treasurer's hands, to be accounted for to the Association.

In the accounts of 1868, the sum of $1,600 is charged as Treasurer's salary; and in the accounts of 1867 $400 is charged, making together $2,000; which, by resolution of the Board, was appropriated to Mr. Denison, as Treasurer, for the years 1867 and 1868.

The Auditors, in charging the interest, as above, back to the Treasurer's account, do so believing that no such necessity existed as that of discounting a note; large balances appearing from year to year to the credit of the Association, and upon which no interest has been allowed.

The money given by His Royal Highness the Prince of Wales to be invested, the interest of which, from year to year, to be given in a prize or prizes, was lent to the late Col. Thomson, then President of the Board; the amount was £200 currency, or $800.

It bears interest at 8 per cent., which appears at the credit in account. We are informed that this is secured by a bond given by the executors of the deceased.

We would respectfully draw the attention of the Board to insurance on property. We are of the opinion that the Library should be insured; and it is a matter for the Board to consider, if a sufficient amount is insured on the Hall.

The farm property is insured in a Mutual Company; Mr. Denison, the Treasurer, being liable on a note for premium, for $48, upon which $4 has been paid and charged in accounts.

The certificate of the Secretary, as to the issuing of orders for payments, to the amount of $229, for which we had no vouchers, will explain itself. Since the certificate was made out Mr. Denison has produced receipts, and the butts of his cheque book showing all paid but five persons, the amount $27. We have not deducted this sum from the accounts. The Treasurer placed before us vouchers paid since the 31st December, 1868, amounting to $405 91; these are entered in the Treasurer's books, and certified to by us, and the vouchers handed over to the Secretary, but not included in the accounts.

JAMES JOHNSON, } Auditors.
THOS. D. HARRIS, }

Toronto, 23rd Feb., 1869.

Our charge for audit is $122.

JAMES JOHNSON.
THOS. D. HARRIS.

The Auditors' Report was received, and the charge ordered to be paid. Before passing any vote on Mr. Denison's claim for $800 commission, it was resolved to request him to meet the Board on the following day.

Mr CHRISTIE said it had been an understood thing with Mr. Denison's Solicitor, that the item should be withdrawn. He did not see how then it appeared in the report. The Secretary explained, that in a conversation with Mr. Denison, that gentleman had disclaimed all knowledge of such an agreement having been come to by his Solicitor.

Dr. BEATTY stated that the Board had all along distinctly repudiated the idea of Mr. Denison's right to charge any commission in any circumstances. When the idea was first mooted an augmentation of $600 had been made to Mr. Denison's salary, on the distinct understanding that the Board should hear no more of charges for commission.

The Secretary read a letter from the Poultry Association to the following effect:—

SIR—I have the honour to inform you that the Ontario Poultry Association have instructed me to communicate with the Council of Agriculture and Arts Association of Ontario on the following subjects:—

1st. That in reply to a deputation from the Ontario Poultry Association to the Commissioner of Agriculture and Arts, soliciting a grant of money in aid of the Association, they were referred by that gentleman to the Agricultural Association as a body, receiving from the Government a large annual money grant, a portion of which is appropriated to the same object as that for which the Poultry Association was formed.

2nd. That, in view of the many obligations already received from the late Board of Agriculture, the Poultry Association did not feel justified in making the application suggested by the Commissioner of Agriculture and Arts; nor do they now deem it prudent to solicit from the Council of Agriculture and Arts Association a direct annual grant.

3rd. The Poultry Association, however, desire to direct the attention of the Council of the Agriculture and Arts Association to the admitted fact, that, since their organization in the latter part of the year 1866, marked improvement has taken place in the specimens of poultry shown at the respective exhibitions—Provincial as well as local—held since that period; that such improvement is evident in the increased number and improved breeds of birds shown, the class of persons who have recently become exhibitors, the importation into the Province of breeds of poultry hitherto unknown therein, and generally the increased interest in poultry taken by a large class of persons hitherto indifferent to such matters.

