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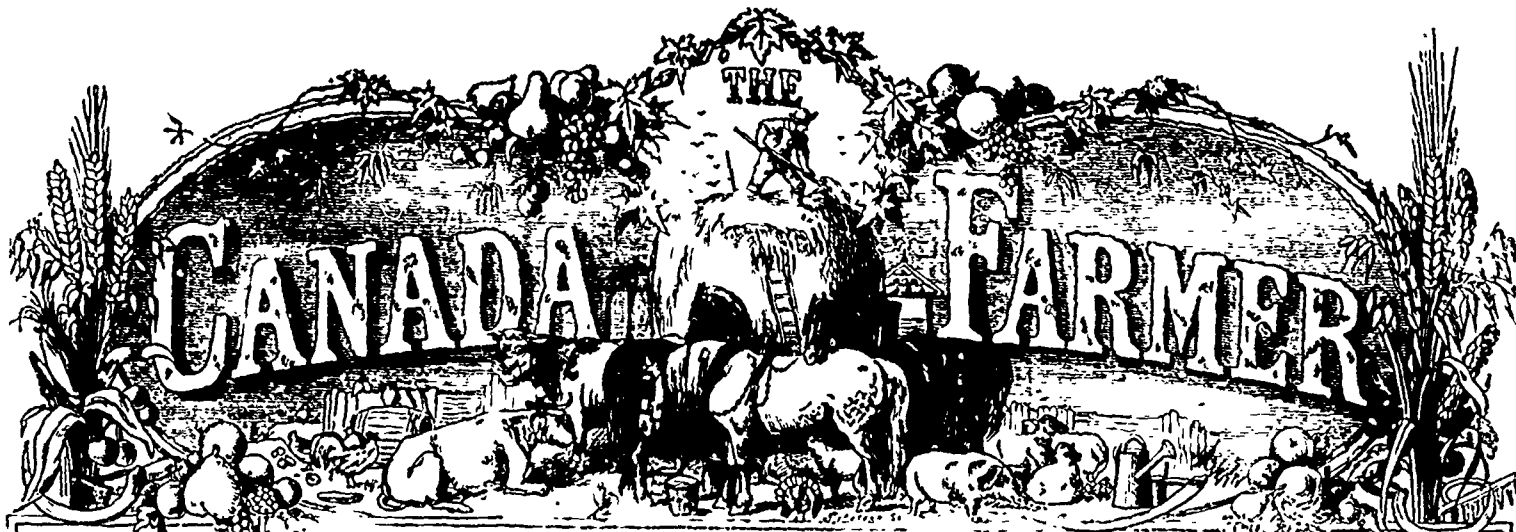
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Vol. IV. No. 9.

TORONTO, UPPER CANADA, MAY 1, 1867.

POSTAGE FREE.

The Field.

On the Cultivation of Hops.

VARIETIES OR SORTS.—Several distinct varieties of hops are cultivated in Europe, each being characterized by important differences as to style of growth, colour of the stem, quality of the fruit, length of pole, and kind of soil specially required. Sufficient attention has not yet been paid on this side of the Atlantic to these differences; many plantations are more or less mixed, and in Canada, as far as our observation has extended, a coarse, rough kind of bine, of a reddish colour, scratching the hands in the act of gathering the fruit, too commonly prevails. The best sorts of English hops, adapted to our soils and climate, would probably be, *Golding's*, *Jones's* and *Grape*; a new variety has recently been introduced there with great approval, called *Early Prolific*, which it would be very desirable to test in this country. The English *Grape*, we believe, is what is known in the State of New York as the *White Cluster*, and the few instances of it that we have seen in Canada impressed us very favourably with its adaptability to our soil and climate. The *Golding* is only adapted to dry, calcareous soils; being a tall grower, it requires poles eighteen or twenty feet long, and it is distinguished beyond, perhaps, any other sort, for its large amount of lupulin, and consequently commands the highest price. The *Jones's* and *Grapes*, (the latter so called on account of their flowers appearing in clusters) are well adapted to heavier soils, producing immense crops in England on the Wealden clays. The former we have often seen produce, on such soils, a ton and upwards per acre, with poles only nine or ten feet long, four to a hill. It would be advantageous to import some cuttings of the most approved varieties of English hops; a few thousands of each would enable us to test their relative suitability, and supply a sufficient amount of young plants for any demand that might arise.

MANURING.—As the culture of hops admits of no rotation, or rest to the soil, but in the large weight of fruit and bines annually extracts a great amount of mineral and organic matter from the same, liberal manuring is an indispensable condition of success. Soils naturally rich in calcareous and alkaline matter are, in point of chemical composition, admirably adapted to the growth of this plant, and consequently require a smaller amount of artificial manuring. But in the most favourable soils a yearly dressing to some extent is required, in order to sustain a uniform standard of productivity. As hops not unfrequently suffer in our climate from the effects of frost when the ground is not sufficiently covered with snow, we would suggest the following method of applying farmyard manure. After the poles are stacked, and the necessary surface drains or furrows made for the

ready carrying off surface water in spring, cover each hill, before hard frost commences, with rough dung, which will not only serve to protect the plant, when denuded of snow, from the injurious effects of frost, but will be in readiness in spring to be spread and worked in as manure for the next crop. A moderate covering will, in most seasons, be found a perfect safeguard; and this would be the only application of barn manure required. An occasional dressing of burnt lime, say seventy or eighty, or even one hundred bushels an acre, at intervals of five or six years, on soils not naturally rich in that material, will be requisite. The best way of applying it is in spring, after the hops are poled and the ground once cultivated. Place the lime in small lumps at convenient distances in the alleys, cover it slightly with earth to facilitate its slaking, and when in a powdery state spread it evenly over the surface, and cultivate it in with the horse hoe. It is not a good practice, with any crop, to plough or dig in lime deeply, as it naturally tends to sink in the soil. In case the plant assumes a weakly appearance after the growing season has fairly set in, the most economical and efficient way of manuring is to draw away the earth with a hoe around the hill five or six inches deep, and scatter a little guano or super-phosphate of lime, covering and intermixing it with the hoe. It is surprising, when the ground is at all moist, how soon portions of these substances become solvent, and are assimilated by the plant. In England well rotted dung is often used in this way; also rape cake powdered, and even woollen rags. The last are an excellent manure, but in our hot and often dry summers they would not readily decompose, and it would be better to plough them under in spring, or, still better, the previous fall.

PRUNING.—As early in the spring as possible, when the young buds begin to appear on the portion of stem left from the last season, the operation of pruning should be performed. Remove with a hoe the earth that covers the hill, and with a sharp knife cut off what remains of the old bines pretty close to the crown of the plant, near or very little above where the operation was performed the preceding year. Cutting high in a few years will raise the stock to an inconvenient and injurious extent above the surface of the ground, and if pruned too low will impair the strength of the plant, at least, for the current year. Where earth has been put into the hills the preceding summer, several inches of the old bine will be alive and of considerable thickness, with two or three joints of buds, affording sets or cuttings that may be used immediately for raising a new plantation, or closely planting them in the ground for nursery stock, can be set out either in the following autumn or spring. Pruning should be done carefully, and weakly hills repaired either with cuttings, or, which is better, nursery plants, and marked by putting down a stick, so that in the subsequent operation of polling, shorter poles may be placed to the weaker plants; a precaution of great practical importance.

Familiar Talks on Agricultural Principles.

FLAX.

THIS plant, though it has been cultivated in many parts of the world from time immemorial, is only of recent introduction among the general farm crops of Canada. From the success which has attended its culture where it has been tried, it is fast coming into notice and favour among agriculturists. It has indeed much to recommend it. It supplies two important articles of commerce, always and increasingly in demand, viz., the fibrous substance out of which linen fabrics are made, and the seed from which linseed oil and oil-cake are obtained. For these the market is as regular and constant as for wheat, and the price has been for some time past, and is likely to be for some time to come, if not indeed forever, sufficiently high to render flax-growing as remunerative as any of the crops ordinarily grown on the farm.

Moreover, it is restorative rather than exhaustive in its effect on the soil in which it grows, provided always that a proper system of husbandry be pursued. Time was, and not long since, when the reverse of this was hastily assumed to be the fact. Careful chemical analysis has, however, shown that the fibre and seed of flax take less from the soil than the grain of a wheat crop. The fibre indeed is obtained mainly from the atmosphere, there being only about five pounds of mineral matter existing in the fibre yielded by a ton of flax. It is also largely composed of woody structure which may be returned to the soil. If in addition to giving back to the land all the waste after separating the fibre, the seed refuse left after extracting the oil be fed to cattle, a most valuable manure is obtained, and flax may fairly take rank among the class of improving crops. It is also a characteristic of this plant, that it has long, slender, tapering roots, which penetrate deeply into the earth, and derive no small amount of nourishment from the subsoil. The opinion is held by experienced flax-growers, that if clover succeed flax, and be ploughed under after the second crop, its roots will replace most of the organic matter taken up by the preceding flax crop. The actual demand made by this plant on the inorganic substance found in the soil, will be seen at a glance from the following analysis made by Johnston of the ashes of flax fibre, and of the refuse or *pod*.

	Flax	Pod
Alkaline salts, chiefly common salt and sulphate of potash.....	8.83	9.58
Phosphates, chiefly of lime and magnesia.....	17.89	14.12
Carbonate of lime.....	45.50	51.43
Carbonate of magnesia.....	6.38	9.24
Insoluble silicious matter.....	21.24	15.63
	100	100

The above table shows the importance of returning the refuse to the land as manure, and it also furnishes a guide as to the kind of fertilizers needed to make up for the demands of this crop. Lime, bone-

earth, wood-ashes and guano, are among the most suitable manures either for flax or to follow it. Flax will flourish on almost any soil of average fertility, but especially delights in a calcareous soil, and hence is benefited by dressings of lime. It is not considered advisable to apply any description of rank manure to land preparing for an immediate sowing of flax, unless, indeed, the sole object be a large yield of seed. For fibre of the best quality, soil manured for a previous crop and in a thoroughly mixed and pulverised condition is best. While it succeeds well on a variety of soils, a lightish, friable loam is most suitable to it.