4th. That this desirable state of affairs is chiefly attributable to the wholesome competition which has, under the auspices of the Poultry Association, lately arisen, and to the high standard of excellence adopted by the Association, whereby judges, in awarding prizes, are guided and governed, which standard, to the poultry fancier, cannot fail to contrast itself forcibly with the mode of judging and classifying fowls adopted at Provincial Exhibitions prior to the inauguration of the Poultry Association, and which at county and township shows still obtains.

5th.—*In view of the foregoing facts*, the Poultry Association respectfully submit to the Council of the Agriculture and Arts Association whether it would not be alike in the interests of that body, as in creating a still greater impetus to the importation and improvement of the breed of poultry in this Province, to transfer to the Poultry Association the entire control and management of the poultry branch of their annual exhibitions, with power to prepare prize lists, appoint judges, award and withhold prizes, and generally to conduct the details of that branch of the exhibition, in the same manner and under the same rules and regulations as those by which the exhibitions under their own auspices are guided and governed, and that the amount of prizes awarded, as well as other expenses incurred in respect of such exhibitions, be paid out of the funds of the Agriculture and Arts Association, together with an annual contribution of $——* towards the funds of the Poultry Association, by way of remuneration in attending to the duties above enumerated.

I have therefore to request that you will, as soon as convenient, submit for the consideration of that body the subject of this communication.

I have the honour to be, Sir,
Your obedient servant,
THOS. McLEAN,
Hon. Secretary.

Mr. MILLS moved, seconded by Mr. SKEAD that a by-law be enacted appointing the President, Mr. Christie, Mr. John Walton, Mr. J. C. Rykert, and Mr. Cowan, to be an Executive Committee.

This by-law, after some discussion, was passed.

Mr. RYKERT moved, seconded by Mr. MILLS, that the annual exhibition be held on the 20th, 21st, 22nd, 23rd, and 24th of September.

Mr. CHRISTIE suggested that the Secretary should be instructed to notify the Agricultural Associations of Quebec, New York, Ohio, Illinois, and Michigan, of the time appointed for the holding of the Ontario Exhibition.

Professor BUCKLAND suggested that the next meeting of the Board be held at London, as early in the Spring as possible. Agreed to.

Mr. RYKERT moved, seconded by Mr. WILSON, that the Treasurer be authorized to pay such amounts, from time to time, as the Executive Committee may recommend. Carried.

Mr. WELD, of the *Farmer's Advocate*, was introduced to the meeting and urged the propriety of establishing an Agricultural Emporium, in which seeds could be collected and tested, and agricultural machines always at the command of the farming community. The whole subject was refered to the Executive Committee.

The Council adjourned till Friday morning at half-past nine.

The third day's proceedings commenced with the reading of the minutes of the previous meeting, after which Mr. Denison was introduced by the chairman, and proceeded to defend his claim upon the Association for commission. The substance of his statements is contained in the following letter written by him to the late President of the Board, and which the read :- "When making out my account this year I made a charge of one per cent. upon the money I received from the Government, and which I paid to the Riding Societies of the Province. This work I have performed for 15 years without any remuneration whatever. When I was elected Treasurer of the Agricultural Association the above was no part of my work, and it was not till some years after this extra work and responsibility was thrown upon me by an Act of Parliament. I have been relieved of the work which has been assumed by the Agricultural Department of Ontario, and I will venture to say the whole work will cost as much, if not a great deal more, than I have charged. When the subject came before the auditors, they said the charge was not at all in proportion to the responsibility and work.

When I first accepted the office of Treasurer to the Association (I was elected in my absence and without my knowledge), the work and everything in connection with it was in a far different state to what it is now, and has been for the last ten or fifteen years; yet there has been no increase in the salary attached to it.

The whole receipts of the Society in 1846 only amounted to $1,900, in 1847, $2,000, and in five years after, $8,000. It was in that year the Bill passed, under which I had to pay the Riding Societies $29,000 in addition to my other greatly increased work for the Association, in all $37,000.

The work has gone on increasing till now, when it amounts, as per the last completed audit, which was December 21st, 1866, to $81,449, made up as follows :—

Received on account of the Board ..	$ 5,265
Riding Societies ...	49,167
Associations	27,017
	$81,449

On these grounds Mr. Denisons' adhered to his claims for commission. In reply to an enquiry whether the matter could not be arranged by arbitration, he said that he did not like arbitration, and finally it was resolved—

That after hearing the explanations of Mr. Denison, and the old members of the Board, this Board is of opinion that the charge of the late Treasurer for commission should not be allowed, and that unless the money be paid over to the present Treasurer in one month, or security given, satisfactory to the Executive Committee, legal proceedings be taken to recover the same.

Mr. RYKERT moved, seconded by Mr. CHRISTIE That a special Committee, consisting of Messrs. Dr. Beaty, Macdonell, Graham, Christie, Cowan and the mover, be appointed to examine into and report to this Council upon the claims of the Association to the several Palaces and buildings in Toronto, London, Kingston and Hamilton, and the securities, if any, held by the late Board upon the same.—Carried.

Moved by Mr. RYKERT, seconded by Mr. MACDONELL—That the Secretary and Treasurer be instructed to insure the Library and Furniture of the Association in some Stock Company for a sum of not less than $2,000. —Carried.

Moved by Mr. RYKERT, seconded by Mr. CHRISTIE—That the Secretary be instructed to notify the Secretary of the Poultry Association, that their communication will be referred to the Executive Committee for their report.

Mr. CHRISTIE moved a By-law to the effect—That the Treasurer shall, as soon as convenient, deposit in the bank of the Association all moneys received on its behalf; that the Treasurer shall keep a deposit account of silver received on behalf of the Association in such bank. That the Treasurer shall, at the end of each month, prepare a statement of the receipt and expenditures of the Association, and publish the same in the agricultural journals published in the Province of Ontario. That there shall be two financial periods, namely, the 30th day of June and the 31st day of December in each year; and at the expiration of each period it shall be the duty of the Treasurer to prepare and submit for audit his accounts for such periods. That immediately on the preparation of such statement, it shall be the duty of the Treasurer to summon the Auditors to examine his accounts, and when the Auditors shall have made their report, the Treasurer shall publish the same in the agricultural journals aforesaid.

This by-law was read a first, second and third time, and passed.

Mr. RYKERT moved, seconded by Mr. GIBBONS, That Messrs Patton, Osler & Moss, be appointed by the Board as their solicitors. —Carried.

It was moved by Mr. RYKERT that the Secretary notify the Commissioners of Agriculture of the Treasurer's appointment.— Carried.

Dr. BEATTY moved that the Treasurer's securities be referred to the Executive Committee in lieu of the Special Committee, and that the settlement of the valuation of the farm property be referred to the Executive Committee, and that the Secretary be instructed to employ Mr. Sheard to value said farm as soon as practicable.

A letter was read from Mr. Donaldson on the growth of flax. The letter was laid on the table.

Moved by Mr. WHITE, seconded by Mr GIBBONS, that the next meeting of Council be held at London.—Carried.

Professor BUCKLAND asked for the annual grant of $40 for the defraying of the expenses of the examinations at the Veterinary College.

Mr. CHRISTIE cordially supported the grant. There was no more useful institution connected with the agricultural interests of the country than the Veterinary College. In olden times, a properly qualified Veterinary Surgeon was a thing unknown, and the losses that fell on the farming population for lack of them was incalculable. Now, however, this desideratum was being speedily supplied by means of this institution. He regarded Professor Smith as able a man in his profession as was to be met with on the continent. In Illinois last year he had ample opportunity of comparing him with Professor Gamgee, and it appeared to him that Smith was the abler man of the two; and they ought to be proud of having such a man connected with the association in any way.