One great advantage of flax growing is that it cleanses the land; it is an extirpator of weeds. It cannot be grown to advantage except in soil either already freed from weeds or thoroughly weeded during the growth of flax itself. In countries where labor is cheap it is customary to weed it by hand, the work being chiefly performed by women and children. This, however, is not practicable in Canada, and the best course to be taken is to let flax follow a carefully-tilled hoed crop. Its growth is very dense, so that it smothers down any weeds that may be later in the field than itself, and it leaves the land in a very clean and mellow state for a succeeding crop.

From the shortness of the season required to perfect the flax crop, double cropping is practised in some parts of the world with great success. In Belgium, carrots are frequently sown in drills with it, and being carefully weeded along with the flax, they are in vigorous condition when the flax is removed, and come rapidly to maturity. In Ireland it is a common thing, after the harvesting of flax, to plough and harrow in a mixture of gypsum and guano, and sow with rape. The Patent Office Report for 1863 states that barley has frequently been sown with flax in the United States. In one instance two bushels of barley and one of flax were put into an acre, and the product, harvested together and machine-threshed, yielded thirty bushels of barley and fifteen of flax. Other land on the same farm, of about the same degree of fertility, yielded but thirty bushels of barley alone to the acre. In another instance a similar experiment was tried upon five acres, and fifteen bushels of seed per acre obtained without apparent injury to the main crop. These double crops are advantageous in saving labour and economising land. In a poor soil they would prove losing affairs, but in a thoroughly enriched soil, two crops may be grown at well-nigh the usual cost of one.

Flax requires a frequent change of seed, and in this country it has been found that either Russian or Dutch grown seed does best. That obtained from Riga, in the first-named country, is preferred. It is bad policy to grow one's own seed year after year. The result of this course will inevitably be short crops and poor returns.

Foreign flax seed is notoriously dirty, and it would seem that the Russians especially are slovenly seed-growers, needing very much an importation of good fanning-mills from the western world. All seed from abroad should be carefully sifted before sowing. A wire sieve, twelve bars to the inch, will be found suitable for the purpose. A single fact will show the importance and necessity of this. Professor Voelcker, in seeking for adulterations of linseed, found in one sample of refuse or cake, no fewer than twenty-nine different kinds of weed-seeds, among which are prominently named the common dandelion, corn-cockle, (very hurtful to animals,) the pungent wild radish, wild grape, (a sort of mustard,) and charlock, or common wild mustard.

Flax may be used if desired as a seeding-down crop, and Belgian farmers are of opinion that the young grass and clover, so far from being injurious to the flax crop, are beneficial to it.

Flax culture, to be thoroughly profitable, of course requires to be pursued in the neighborhood of scutch mills, where sale can be readily had for the fibre. Happily these are now being established in many parts of the country, and as they multiply, increased facilities are being afforded for the raising of a crop which experience proves to be far less uncertain and exhaustive than wheat, while it is equally remunerative, if not even more so.

A Model English Farm.

THE FARM BUILDINGS.

To the Editor of THE CANADA FARMER:

SIR,—The accommodation for cattle, which may next be noticed, is very considerable. Down the centre of the farm are six double cattle-stalls, (separated from one another by horizontal wooden rails), on the one side, and pig-boxes built of brick on the other, besides four large cattle-boxes, which are generally occupied by young bulls. The cross building at the lower end is about 200 feet long, and has cattle-boxes on either side throughout its entire length—in all forty-four. Parallel with the centre building is the dairy house, which has boxes for ten beasts, and nine double stalls for young animals, besides pens for eight or ten calves. The boxes are occupied by the dairy cows in winter time, and are used also for them to calve in. At the lower end of the dairy house is the milking yard; it is surrounded by a shed, in which are fitted wooden hasps for confining the cows' heads during milking time. Beside this is another smaller yard, fitted up in the same manner, and adjoining it the bull's house. On the stable side of the centre building are four small yards covered at one end, and fitted with racks, cribs, &c., for the accommodation of calves and yearling beasts. Next to these yards is a building occupied by beasts fattening for show; it contains four or five roomy compartments and fodder house. All the buildings are well supplied with water, each of the cattle boxes and stalls being fitted with a tap and stone trough, and also with a wooden manger on which an iron-barred frame falls like a lid, to prevent the fodder from being wasted.

Facing the milking yard is the sheep yard. Here the ewes lamb in the spring, but during winter it is generally occupied by cows. The building adjoining it is kept entirely for sheep feeding for show; it is divided by low rail partitions into eight separate compartments—each of which is attached a small yard; the floor is made of narrow bars of wood, two inches wide and half an inch apart, so as to drain off the urine, and the building is well ventilated from above.

The piggeries consist of six roomy sties, with low brick walls and pig-yard, besides which are the four pig-boxes already mentioned, in which are kept fat pigs feeding for exhibition. All that remain now to be noticed are the stable and cart-lodges. The former is a long narrow building, divided into eight double stalls about twelve feet wide, with fodder house and harness room in the middle; it is entered by five sliding doors. For waggons and farming implements there are drill-house, tool-sheds, and four arched cavities hollowed out under the brick-yard, besides several large sheds situated on another part of the farm. The buildings are all thoroughly drained, and by means of a pump at one corner of the part marked V, on the plan, (beneath which the drains empty their contents) the liquid manure can either be raised for carting on to the land, or, by opening a trap-door at its foot, can be washed down with water on to a catch-meadow of some twenty or thirty acres.

THE ARABLE LAND.

The arable land, as has already been stated, comprises about 290 acres. Being chiefly what would be termed heavy land, it has to be treated accordingly. In cropping, the four course shift is followed as nearly as possible; but, with heavy manuring, it has pretty frequently to be departed from, to prevent the too great growth of straw in the grain crops. About one hundred and twenty acres are usually put in with wheat, fifteen with barley, thirty with oats, thirty with peas or beans, twenty-five with mangold, and thirty with Swedes, besides which are frequently some twenty-five acres or so of fall vetches, which are fed off with sheep in the spring. So large a proportion of the farm being permanent pasture, it is found unnecessary to bring clover, timothy, or other seeds into the rotation.

Wheat is nearly all put in in the fall; it is drilled in with a nine furrow drill—about two bushels to the acre—and then harrowed. If through bad weather

the drill cannot be got on, it is sown by hand. Sometimes it is ploughed in with a shallow furrow. Spring wheat is usually got in during the early part of March. As soon as the grain is in, water furrows are struck out, about thirty feet apart, to drain off the surface water.

The yield of wheat averages from thirty-six to forty bushels per acre. Beans and peas are put in as early as possible in spring; the land for them is ploughed and manured in the fall, and then loosened by the drags just before the seed is drilled. They are drilled in rows, twenty inches apart, about ten pecks to the acre. The bean used is the common field bean with long upright stem; it makes excellent feed for every sort of live-stock, and yields about thirty-six bushels to the acre. Oats and barley take from nine to twelve pecks of seed to the acre, and yields,—oats about sixty bushels, barley about forty bushels per acre. The average weight of wheat per bushel is about 62 lbs., of barley 53 lbs., of beans, and peas 62 lbs., and of oats 40 lbs. Swedes and mangold wurtzel are prepared for by one ploughing in the fall, manuring and a deep ploughing early in spring, followed by the roll, clodcrusher, drags, scarifier, or harrows, according as the land may require or the weather dictate. Mangold is put in about the first week, Swedes about the second or third week in May; the seed is drilled generally on the flat—three to four lbs. of Swedes, and about six lbs. of mangold per acre. From one to two cwt. of guano per acre is usually put in with them, mingled with water and drilled in with the water-drill, which deposits both the seed and liquid simultaneously.

The wheats and spring grains are for the most part rolled in March or April, and then hand-hoed at a cost of about eighty-five cents per acre; the beans and peas are both hand and horse-hoed,—if possible twice. The expense of hand-hoeing is about \$1.00 per acre. Swedes and Mangold are cut out about thirteen inches apart in the rows; this costs about \$2.75 per acre, the plants then receive two hand-hoeings, and two horse-hoeings, by which time their tops have pretty well covered the ground. The fly is sometimes very troublesome with the Swedes in spring, whole crops having been at times completely destroyed.

E. F. W.

Lime as Manure.—A Reply.

To the Editor of THE CANADA FARMER:

SIR,—In your issue of Feb. 1st, 1867, I find an enquiry about Lime as manure, to which I feel inclined to reply. All the machinery that is required for laying lime on land is a large box-cart, with the bottom boards running lengthwise, a good and tractable horse in the shafts, a good large lime shovel in the hands of a strong and active man, with knowledge how to use it.

My experience in the use of lime commenced early. In the memorable year, 1815, I lived as a boy with a gentleman farmer, on a large farm, on the banks of the beautiful river Coquet, Northumberland. From the practice there pursued, I take for example a field of twenty acres of oat stubble ploughed deep in the fall, and laid out as a part of the turnip quarter, on said farm. In the following season, during the winter, a sufficient quantity of barnyard manure was carted out and dumped up in a convenient part of the field, and thrown up in a square heap, seven or eight feet high, preparatory to future operations. Early in May this field was deeply cross-ploughed, well harrowed, rolled and harrowed again, and the couch grass raked into heaps, burned, and the ashes spread. The soil was a sandy loam, subsoil clay with splints of limestone occasionally turning up with the plough. This limestone was carted off to the bank of the limekiln, in a corner of the field. This limekiln burned lime for sale, at the rate of from twenty-five to thirty loads per day, twenty-four bushels to the load.