Mr. COWAN also spoke in favour of the grant.

Mr. GIBBONS asked how many graduates the College had sent out? He put the question as he had not come across any of them in his district.

Prof. BUCKLAND replied that already sixteen certified surgeons had been sent from the College, and at present the number attending the classes was twenty-five. Another point he called attention to was the want of accommodation for the proper carrying on of the classes of the College. The premises were altogether unfitted for the proper management of the College, and he thought it would be advisable at some early day for the Board to accept Professor Smith's offer, viz. that he will build proper premises if the Board guarantee him the sum of $1,000 per annum. Mr Buckland then referred to the great importance of experiments being carried on, and enlightened views disseminated concerning the improvement of their classes of wheat. It was all very well to have shows of cattle, &c, but no matter of greater moment could possibly be brought under the consideration of agricultural associations than this. He then read the following letter from Mr. Arnold, Paris, bearing on this subject:—

"PARIS, Ontario, Feb. 6, 1869.

"Hon J. CARLING, Commissioner of Agriculture:

"SIR,—Having been impressed for many years with the importance of hybridizing or crossing different varieties of fruit, and having proved by my experiments with the grape and the raspberry, that with both these fruits, vigour and productiveness have been very much increased by crossing; the idea became strongly impressed on my mind that the judicious crossing of different varieties of wheat must be attended with like beneficial results. Acting upon this suggestion (and I believe also a desire to benefit my country), three years ago I selected one plant each, white Soules and red midge-proof wheat, and after much persevering labour have succeeded in producing 15 varieties (selected from upwards of 100) that seem to combine all the good qualities of both parents with much increased vigour and productiveness. One variety in one season yielded me upwards of 4,800 kernels from one kernel; and last year, under ordinary cultivation, some of these varieties yielded at the rate of from 60 to 80 bushels to the acre, while other varieties in rows, within 7 inches of them, under the same cultivation, only yielded at the rate of from 20 to 30 bushels per acre.

These wheats were partially examined last year by Hon. D. Christie, but more thoroughly by P. O'Connor, Esq., Hiram Capron, Esq., and Mr. Edward Brown, all good judges.

"I have now about an acre of these 15 varieties planted, and solicit from the Agricul-

tural Association a most thorough investigation of their merits, believing as I do that they will prove of more value to this country than any new wheats imported from England or anywhere else.

"Your obedient servant,
"CHARLES ARNOLD."

Mr. CHRISTIE and other members of the board, spoke in high terms of the efforts Mr. Arnold had made in this direction, and the remarkable success that had attended his experiments, adding that it would be well in some tangible way to recognize the services of men like Mr. Arnold, who spent so much time and money in improving the produce of the country. It was stated that, in all probability, unless the Association obtained a quantity of Mr. Arnold's varieties of grain at once, they would not get it at all, as several Americans had an eye on his experiments, and were prepared to purchase the results at any price.

Mr. CHRISTIE, as one of the deputation to the Illinois Convention, stated that as a full report of the proceedings was being prepared in New York, they had not thought it needful to prepare any formal report. Whilst at the Convention, his attention had been particularly called to the Texan fever among cattle. A great many notions were afloat with respect to this disease, nearly all of which were absurd. Some maintained that frost was a preventive, but this was untrue. Others averred that Texan cattle could not be ill. He himself had seen a fine sleek Texan steer killed, and when he stomach was removed there were found a great number of ulcers healed up, and many fresh active ulcers, showing not only that Texan cattle were obnoxious to the disease, but that the disease itself was sometimes long continued. The disease was more of a sporadic character than epidemic. This had been distinctly shown by some experiments made with rabbits. Portions of the fungi had been spread on pieces of apples. The rabbits ate the apples thus prepared, and died of genuine Texan fever. This experiment showed how easily disease might be carried from one place to another. And he could give one instance illustrative of this. Last summer, thirty cattle died at Paris. The symptoms exemplified were similar in each case, and entirely different from those characteristic of any known disease. In fact, the symptoms were those of Texan fever; and from the fact that the disease in this case originated in proximity to the Grand Trunk, he had not the slightest doubt but that from the excrements of the cattle in trucks the disease had been dropped there. He at once applied to the Government to prohibit the importation of American cattle. His suggestion was carried out, and fortunately the plague was stayed. The object of the Convention was to investigate into the nature of the disease; and the result to obtain, if possible, uniform legislation relative to the transit of cattle. Several States were already moving in the matter, and the sooner the Province of Ontario took the matter up the better; and the Board should at once memorialize the Government on the subject. It was an awful, fearful scourge, when it had once obtained a footing in a country; and efforts should be put forth to render such a visitation as near to an impossiblity as possible.

Dr. BEATTY moved that in reference to the communication from Mr. Arnold, on improvement of seeds, that the members of the Executive Committee be instructed to supervise the operations of growth and mode of improvement, so far as opportunity allows, and that a special prize be offered in the prize list for any such efforts as shewn by the Grain Grower. Carried.

The business of the Council being now over, the CHAIRMAN said that now he had for the first time an opportunity to thank them for the high honour they had done him in putting him in the honourable position of President of the Council. He then expressed the change which his sentiments had undergone in reference to the members of the old Board, whom he thought had been much maligned. He spoke warmly in their favour, and was heartily sorry for the rashness with which he had judged them.

The Chairman's remarks elicited a very angry rejoinder from one member of the Board, and the proceedings terminated in a very stormy and unseemly manner.

Fifteen million bushels of grain were handled at Toledo in 1868.

In three years a farmer on the Isle of Man raised seven bushels of barley from a single grain.

SALE OF THOROUGHBRED STOCK.—Mr. Joseph Kirby, of, Milton, Ont., sold, February 13, 1869, to Mr. Cowan, of Guelph, the young bull Marlborough Duke, out of Young Countess, by Duke of Marlborough, 5587, A. H. B., the heifer Pride of Esquesing, out of Mountain Daisy, by Butterfly 2nd, 91, C. H. B. To Mr. Waters, Eramosa, bull Young Marlborough, out of Countess 1st, by Duke of Marlborough, 5587, and heifer Maid of Marlborough, out of Mary, by Duke of Marlborough. To Mr Rawson, Puslinch, the heifer Lady Grant, out of Louisa, by Duke of Marlborough; and heifer Lady Grey, out of Miss Miller, by Duke of Marlborough. All the above animals are under one year old.

WOOL GROWERS' MEETING.—The New York State Wool Growers' Association, held its annual meeting at Syracuse on the 27th of January. The attendance was large. The chief business, besides the election of officers, was the consideration of the feasibility of holding a wool exposition during the year, a question ultimately referred to a committee, and the discussion of a new reciprocity treaty with Canada, against which the meeting unanimously and urgently protested. Such a measure, in the opinion of American wool growers, was horrible to contemplate, would at once arrest the stream of emigration to the States, and indefinitely augment the population and prosperity of Canada; for, to quote the concluding sentence of one of the resolutions:—"With their cheap living, low taxes, and consequent low-priced labour, and with their good soil, the Canadas could multiply their productions to an indefinite extent, if we were to give them the benefits of our markets, where high prices must prevail as long as high taxes last." Let us be thankful for our advantages. As regards this question of reciprocity, we are satisfied that the abrogation of the treaty has hurt our neighbours more than ourselves, and that sooner or later a free interchange of commodities without restrictions will be resumed, to the mutual advantage of both countries.

Contents of this Number.

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Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to

GEORGE BROWN,
Managing Director.

Markets.

Toronto Markets.