Now this is the point:—From this kiln lime was drawn and dumped up, at regular intervals over the field, in heaps of four loads each, and in the proportion of ten loads or 240 bushels per acre. Rain and a water-cart soon brought the lime into manure, when it was again filled into carts, and regularly spread over the field, and harrowed in, in its caus-

the state; then ploughed and harrowed repeatedly, the lime getting completely incorporated with the soil; and every grass-root having been picked off, the field was drilled up with a double mould-board plough, (drills thirty-two inches apart). The dung heap having been turned over at the proper time, is by the month of June so rotten, that much of it could be filled with spades. A good dressing of this manure is then spread along the hollow drills, and without loss of time the drills are split with single ploughs, a double turnip drill following, and sowing the seed. In forty-eight hours (if the seed, as in this case, is the white turnip) the plants would come up, and could be seen from end to end in the drills. In a short time the plants were in the rough leaf, when small ploughs are set to work to cut the drills down to eight or nine inches, leaving about four inches on each side of the plants. Hoese are now put in operation, the hoe being eight inches wide, and the plants left single at that distance. As the crop advances, it requires, at the proper times, two cultivations betwixt the rows, two flat hoeings, and twice moulding up (at different times) with the double mould-board plough. The crop is then allowed to take its course, and in the month of October the bulbs are nearly touching, and in many instances not only touching but pushing each other out of line in the rows, scarcely a break to be found in a row all over the field.

The crop was let, to be eaten on the ground with sheep, at £4 per acre. This in effect secures another manuring. The land again ridged up is ready for wheat or barley, seeded down with clover and rye grass. Two crops of hay are cut the second summer, then the field is ploughed deep and sown with fall wheat. Every crop abundant, and no miss crop for summer fallowing. How far this sketch is applicable to Canada I allow each one to judge for himself, but when we can put our land in that state of cultivation we may call ourselves farmers.

As another example, I may instance a field of thirty acres equally cultivated as a summer fallow. One half of said field was manured with barnyard dung, and the other half was manured with a good dressing of refuse lime from a limekiln near the field, and sown at the same time and with the same sort of fall wheat. During the fall the dunged part took the lead, and was a brighter green, the limed part having a brownish shade, and the plants being sharp and spearlike; but in the spring following the limed part took the lead, and kept it, and as the grain ripened, the limed land was the brightest yellow, and when harvested, the sheaves were heavier than on the other part; and when thrashed out, the limed portion gave the best yield, and the wheat weighed heavier to the bushel, and was of finer quality than that of the dunged part of the field.

I could give numerous instances in favor of lime as manure.

A. JOHNSON.

TOWNSHIP STANLEY, 1st April, 1867.

Draught in Ploughing.

MANY suppose that the draught of a plough is, to some extent, dependent on the speed of the team employed. It appears to some that friction, or resistance of the plough, is less when the cattle move rapidly; others, perhaps, think it increased; but the fact is the draught is wholly independent of the rate of movement through the soil. It is important, therefore, that we employ animals that naturally walk quickly.

The actual labour of draught being no greater, the oxen or horses that move naturally at a rapid pace, accomplish nearly double the work with the same effort, that others, whose pace is sluggish and lazy, will do; and so the actual expense to the farmer is no greater; or in other words he saves half or nearly half the cost of ploughing by the use of a quickly moving team, that is if this rapid pace is the natural movement, and not one induced by over urging.

This is a point which we think is too often overlooked. One yoke of oxen may plough an acre in six hours. Another will do little more than half the amount. If the former is done without distressing the cattle and thus causing a greater wear and tear, it is obvious that it has cost no more.

It is to be borne in mind that a certain amount of physical effort is spent and lost to the farmer by the labour required to move the animal's own weight. This expenditure varies, of course, with the size and weight of the animal frame. It is plain as day, therefore, that for ordinary farm work, light built and active horses and oxen are the most profitable. They do a greater amount of work with the same effort, and therefore at less expense to the farmer, than very large animals.

Take an animal to plough a hill-side, for instance, up and down, and see the difference of effort to carry his own weight between a heavy and a light one. The exertion required to plough the up-hill furrow is immensely greater than that down, and yet, strange as it may appear, the draught of the plough does not vary, if at all, but in the slightest degree, in the two furrows.

This difference in effort in ploughing up and down a hill is owing to the labour of carrying the animal's own weight almost entirely, and so the great advantage of light or medium animals over heavy ones becomes very obvious.

When a plough is rightly constructed, the use of a wheel does not add to its draught, or, if in any degree, but very slightly. The difference in draught with or without a wheel is imperceptible.

The chief resistance is due to the cutting surfaces of the plough, and hence the importance of keeping them in good order. Only about ten per cent. of the draught is due to turning the furrow slice by the mould-board in a properly constructed plough. Probably about fifty or fifty-five per cent., on an average, of the draught of ploughing, is due to the cutting the furrow slice, leaving from thirty to thirty-five per cent. due to the mere weight of the implement. We ought to aim for the greatest strength in the smallest compass. Keep the sock and coulter, the cutting surfaces, in order.—*Mass. Ploughman.*

Manual Labour versus Machinery.

To the Editor of THE CANADA FARMER:

SIR.—It was quite common, twenty or thirty years ago, to hear the remark (from men, of course), that "Canada was heaven for women, but—a fearful place) for men and oxen." How or when this inelegant expression originated, I know not; but that it was true, even metaphorically, is a question. It is true that "roughing it in the bush" had its privations and hardships, as well as its charms, alike for women and men; in those early days there were instances of men having to milk the cows, feed the calves, and carry the water from the creek or spring, night and morning; and on some occasions, when Jonathan neglected to do the latter, before going to his work, he had to travel from the back part of his clearing to obey the behest of his better half, or go without his dinner. Generally then, as now, the women had to work as hard as the men. There were extreme cases on both sides. I have known women, in addition to raising a large family, to do the work of the house; attend to the dairy; to do all the gardening that was done; work up all the wool, commencing with clipping it from the sheep, and ending with making it up into wearing apparel, from the socks to the overcoat. The greater part of this extra work had to be done after baby was put to bed for the night, and while her "lord and master" was snoozing away the evening in the chimney corner, notwithstanding each had shared alike during the day, logging, hoeing or harvesting, as the case might be. No one, however, will question that those who have "cleared a farm" with their own hands, and brought it into a fit state for an old-countryman to plough in, have found Canada a pretty hard place, and seldom need a barometer to tell them when a "storm is brewing." In those days it cost, if hired, \$20 per acre to clear the land of the timber alone. Now, if a farmer has "an encumbrance" of that sort, he can get \$20 per acre—and double that sum near cities—to allow parties to clear it for him. Notwithstanding this great change, farmers have a laborious life. The great demand for labourers in the States, and the petroleum speculations and various mining interests in our own country, have so completely absorbed the manual labour of the farming communities, that it is now impossible to obtain "a hand," big or little, to work on the farm. This state of things has created a great demand for machinery of every description, where horses can do the hardest part of the work. In some respects this may be said to be an advantage: for, generally, work is better done by machinery, especially when such machines approximate to perfection. I may instance threshing machines, either by steam or horse-power, which could not be dispensed with; but I will refer more particularly to mowing and reaping machines, which, in spite of prejudice, have been introduced into every locality, and are now used on almost every farm. It is not only the neatness and facility which is attained by their use, but it enables the farmer to cut his grass and reap his grain at the right time. It also necessitates the clearing land of obstructions, such as stone,

stumps, &c., and causes the rough places to be made smooth. Farmers soon find out that, to receive the full advantages of the mower, they must properly prepare their land for seeding with grass. The "self-dropper" is an advantage in some respects, but nothing short of a "self-binder" will ever satisfy the farmer. One to drive and another to shock up is what we aspire to, and what we must have. We are told that "horse-forks" for loading and unloading hay, grain, dung, &c., are a great labour-saving invention, but they have not yet found their way into general favour and use; therefore, I cannot speak of their merits. Flax-pulling machines are brought to a tolerable state of efficiency, and do the work of eight persons. They are used to some extent in this county, and I have no doubt will come into general use. Peas would be more extensively grown if the back-aching scythe could be dispensed with for cutting. I have been informed that a farmer in this neighbourhood built a machine, to be drawn by two horses, to do the work of pulling and threshing at the same time; leaving the straw on the field and dropping the peas into bags as it moves onward. It was so late in the season, last year, before it was ready for use, and the wetness of the weather rendered some alterations necessary, that but little has been said about its efficiency. I hope, however, that we shall hear something favourable of it this year. I am convinced that growing winter wheat will be an uncertain business on undrained lands, except in a few localities, and I fear that nothing like a general system of underdrainage will be carried out until machinery, worked by steam or horse-power, is introduced. The Provincial Board should take this matter up, and offer liberal premiums for an efficient machine for this purpose. Men cannot be found to use the pick and spade, except in search for gold, and that commodity is not to be obtained in every field that requires underdrainage. Sawing machines are so generally used and so highly appreciated that I scarcely need name them only to ask—where shall we find logs to saw, ten years hence? Certainly not here. I should occupy too much of your valuable space to mention the machinery now in use, and absolutely essential to our comfort and advantage. On the whole farmers may congratulate themselves on the improved position, both mental and physical, they now occupy, and can have no desire to return to the slow-coach days of a quarter of a century back.

R. W. S.

Woodstock, March 5th, 1867.

NOTE BY ED. C.F.—Mr. H. Collard, of Gananoque, exhibited a cheap and simple pea-harvester at the last Provincial Show, which, it is said, will do the work of four men with a scythe. It is very much like a common hay-rake, but has a steel blade cut into teeth very like the cutter-bar of a mowing machine, attached to the rake-head.

Alsike or Swedish White Clover.