"CANADA FARMER" Office, March 12th, 1869

FLOUR AND MEAL.

The market has been quiet and dull, without actual decline in prices, which may be quoted as follows.

Flour—No. 1 Super, $4 to $4 05
Oat Meal—$5 75 to $6
Corn Meal—$3 50 to $3 75.
Bran, per ton—$16.

GRAIN AND SEED.

Wheat—There is very little doing on the street market. Notwithstanding the sleighing being good, only an occasional load of wheat is to be seen on the market square. The following are the prices: White fall, 94c., red mudge proof, 91c. to 95c; spring wheat, 93c

Oats—Market quiet and dull. 50c is the highest price that was paid for a lot, on the street market 51c. to 52c. was to day paid for a few loads

Barley—The market has been dull and drooping. To-day not over $1 30 could be got for good samples in car lots, and the demand was light at that price. Street price $1.20 to $1.32.

Peas—The market has declined. No car lots have been changing hands. On the street market there were fair receipts during the past few days. The street prices range from 75c. to 80c.

Rye—Selling on the street at 65c

Clover—Dealers are buying at from $6 70 to $7.

Timothy—Dealers are buying from $2.25 to $2.75

Hungarian Grass—Worth $2.

Flax Seed—Worth from $2 to $2 50, according to quality.

Tares—Dealers are buying at $1 75.

PROVISIONS.

Pork—Mess is scarce and held in few hands; sales have been made at from $26 to $27 per barrel.

Bacon—From 10c. to 12c.
Hams—From 12c. to 14c.
Cheese—From 14c. to 15c.
Butter—From 20c. to 30c.
Eggs—From 15c. to 20c.

SALT

American selling at $1 50 in barrel Canadian at $1 60.

THE CATTLE MARKET.

Beeves—The market has been better supplied than of late, and the cattle offering were generally good In fact there were few or no third-class cattle to be seen. Selling at from $5.50 to $7 per 100 lbs.

Sheep—There were not many offering and there was a good demand. Prices have slightly advanced.

1st class.....$7 00 each
2nd class ..... 4 50 to $5 00

Calves—There was a fair supply offering, and a good demand. 1st class calves brought from $9 to $10 2nd class, $6, and 3rd class, of which there were a good many, from $3 to $4.

HIDES AND WOOL.

Hides, from 6½c. to 8½c. *Calfskins*, green 10c; dry, 18c. to 20c. *Sheepskins*, 40c. to $1 60. *Wool*, 25c. to 30c.

HAY AND STRAW.

Hay—Market has been well supplied, and prices have advanced. To day the prices paid were from $11 50 to $15.

Straw—Fair receipts. Prices ranged from $5 50 to $7.

London.—*White Wheat*, $1 06 to $1 16; *Red Fall Wheat*, 85c. to 90c.; *Spring Wheat*, 90c. to 97c.; *Barley*, $1.20 to $1.30; *Peas*, 70c. to 80c.; *Oats*, 45c.; *Corn*, 65c. to 59c.; *Hay*, $9 to $10; *Potatoes*, 50c. to 55c.;

Hamilton.—*Wheat, White Winter*, $1 to $1.05; *Red*, 95c. to 97c.; *Spring*, 90c. to 95c.; *Peas*, 65c. to 85c.; *Oats*, 51c. to 52c.; *Barley*, $1.20 to $1.25; *Clover Seed*, $6 75 to $7; *Timothy Seed*, $2.50 to $3; *Turnips*, 20c. to 25c.;

Montreal Markets. Montreal, March 10—*Flour*—No. 1 Canada Wheat, $4.50 to $4 55; No. 2 Western Wheat, $4.20 to $4 30; bag flour, 100 lbs, $2 15 to $2 25 *Wheat*—Spring, $1 09c. to $1 10c.; *Oats*—Per 32 lbs., 00c. to 00c. *Barley*—Per 48 lbs., $0 00 to $0 00.

Advertisements.