I WOULD here state the view of the value of the Swedish White Clover presented by reports from twelve different agricultural societies, which are the result of careful experiments, made in localities differing greatly in soil and exposure. I recapitulate the chief points. 1. That Swedish White Clover is not so liable as Red Clover to suffer from cold and wet weather. 2. That on dry sandy soils it is not so certain or valuable as common White Clover, but succeeds admirably on more loamy soils, and on such surpasses either of the other kinds. 3. That in any rotation it may safely follow the common Red Clover. 4. That the yield per acre of the first mowing is not inferior to that of the Red Clover, but that ordinarily the aftermath, or rowen, is not so abundant. 5. That for soiling purposes it should not be mown till it is in full blossom. 6. That when cured as hay it is a highly nutritious fodder, and is preferred by cattle and milch cows to that made from Red Clover. 7. That the aftermath is followed by a dense and excellent growth, furnishing most excellent pasturage till late in the season. 8. That it yields an abundance of seed, easily thrashed out by flail or machine three or four days after mowing. 9. That Swedish White Clover is fed to most advantage after it has fully matured its blossoms, while Red Clover, if allowed to stand to this stage, will have already lost a considerable portion of its nutritive properties. 10. That this clover is pre-eminent both in quality and product, and is especially valuable for the continued succulence of the stalk, even when the plant is in full bloom. 11. That it requires a less fertile soil than the Red Clover, and is less liable to be thrown out by the frost in the winter. 12. It grows as tall as the common Red Clover; bears many blossoms on a stalk, in size resembling the common White Clover.—*Cor. Country Gentleman.*

Canadian Natural History.

The Canada Porcupine.

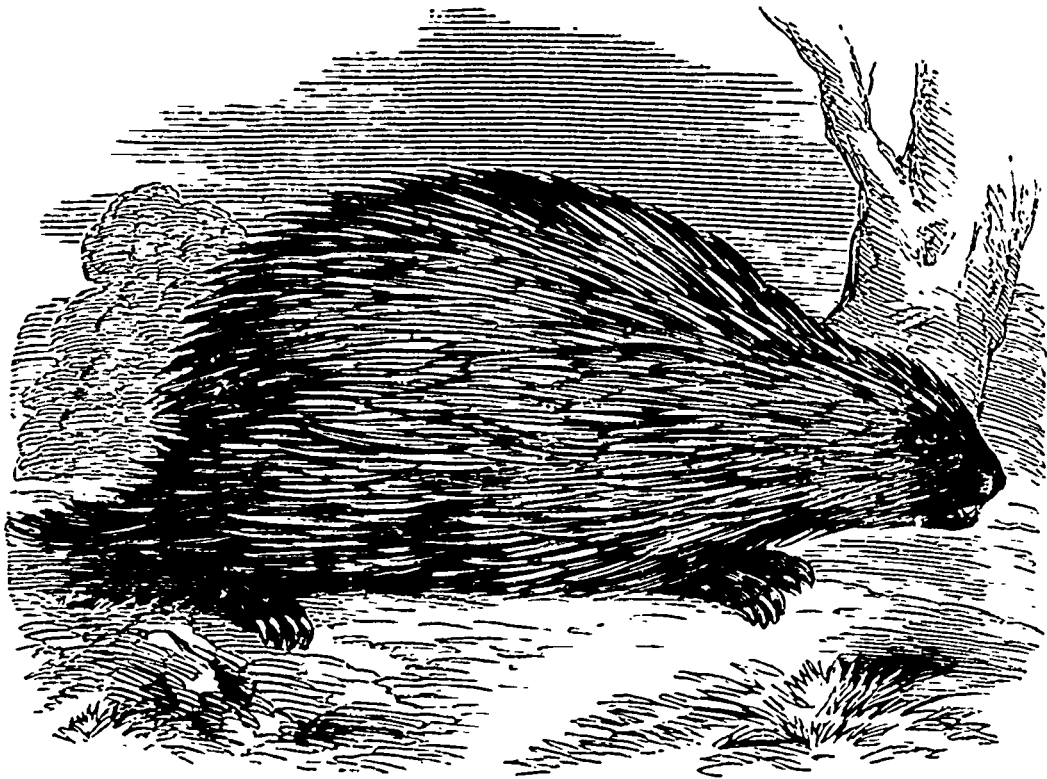
(Erethron dorsatum.)

THE last illustration of Canadian mammalia which was given in this journal, was the Musquash or Musk Rat, belonging to the natural order *Rodentia*, or *Gnawers*, and the peculiarity of the incisor, or at least of the front teeth, that characterizes this order, was then explained. Some naturalists consider these teeth as more properly corresponding to the canine or eye teeth of other orders; for like them they are very sharp at their point, and comparatively very deeply imbedded in the jaw, to give them greater strength and purchase; and in the hare and some others of this order there are present small true incisor teeth. In addition to these long and prominent teeth which give the peculiar character to the *rodentia*, and which by their structure and mode of growth are so admirably fitted for the habits of these animals. The order is very numerous and pretty generally distributed over the globe, and includes various genera abundant in Canada, among which are the familiar and frequent denizens of the forest and field, the beaver, squirrel, hare and rabbit, and the ubiquitous rat and mouse.

The accompanying illustration represents another animal of the same order, and one with which most of the inhabitants of the less settled portions of the Province will be tolerably familiar, the *Uron* or Canada Porcupine. The family to which this creature belongs is distinguished by the occurrence of spines, more or less numerous, intermixed with the hairs on the sides and upper parts of their bodies. The name is derived from two French words, *porc* and *epine*, signifying spiny hog, a designation conferred upon the animal in consequence of its heavy hog-like aspect and the peculiar grunt of its voice, as well as the characteristic spines which cover its body. These spines are in reality very large and indurated hairs, constructed in the same manner as the long hairs of the softest fur, or the slender filaments of the softest down. They afford a very good example of the true structure of hair, and show that these appendages of the skin are not, as is frequently represented, hollow tubes, but on the contrary, solid cylinders, the outer portion being of somewhat closer and harder texture than the interior. They are formed like other hairs, claws, nails, hoofs and analogous structures, as productions of the true skin, and are mere modifications of the cuticle, or scurf skin, having no vitality or sensibility, being entirely destitute of nervous and vascular elements in their composition. Once formed they suffer no further change, except from attrition or other mechanical influences, and are among the most indestructible parts of the body. The growth is entirely at the base, where fresh deposition being constantly added, the older and first formed portions are pushed on, and are either worn

away by friction, as in the case of nails and hoofs, as fast as the new material is formed at the base, or having attained a certain maturity are shed, like the scurf or scales of the cuticle, and replaced by newly formed productions like themselves. At the root of each hair, or quill, will be found a small oval sac, with a minute conical pulpy elevation, springing from the true skin, and which is the matrix or formative portion of the hair, nail, or hoof, or whatever the analogous structure may be. This soft excrescence of the true skin is liberally supplied with both nerves and blood vessels, and is often exquisitely sensitive. The spines of the hedge-hog, and the scales of the armadillo, which form so singular and complete a coat of armour for a creature otherwise defenceless, are also structures precisely similar in character or mode of formation with these appendages of the skin that have just been noticed. On a somewhat more complex but similar mould, as it were, the feathers of birds are formed. We have here one amongst the many beautiful and wonderful examples with which

pictures, and which furnishes the long and beautifully marked Porcupine quills of commerce, is a native of comparatively warm latitudes, and is found principally in Africa, Tartary, Persia, India, and the Southern parts of Europe. This species, the crested Porcupine, (*Hystrix cristata*) is nearly the largest among rodent animals, and is furnished with spines of much greater length, and which more completely envelop its body than the other members of the same family. Another remarkable animal of the tribe is the tufted-tailed Porcupine, a native of India and Molucca, whose spines, instead of being rounded, are flattened, and resemble in form the blades of grass; the tail is also tipped with a singular appendage, resembling strips of parchment rather than either hairs or spines. A third species, the Brazilian Porcupine, is an inhabitant of South America; it is called also the Coendoo, and is distinguished by a long prehensile tail, which greatly facilitates its movements amongst the branches of trees, on which it principally lives.



CANADA PORCUPINE.

the creature abounds of the manner in which nature, working on the same uniform plan and principle of structure, adapts her materials and formations to the ends in view and the particular circumstances of each case. Thus, on the simple type of a hair she constructs the soft down which covers the young fledgeling in its nest, or effectually protects the eider duck from the rigours of an arctic temperature, or forms the strong pinion, by the aid of which the albatross and the tropic bird sweep the air on untiring wing. By a nice adaptation of the same structure, she clothes the brute inhabitants of the tropics and of frozen zones with appropriate coverings of long thick fur, dense wool, or close fine coats of short and glossy hair; and when defence for the timid, inert and helpless, is the object aimed at, the same appendage of the skin is converted into plates of armour, or bristles in menacing barbs and spines, which effectually keep at bay the most savage and powerful natural assailants.

The subject of the present illustration is of a family, the members of which are not very numerous, and all are distinguished, though not in equal degree, by spines intermixed with the fur. The species most generally known, and most frequently represented in

The Canada Porcupine, sometimes also called the white Porcupine, from the predominating colour of its spines, and the occurrence of scattered white hairs in its fur, is pretty generally diffused over the northern portion of the American continent. It has been found on the banks of the Mackenzie river as far north as 69° lat., is common in most parts of Canada, is frequently met with in the United States as far south as Kentucky and the northern portions of Virginia, and westward its habitat extends to the Rocky Mountains.

The length of the animal's head and body is from twenty-six to thirty inches, that of its tail is about six or eight inches. The color of its fur is mostly dark brown on the upper portions of the body, and of a lighter shade on the throat and under parts. The hue varies somewhat according to age, and in different animals; some have been found altogether white. The head is somewhat short and thick, with the nose blunt. The front teeth are partially bare and prominent. The ears are round, short, and entirely concealed in the fur. The back is considerably arched, the legs, especially the fore legs, are short. The palms of the feet are oval, or egg shaped, with the broader portion in front. The toes are short, four in number on the fore feet, and five on the hind feet, each being terminated with long curved claws grooved on the under side. An abundant fur covers the feet, and being worn down at the sides so as to be apparently short and bristly, forms a sort of brush round the feet, which considerably increases the extent of surface of the sole and materially assists the animal in walking on the snow. The upper part and sides of the body are more or less thickly covered with spines intermixed with the hair, and varying in length from half an inch to three inches. These spines commence on the top of the head, where they are thickly set, short, sharp, rigid and straight; on the shoulders and fore part of the back they are somewhat longer and less stiff; on the middle of the

back and sides they are considerably longer, curved and flexible, approaching in character more nearly to ordinary hair; the hind portions of the body and thighs are also pretty thickly set with long, strong and sharp spines; and the tail is also furnished with similar means of defence. By a sudden motion of the tail it is capable of striking a pretty sharp blow, and never fails to leave some of the spines, which are readily detached, adhering to the mouth or skin of its assailant. The colour of these spines is mostly white, though some are dark, and some, otherwise white, are tipped with black for a short distance from the point. When examined by a magnifying glass, these quills are found to be covered with barbed excrescences pointing towards the base. This peculiarity of structure renders them peculiarly irritating, and even dangerous to an enemy; for once having pierced the skin, every movement causes them to penetrate further, so that unless artificially extracted they may work their way till, in time, they reach and penetrate a vital part, and then at length prove fatal. Accordingly, the Indians very carefully extract all the spines from the skin, lips, and mouths of their dogs, if they have had occasion to employ them in attacking these creatures, whom they capture for the sake of their flesh, which they eat, and their spines, with which, after they have coloured them, they ornament their mocassins and other parts of their dress. They readily dispatch them, as soon as they are within reach, by a blow on the nose.

This animal is slow in its movements, and mild and inoffensive in its disposition. It makes its abode in the hollows of trees, and feeds principally on the bark of trees, to which it is often thus very destructive. The bark of the hemlock (*Abies Canadensis*) and the Bass (*Tilia Americana*) seems to furnish its favourite food. It brings forth its young, two at a birth, in the spring of the year. It is easily captured, and subdued, showing no other symptoms of anger or irritation than the utterance of a plaintive cry or whine. Its sole means of defence consist in the spines of its skin, which are, however, effectual to protect it from all enemies except man. When attacked, it contracts its skin by appropriate muscles for the purpose, and causes the spines to become erect. These being very sharp, especially the short ones, and easily detached, will sometimes fall out when struck against an object, and will remain adherent, as has been already stated in the skin of an assailant. There is no other foundation than this for the fabulous report that the porcupine, when irritated, has the power of darting its quills against its enemy and wounding him from a distance. There is a native of Great Britain, with which "old countrymen" will be familiar, that resembles the porcupine in the single circumstance of being provided with a coat of spines; in all other respects the animal is very different from that which we have been considering, and belongs altogether to another order of mammalia. The common English hedge-hog, as every one knows, is completely enveloped, with the exception of the under part of its body, and its face, in a coat of spines, which like the porcupine it can erect, and being able also, like the armadillo, to roll itself up into a ball, and thus to present to the attack of an enemy a round mass of spines, is a match for any assailant that has not the wit to meet its defensive tactics by cunning or intelligence. The hedge-hog is not a gnawing animal, but lives on insects, snails, and other molluscs, and is on this account said to be very useful in a garden. It is easily tamed, and not unfrequently becomes quite a pet in a family.

The Apiary.

The Queen Bee.

WITHOUT a correct knowledge of the nature and habits of the queen bee, it is quite impossible that any bee-keeper can properly manage his bees, as everything depends upon the queen. If she be barren and unfruitful, the stock soon dwindles away; if she perish, the stock soon perishes also; if she is not prolific, the stock does not increase. Hence every colony or stock of bees should have a healthy, vigorous and prolific queen. The process of developing a queen bee

from the egg is quite different from that of the worker or drone, the time occupied being much less. The process of development is wholly carried on by the worker bees, and in this country generally commences about the last of May or the first of June, and occupies 16 days, reckoning from the day of laying the egg. The egg that produces the queen is the same that, under a different treatment, would produce the worker. The cell in which the queen is reared is also different from that of the worker cells, which may be clearly



seen by the accompanying cut. The eggs and the larvae of the workers in different stages appear in the small cells, while the cell at N is a queen cell just commenced, with the queen larva appearing at the bottom. B is a perfect queen cell, capped over, containing a full-grown queen. A is a cell from which a queen has emerged. Sometimes the queen cell is built around the egg, and sometimes the workers carry the egg and put it in the queen cell; but the queen never deposits an egg in the cell that is to form the nursery of her rival. As soon as the egg is hatched, which is generally on the third day after it is laid, the worker bees commence to feed the larva a peculiar kind of food known as "royal jelly." It is of a cream-like consistence, of a sweetish taste, slightly acid, differing in almost every respect from the food given to the worker bee, which is composed of pollen, honey, and water, while the constituent parts of royal jelly are not known. The workers deposit a large amount of this food in the cell, until the queen larva fairly floats in the jelly-like mass. At the end of eight days the cell is capped over, as seen at B. About this time the larva commences to spin its cocoon, which occupies one day. It may be well to remark here that the cocoon is a silken-like substance formed around the larva, and left on the inside of the cell when the bee escapes. After the cocoon is spun the larva remains about three days in complete repose; then the transformation takes place, in which four or five days are passed, when the perfect state of the queen is attained. On the fifteenth or sixteenth day, the queen commences to gnaw herself out after the manner seen at A, leaving a cap or lid hanging by one side, which sometimes closes up when the queen emerges, and in some cases is fastened on again by the workers, leaving the cell in its perfect state; more frequently, however, the cap is broken off, in which state the cell remains for several days, when it is cut down to about the length of the cell at N, and is never used again for any purpose whatever. The queen, on emerging from the cell, seeks her own food like any other bee, and generally no very particular attention is paid to her until after her impregnation.

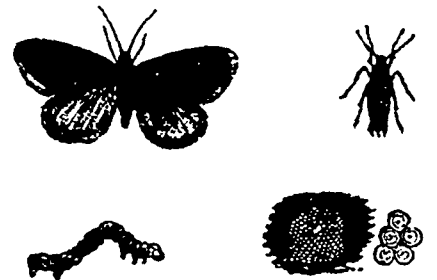
Entomology.

The Canker Worm.

A CORRESPONDENT who lives in the neighbourhood of Grimsby, and who devotes much time and attention to the interesting study of Entomology, has lately sent us two pairs of moths which he correctly con-

sidered to be specimens of the perfect state of that very destructive insect, the CANKER WORM, whose ravages on apple and other trees are so well known in the United States. He states that he first noticed them late in November, but that he has found the females at different times during the winter, under the bark of trees; he further adds that if he is correct in his identification of the insect, we shall have to look after our orchards in this neighbourhood, as there is scarcely a forest tree but what I could find them on."

Though so common in the United States, and so very destructive there, this is the first time, so far as we are aware, that this insect has been found in Canada. It will be useful, then, to give our readers some account of the appearance, habits, and mode of warding off the attacks of this injurious insect. It belongs to the family of motus called Geometers, or "measuring-worms," or "span-worms," from the mode of locomotion employed by the caterpillars in consequence of the absence of legs under the middle portion of their bodies. They have three pairs of legs near the head, and two pairs at the other extremity, and when walking they draw up the hind legs close to the fore ones, doubling up the body in the form of an inverted letter J, then they stretch out the fore legs as far as possible, draw the hind ones up to them again, and so on, looking just as if they were spanning or measuring the surface they are on. The moths from which they are produced are called the *Anisopteryx vernata*, Peck; the former name meaning "unequal-wing," because the sexes differ so much in the dimensions of their wings,—in this case the female has no wings at all, and would never be taken for a moth by one unacquainted with Entomology; the latter name means "spring," because the moth is most commonly seen in the spring of the year. The male moth has very delicate silky wings, broad in proportion to their length, which overlap each other when the insect is at rest; the fore pair are ash-coloured, with a whitish spot near the tip on the front margin, and two indistinct zig-zag whitish bands across them, which are sometimes wanting; the hind pair are paler, and have a blackish dot near the middle; all the wings have rather long, pale fringes; they expand about an inch and a quarter. The wingless female is ash-coloured above and greyish beneath; of an oblong-oval form, tapering to a point behind. The accompanying wood-cut, taken from Harris' *Injurious Insects*, will afford an idea of the appearance of the moths, their eggs, and the caterpillar that is produced from them.



Late in the autumn, after the first hard frosts are over, and mild genial days come on, these moths issue from their pupa cases in the ground, and continue to come forth, whenever the weather is mild, all through the winter, appearing in the greatest numbers early in the spring. The sluggish females at once crawl up the trunk of the nearest tree, where they are soon after joined by the more active flying males; after pairing has taken place, the female proceeds to the branches of the tree, where she lays her eggs, placing them in clusters of from sixty to upwards of a hundred. From these the infant caterpillars hatch out as soon as the young leaves of the tree begin to expand, and afford them a supply of suitable food. At first, from their small size, they attract but little notice, but during the latter part of their larval existence they grow rapidly, and eat so voraciously as to divest the tree of all appearance of greenness. "When very young" (according to Harris), "they have two minute warts on the top of the last ring, and they are then generally of a blackish or dusky-brown colour, with a yellowish stripe on each side of the body; there are two whitish bands

across the head, and the belly is also whitish. When fully grown, these individuals become ash-coloured on the back, and black on the sides, below which the pale yellowish line remains. Some are found of a dull greenish-yellow, and others of a clay colour, with slender interrupted blackish lines on the sides, and small spots of the same colour on the back. Some are green, with two white stripes on the back. The head and feet partake of the general colour of the body; the belly is paler. When not eating, they remain stretched out at full length, and resting on their fore and hind legs beneath the leaves. When fully grown and well fed they measure nearly or quite one inch in length. They leave off eating when about four weeks old, and begin to quit the trees: some creep down by the trunk, but great numbers let themselves down by their threads from the branches, their instincts prompting them to get to the ground by the most direct and easiest course. After reaching the ground, they immediately burrow in the earth to the depth of from two to six inches, where they make little cavities or cells in the ground, by turning round repeatedly, and fastening the loose grains of earth about them with a few silken threads. Within twenty-four hours afterwards, they are changed to chrysalids in their cells."

The trees most commonly frequented by these worms are the elm and basswood of the forest, and the apple, pear, cherry and plum, of the garden or orchard. When they appear in large numbers, as indeed they commonly do, they completely strip the trees of their foliage, and, though they make an effort to put forth a fresh crop of leaves the same season, and occasionally produce a few blossoms and immature fruit, if the defoliation is repeated the effect is certain death to the afflicted trees.

Remedies.—As the female moth is wingless, and is obliged to crawl up the trunk of the tree in order to deposit her eggs, from which the destructive caterpillars are produced, it is evident that the simplest and most effective remedy will be to prevent her from gaining access to the required positions by placing some obstacle around the trunk of the tree. The cheapest and readiest plan is to fasten bandages, three or four inches wide, of old sacking or rags, tightly around the trunk of the tree say two and a half or three feet from the ground, smear them well with a thick clay wash, and on this, when dry, spread as much tar as will cling to the bandage without running over the bark and thus injuring the tree. The tar should be applied shortly before sun-down as the moth is nocturnal in its habits, and should be renewed every warm and mild evening, as long as the moths are about. This may appear a troublesome operation, but where canker worms are prevalent it is far preferable to losing one's choicest fruit-trees. To prevent the tar from becoming dry and hard, any common oil may be mixed with it to advantage.

As this pest is so very destructive and so well known to our ingenious neighbours, it is not at all surprising to find that they have invented and patented various "tree-protectors," and other apparatus for circumventing these insects. One kind consists of a strip of india rubber cloth, an inch wide, which surrounds the trunk of the tree, and has projecting from it, "at an angle of forty-five degrees," a strip of tin or zinc about three inches wide. The smooth sloping surface of the metal is calculated to interfere with the climbing propensities of the moth. Another "Foster's tree-protector" consists of a narrow trough of tin, suspended to the trunk of the tree by a strip of cotton, and intended to be filled with oil. A third "Merri's Patent tree-protector" is much more elaborate and expensive, though possibly more effectual. It is composed of a grooved circle of glass surrounded with iron, and hung to a tent-like piece of cloth, which keeps the glass some inches distant from the tree-trunk. The moths are expected to be all captured within this tent, being unable to ascend any higher.

A belt of sheepskin saturated with kerosene oil, and with the woolly side out, is said to be, and probably is, a useful protector, but we should strongly advise our readers who are in search of a remedy, to have nothing to do with many Yankee nostrums as useless as they are absurd. Such, for instance, is the often recommended plan of boring holes in the tree, and inserting lumps of sulphur in order to poison the worms. This remedy cannot possibly hurt the worms, as the sulphur will remain unchanged in the tree for years, but may possibly be as injurious as the insect itself. Some again drive nails into the tree with the same object, another has recommended quicksilver as infallible, while yet another speculator sells what he calls "muriate of lime," that is, burnt oyster-shells and salt and declares that a moderate application of this to the base of the tree is a sure preventive! Such are some of the modes in which the unprincipled try to dupe their ignorant or simple-minded fellow creatures, who learn too late that they have bought the nostrum, the recipe only to be "sold" themselves.

Stock Department.

Raising Calves.

To the Editor of THE CANADA FARMER.

SIR, I was much pleased with the article in your issue of March 15th on the rearing of calves. The subject is one of great importance to the farmers of Canada, and one on which they need line upon line, and precept upon precept. Of all our domestic animals, perhaps calves require the most attention, in order to make them profitable, but yet how shamefully are they neglected in a great many instances. It is really amusing to see the course that some people take in the raising of their calves. In too many cases the farmer thinks it won't pay for him to spend his time in looking after such matters, and they are placed in charge of the boys; and morning and evening these youngsters may be seen, each one provided with a pail, and armed with a good stout stick with which to belabor the poor animals if they manifest too much eagerness for their share of the scanty meal; or if, on the other hand, they show a dislike to the mess that is in all probability entirely unsuited to their tender age, they are at once pronounced to be sulky, and the starvation remedy is adopted, and the poor brutes are left to their fate in a scorching sun for the next twelve hours. And thus they go on, with perhaps a surfeit one day and starvation the next, for a few weeks, when they are turned out to take their chance with the older cattle. In winter they come in to take their chance again at the straw-stalk. If they die, as is not unusual, the owner at once concludes that stock raising does not pay, or if he happens to have patronised an Agricultural Society that keeps first class stock, he of course pronounces the whole thing a humbug, and reckons they will get no more of his money. If they manage to live through the winter, it will take all the summer for them to get ready to grow again. If tough enough, they may stand it another winter, and then fill the ranks of the bony cows and unruly steers which are the pests of our highways.

In taking a look around us at this season of the year, we see the sad effects of such treatment in the appearance of hundreds of poor animals on too many of our farms. That many take a better course we admit, a course more satisfactory to the merciful man, and in the result which follows more profitable to the man of business. That the profitable raising of calves on dairy farms will be attended with some considerable trouble, there is I think no doubt, but on ordinary farms, where, as on the great majority of the farms in this country, only a limited number of cows are kept for the purpose of making butter, there exists no difficulty in the way of the profitable raising of good calves. The course I would recommend is the following.—Take the calf from the cow when two or three days old, and teach it to drink new milk. I know that some good farmers are in favor of taking the calf away as soon as calved; but having tried both ways, I am entirely in favor of leaving the calf with the cow for a day or two. I think it is decidedly better for the cow. All will admit that for some time after calving, the cow requires extra care and nourishment, from which she is more likely to derive benefit while she remains contented, with the calf by her side, than if her young is taken away from her, and she is further weakened by bawling herself nearly to death, before she has in some measure regained her strength. And as regards the calf, I find less trouble in teaching it to drink when two or three days old, than if attempted sooner. As soon as it will drink milk readily, or when ten or twelve days old, part skim milk may be added, first warming it sufficiently, with the addition of a small handful of sifted meal, stirring it while drinking, the skim milk may be gradually increased and the new milk diminished until it is about three weeks old, when the whole feed may consist of skim milk. The meal should also be gradually increased, as it is useless to expect a calf to thrive on skim milk alone, any kind of meal, or a mixture of different kinds, will answer for the purpose. A little

sweet hay should now be given. When the calf is about four weeks old, a little sour milk may be added, and gradually increased until the whole feed may consist of sour milk. Some calves drink it readily the first time, others require considerable coaxing, but by adding a little at a time, and increasing gradually, they will soon drink it. It must be borne in mind that all changes should be gradual, as there is much danger of bringing on the scours. Feed milk regularly twice a day, until four months old, when once a day will be sufficient; or if necessary they may be weaned entirely; but continue to feed liberally with meal, as every peck fed the first year will be equal to a bushel at any subsequent time. The feeding of the calves should not be left entirely to the boys, but they should be carefully watched, as it is very important that calves should be well fed and cared for during the first year of their lives, if we would make them profitable in the end.

AN OLD COUNTRY MAN.

Brook, March 29th. 1867.

NOTE BY ED. C. F.—We cannot endorse the recommendation to feed on sour milk. We should entertain no high opinion of the good sense of the calf that did not require "considerable coaxing" to take it.

Poisoning of Horses by Arsenic.

Two valuable horses, the property of Mr. Riggall Trusthope, Lincolnshire, England, have just fallen a sacrifice to poisoning by arsenic, which had been given by the carter for the purpose of improving the condition of their coats. It is not always that such a deadly poison is given by "horsemen" for this purpose; but whatever may be used, is fraught with danger in the hands of such persons. It behoves farmers to prevent their servants having recourse to the exhibition of medicinal agents of any kind for such an object. *Farmer, (Scottish.)*

A CURIOSITY WASTED.—A gentleman advertises for a horse "for a lady of dark colour, a good trotter, and of stylish action!" The horse "must be young, and have a long tail, about 15 hands high!"

STOCK-RAISING IN ILLINOIS.—Stock-raising in Illinois has grown to enormous proportions. This State furnishes New York with more live stock than all the other states combined. During 1866 the total number of cattle received at New York was 298,882. Of this number, it is stated upon reliable authority, 165,287 were received from Illinois alone. The aggregate value of all this live stock was \$33,223,723 12 and of the shipments from the state was \$18,373,302 62. This exhibit gives a glimpse of the gigantic proportions of Illinois agriculture.—*American Stock Journal.*

A VERY LARGE LAMB.—A Leicester ewe belonging to Mr. Robt. Scott, Nichol, gave birth on the 15th to a ewe lamb weighing 15½ lbs. It measured from the eyes to the root of the tail 24 inches, 17½ inches high, 20 inches in girth, not including the length of the wool. This is better than the one whose dimensions we gave two weeks ago, belonging to Mr. John White, of Halton, as his measured only 20 inches, including the length of the wool. Mr. Scott has realized \$60 from lambs from the same ewe in the last three years. Both facts are worth recording.

SOILING CATTLE.—E. W. Stewart, North Evans, Erie county, N. Y., writes to the New York Farmers Club as follows:—"From ten years' experience, I can most emphatically say that soiling will pay, with or without peat or muck, and especially where manure is scarce. As this process will double the manure, and only one-sixth of the land is required, it is easier to manure one acre than six. From a strong clay soil, in poor condition, one cutting of clover from forty rods kept twelve cows fifteen days. Such a crop can be grown on almost any farm near the barn, with a preparation of a year or so. Can we not afford to put an acre in fine condition, that we may get the use of five gratis? Soiling also will enable the feeder to command his stock better than in the pasture, it will enable him to double his stock, and almost double his manure. I kept a strict account of the labour bestowed on thirty-five cows and steers one entire season, and found it only sixty-five dollars. The expense is paid four times over in the extra product—saying nothing about keeping up fences. No man can afford to pasture land worth more than twenty-five dollars an acre. Because few have adopted it, is no reason; if it were, it is a reason for poor tillage, poor sheep, poor cattle and horses. Because few have a good groundstone, is no reason why I should not have a good one.

The Dairy.

Ingersoll Cheese Factory.

We condense from the *Ingersoll Chronicle's* a report of the annual meeting of the patrons and friends of the Ingersoll Cheese Factory, which took place at the factory, one mile south of Ingersoll, on Tuesday, the 9th April. About one hundred and fifty persons were present. Thos. Hislop, Esq., the President, occupied the chair, and in his opening address remarked upon the successful operations of the past year. He observed that the milk had been brought in more regularly, that the cans were kept cleaner, and everything seemed to be carried on more systematically. He stated that during the past year it took, up to the 20th of October, 10 1-100 lbs. of milk to a lb. of cheese, and after that time but 7 37-100 lbs. The average amount of milk to a pound of cheese throughout the season was 9 69-100. He cautioned the farmers against multiplying the factories too fast, and bringing them too near each other, as well as against the danger of deteriorating the quality of the cheese by cheapening the price paid for the manufacture. The quality of the cheese hitherto made had been first-class, and the whole of the amount sold had realized the price of 12½ cents per pound.

Mr. Harris next spoke at some length, and explained the principles upon which he had conducted the business, and the encouraging success which had followed the undertaking. He stated that two years ago he had commenced the factory at an outlay of \$2,000, amid the ridicule of his neighbours; but now he had established a successful business, obtained a first-class reputation for the Ingersoll cheese, and distributed amongst the patrons of the establishment the sum of \$30,000. He had been the first to introduce the system of returning the whey to those who supplied the milk, and the first also who had given to his patrons all the cheese their milk would make, instead of giving a limited quantity of cheese for a certain amount of milk. The result had been the distribution of an overplus of five hundred dollars above the amount which the supplies of milk would have realized under the ordinary method. Another important feature of the Ingersoll factory had been the practice of working up the cheese twice a day. Two sets of hands had been kept; one set worked up the cheese through the day and the other at night. I do this (observed Mr. Harris) because I am determined to make my cheese suit the market. All of you know that when milk stands too long it spoils the flavour of the cheese, therefore it is very necessary that the milk should be worked up twice a day, especially through the warm weather. Mr. Harris then explained, in reply to a question from some person present, that two cents was the lowest cost at which he had found it practicable to work up the milk into cheese without deteriorating the quality of the latter.

Mr. Farrington next addressed the meeting, and observed:—

"I have had some experience in the manufacture of cheese. In the year 1830, thirty-seven years ago, I commenced a dairy with twenty-seven cows, and I have kept one ever since. At that time the price of cheese ranged from 5 to 7 cents; in 1832, it went down to from 4½ to 5 cents per pound. When the railroad first went through Canada, people thought it a great benefit to the country,—they got excited; but I think there is now more cause for excitement than there was then. The change which has converted Canada from the raising of grain to the manufacture of cheese, will result in a greater benefit to the country than ever the railroad did. Mr. Harris paid to the patrons of his factory the large sum of \$30,000. Compare this to the amount that would have been realized by the ordinary agricultural pursuits, and I think it will convince the most sceptical that the development of the wealth of Canada is only now at its dawn. We have shipped our cheese to Europe, and it has given good satisfaction, and we must now strive to retain its reputation. Mr. Harris spoke about his adopting the system of working up milk twice a day. This system requires notice, as it is an

admitted fact that, when milk stands too long, it will not produce as good cheese. Again, the milk will not produce as good cheese by being worked up too soon; but to counteract this the manufacturers have introduced a practice of tempering their milk with sour whey, and by that means they are enabled to manufacture an article which is not injurious to the reputation of Canadian cheese in the European markets, and the reputation of Canadian cheese in Europe produces a great effect upon your pockets; therefore let us work shoulder to shoulder,—let us be united, and we will build up a business which shall be a wonder to the world. I see there is a disposition upon your part to withhold patronage because new beginners will do your work cheaper. Let me say to you, be careful; do not leap in the dark. You can get your work done cheaper; you can cut the business down, and, what is more, you can cut the reputation of Canadian cheese down!"

Mr. Samuel Elliott, of the West Zorra Cheese Factory, then made a few remarks on his experience since he commenced, under considerable discouragement, the manufacture of cheese upon the factory system. A great reaction had since taken place, and he believed that during the past year he had turned out from his factory cheese to the value of \$10,000.

Mr. James Noxon, who followed, cautioned the farmers against any carelessness in their operations, or too great eagerness to cheapen the price of manufacture. He observed:—

"You must understand that the whole secret of good cheese lies with you. You must do away with carelessness, and you must make cleanliness a predominant feature. Keep your cans clean, and your milk free from water, dirt, or filth of any kind. There are a great many who have the opinion that if they only produce cheese, the dealers will come and buy it. Do not be deceived, my friends. Do not think it such an easy matter to make cheese. There are three kinds of cheese taken into the market—the first class, the second class, and the third class. The first class will sell in any market, and retain the reputation which Canada has already gained. The second class cheese will not pay; and the third class will drive all the factories out of the country. Although I have no connection with any factory, neither do I have milk to sell, I am connected with an establishment which furnishes nearly all the factories of wealth and standing with the machinery and instruments necessary for the manufacture of their cheese. In this branch of business I am able to make some observations, and I can see that trickery and dishonesty prevail to a great extent. I am called upon daily to supply Lactometers, an instrument to detect skimmed or adulterated milk. All these things should be done away with, and a perfect system adopted. Let there be a thorough understanding between the patron and the manufacturer."

The meeting was then successively addressed by Mr. Joseph Gibson, the Hon. David Reesor, M.L.C., from Markham, and Mr. E. Casswell. In the course of his remarks, the last speaker observed:—

"Overdoing the market has been spoken of. There is no great danger of that if the quality is right. We may get too much of a poor quality, but if we make a good, clean, well-flavoured Cheddar-shaped cheese, England will take all we can make at remunerative prices."

Towards the close of the proceedings Mr. Harris came forward and stated that he would manufacture their cheese upon the same terms as he had done the past year:

The election of the committee then commenced, and resulted in the appointing of the following gentlemen a committee for the ensuing year:—Messrs. Thos. Hislop, C. E. Chadwick, William Grey, Stephen Foster, J. L. Cook, Justus Reynolds, Lafayette Harris, James Harris, and John Gibbons.

The meeting then broke up, all seeming well satisfied with the result.

Cheese Factories, &c., in Eastern Canada.

To the Editor of THE CANADA FARMER:

SIR.—For some years I have much regretted the extreme to which Upper Canadian Farmers go in exhaustive and often abortive efforts to raise crops of grain.

Anyone from that region coming into Lower Canada, and especially into the Eastern Townships, where are the best lands and the best farmers, sees at once

a great difference. Pastures and meadows, flocks and herds, are the order of the day. Idle, bare fallows—baked to sterility through the long hot summer—are exceptions, very rare exceptions, even where soil and climate most invite to that old style of culture.

The cheese factories recently established surpass expectations. One in Dunham, beginning on the promise of milk from 500 cows, received it from nearly twice the number the second season.

One who sent, reports \$36 for the milk of fifteen cows for thirteen days—\$2.75 a day, and better than butter at thirty cents.

Another in Compton received \$5.33 for the milk of thirty cows in six months, (Sundays excepted), besides rearing nearly all the calves, fattening eight hogs on whey, &c. making over \$100 worth of butter—a total of nearly \$900, or about \$30 for each cow. When will U. C. farmers begin to seed down and renovate their exhausted corn fields?

I enclose an extract from the *Bedford Times* regarding the Dunham Factory. TRAVELLER.

C. E. April, 1867.

The following is the extract enclosed by our correspondent:

"Although cheese-making is one of the oldest of dairy arts, yet it is only a few years back since the modern feature of it—the factory system of associated dairies—has been adopted. By this system, instead of scattered dairies and diverse processes, with equally diverse results, the dairy products of an entire neighbourhood receive the best dairy skill. From the time of the first introduction of the factory system in New York State, to the present, it is astonishing to observe with what rapidity it has extended all over the dairy regions of this continent. The one at Dunham, we believe, was the first started in Lower Canada. Others have since been introduced, and we noticed in our last issue that a movement is on foot to start one in Shefford County. It is also stated that arrangements are in progress for commencing factories at Sweetburg, East Farnham, and West Bromc.

"We paid a visit the other day to the Dunham Factory. It has now been in operation about two years. At the time of its commencement few men would have had the enterprise that Mr. Hill had in expending over \$3,000 in building and appliances for the carrying on of the factory, as at the time it was considered quite a doubtful speculation. However, he has made it a success, and well deserves to have done so.

"The factory season commences about the first of May, but quite a number of cows come in after that. At the present time the milk of 900 cows is being received at the factory, delivered night and morning. Each individual's milk is weighed when brought, and an account kept of the total for each. The factory is capable of working up the milk of 1,200 cows. Up to the present time 1,575 cheeses have been made, each averaging 100 lbs., and it is calculated that 100 tons of cheese will be manufactured during the present season. They are now pressing 1,200 lbs. a day, but in the best part of the season they press about 1,700 lbs. daily.

"The cheese made in May and June, amounting to 643 cheeses, weighing about 64,300 lbs., was sold to Mr. Heath, for which he paid thirteen cents a pound in silver. The cheese made at this factory is of a superior quality, and always commands the highest market price. They have now on hand over 900 cheeses, some 500 or 600 of which are almost ready for market.

"The factory is owned by Mr. E. E. Hill. The whole building is kept scrupulously clean and is well worthy of a visit. They have twenty screw presses for pressing the cheese and three large vats for mixing the curd. From the vats there are spouts for carrying off the whey to the pig pen. In the pen there are generally about 150 hogs and pigs, and pretty fat and heavy-looking gentlemen many of them were. These pigs belong to the farmers who supply the milk, and each is entitled to put in a pig for every seven cows. We were told that one farmer supplied the milk of sixty cows to the factory. A pretty extensive dairy, we should think, of his own.

"On an average for the season, we are told that about nine pounds of milk will give a pound of cheese.

"From the long experience of Mr. Hill, he having been engaged in the manufacture of cheese for twenty-five years, and two years in the present factory, we would recommend those intending to engage in this business to give him a call. He is a very intelligent man and thoroughly understands his business, and we have no doubt he would be glad to impart whatever information he has to those who may be benefited by it."—*Bedford Times*.



Weight and Market Value of Eggs.

To the Editor of THE CANADA FARMER.

IN view of the very great production and consumption of eggs, I in common with many other owners of poultry am anxious to see a standard of weight and measure applied to this justly and universally esteemed edible. The practice which prevails in other markets than our own at Hamilton may be different, but here they are sold universally by the dozen, regardless of the difference in weight.

Now, the weight of meat, bread and butter, is one of the standards of consideration for our money. Why not in eggs?

The present practice is a clear injustice to at least two classes of the community; one is composed of those persons who, by science and skill, are endeavouring to develop the best properties in our domestic poultry. There is no inducement for such to carry large eggs to market, for his neighbour with a dozen eggs weighing 1/2 lb. less walks home with the same amount of money in his pocket—a reward for bad breeding. The other class, need I say, are the consumers. It is very evident that the same principle that compels the baker to give a certain weight to his loaf, ought to apply to the sale of eggs. To assist those who take an interest in this matter I subjoin a table of weights, showing the difference in size in hens' eggs. I think it will be pretty clear that the wide-awake purchaser by weight can afterwards sell per dozen with enormous profits.

TABLE
Average Weight per Dozen.

	AVG. WEIGHT PER DOZEN.	AVG. PRICE PER DOZEN.
Common Fowl	1 1/2	6
Spanish	1 1/4	7 1/2
Gray Dorking	1 1/4	10
and Brahma	1 1/4	14
and Cochon	1 1/4	15 1/2

In giving the above, I do not wish to imply that the careful breeder of any of the varieties named cannot produce an average weight of egg greater than laid down in the table; I know it can be done. My object is to show the wide difference, both in weight and value of varieties as produced, in my own peculiar way. It may differ slightly from some of my friends' calculations; but the proportion in production of weight from the varieties will still remain.

If the proportion is correct, (and we hope for the benefit of all parties others may give their tables) then it follows that the person purchasing the eggs of the cross between the Gray Dorking and Cochon will receive nine and a half oz. in the dozen more than obtained in the common hen's eggs. The difference in the money value will always depend on the market value, regulated by supply and demand.

The remedy is easily supplied, could each municipality enact a law preventing persons selling except by weight, fixing it at a reasonably high standard. The result would be justice to all parties. A more significant result would be the emulation aroused amongst keepers of poultry as regards the size of eggs always to be produced by an intelligent breeder through proper selection.

W. H. MILLS.

Hamilton, March 18, 1867.

NOTE BY ED. C. F.—We think our correspondent has underrated the weight of the eggs of Spanish fowl. These, according to Doyle, weigh on an average 2 3/4 oz. a-piece, making the weight of the dozen 2 lbs 1 oz.

Drainage, and the Statute Relating Thereto.

To the Editor of THE CANADA FARMER:

SIR.—As you are faithfully advocating the farming interests of our country, permit me to endorse the statements of many an earnest and able article in your paper on the subject of draining; and although I expect the same fate for my communication as too

often has befallen others, viz., to be carelessly read over, then to be thrown into the waste basket and thereafter for ever forgotten, still, as great results have not been brought about in a day, I would urge our friends to hope on, and keep the subject before the public. You need not travel far through our fair country till you see the want of a thorough system of draining. Our best lands are yet lying waste and worthless; while our high dry lands are quite exhausted with over cropping. The vegetable soil has been washed from the higher lands with the rains of past ages, and now that the fever has given way to the strong arms of our fathers, it is our part to begin a very important part in the improvement of our country. This is, however, from the nature of thing, no easy task to accomplish, and cannot be effected by the isolated efforts on one willing individual's farm. A thorough outlet must be secured before anything can be done. This in most cases can only be obtained by the combination of a number of farmers, and then there is always some unwilling individual in the way, who makes no advance himself and puts obstacles in the way of others' improvement. Take the whole of Canada West, from Hawksbury to Sarnia, and this is the prevailing trouble. Everywhere we meet with lazy fellows that will not open out the water-courses on their land; and it is useless for the industrious man to operate till the mouth of a water sewer is opened. Thus it goes on from one season to another—quiet, peaceable men not wishing to push the thing by law, and the law being by no means imperative or efficient on the subject. Why should a man be allowed to buy a piece of woodland to reserve for fuel, in a district where woodland is of more value than land under cultivation, while his industrious neighbour along-side is drowning with water for the reason that "I have no right to open a course through unimproved land?"

I repeat, the law is cumbersome, and too intricate to accomplish such important results. Is not a superabundance of water, spreading epidemic disease to all around, as great an evil to vegetation as Canada thistles? Why not as imperative a law for opening water-courses as for destroying thistles? We are justly compelled by the penalty of a fine to cut thistles, and Mr. Stirton deserves the thanks of the farmers for the most efficient law yet passed to eradicate the dreaded pest. Much is to be learnt in this respect from the practice in Lower Canada. As you pass along you see the leading water course opened, the ditches running up each line kept open jointly, and carrying off all surface water. Indeed this is a subject that requires the earnest attention of the Legislature, and it is to be hoped that some law will yet be devised that will effect what the unassisted efforts of individual farmers cannot accomplish.

FARMER.

SOUTH DUMFRIES, April 5th, 1867.

Rough Comfrey as a Fodder Plant.

To the Editor of THE CANADA FARMER:

SIR.—Some days ago, in looking through *London's Encyclopaedia of Agriculture*, I noticed a paragraph giving an account of the rough comfrey, (*Symphylum asperrimum*), which from the description seems to be a valuable plant for green fodder, as it will give about thirty tons to the acre. Being a native of Siberia, it ought to do well in this climate. It is mentioned in very high terms in Baxter's "Agriculture." Should you think it worth noticing, I will be greatly obliged by your giving me some information on the subject through the medium of your paper, stating whether the plant is grown in Canada, or if any attempt has been made to naturalize it. In England the attempt has met with success.

QUESTOR

NIAGARA, March 25th, 1867.

The prickly comfrey, to which our correspondent refers, is a native of the Caucasus, and was introduced into Britain early in the present century as a garden flower. It belongs to a natural family of plants noted for its mucilaginous produce and emollient properties, namely, *Buraginaceae*. There are two native species in Britain, *Symphylum officinale*, common comfrey, and *Symphylum tuberosum*, tuber-

ous-rooted comfrey. The common comfrey produces a great quantity of tender, esculent shoots, devoid of any noxious qualities, and freely eaten by cattle. It has been cultivated to some extent; but the prickly comfrey, *Symphylum asperrimum*, has deservedly attracted more attention, as a forage plant, it being exceedingly hardy, much relished by cattle when they become accustomed to its use, and highly productive. Notwithstanding, it would appear that the high expectations raised some years ago in England regarding these plants have not been realized by subsequent trials, and their cultivation at present receives but little attention. We are not aware whether anything has been done in this matter in Canada, but from the hardy character and great productiveness of the comfrey, and the healthy appearance it assumes in many of our gardens, it would be very desirable to give it a fair trial.

The comfrees require good strong land, deeply cultivated; though by manure they will succeed on lighter and inferior soils. They are best propagated by offsets in early spring, three planted triangularly together in hills, about eight inches apart, and the rows from two to three feet asunder, according to the strength of the land; thus admitting of horse as well as hand hoeing. It is of great importance to keep the ground clear of weeds, an object readily accomplished when the plants are in rows at regular distances. As an experiment we would suggest a trial of sowing or planting thickly, on the broadcast system.

The comfrey in this climate would not probably yield more than two crops during the season, but in countries where the period of growth is longer, three cuttings are frequently obtained. It should always be cut before it gets fairly into flower, or it will become hard and unpalatable to stock. The leaves stripped off are much relished by sheep and cattle, and the stalks, when cut and mixed with chaff, are said to be very suitable for horses. From twenty to thirty tons of green forage may be the expected yield per acre, when the soil is good and the management judicious. We shall be happy to record any well-ascertained results that may be obtained in giving the plant a trial in this country.

Sheep Showing Regulations.

To the Editor of THE CANADA FARMER:

SIR.—You would oblige me by letting me know, through the next number of the CANADA FARMER, whether sheep shorn after the 1st of April, if shorn again after the 25th, will be allowed to compete at the Exhibition at Kingston, [Yes. Ed. C. F.] the notice of change of time having come through the CANADA FARMER, which arrived at the post office on the 4th of April, after some intending exhibitors had their sheep shorn. There was great comment at the late Toronto Exhibition, on the dishonest practice, as it was termed, of breeders not shearing sheep closely. Inspectors were appointed, whose decision was to be final, and after examining one class of sheep about an hour, they found themselves unequal to the task. Nor was this to be wondered at. Is it possible for any man to tell on the 25th of September whether a sheep has been sheared close on the 1st of April or not? Let me ask, also, what great advantage is derived from such exact shearing? It leaves the exhibitor in an awkward position; for, after going to the Provincial show, he may want to find a market for his stock on the other side of the lines. He tells you it is no use going there without plenty of wool. He has not only the United States breeders to compete with, but likewise sheep bought up by speculators from his own country, some of which are shorn as early as February. No doubt close shearing is needed for the inspection of some judges, but all the wool a sheep can be got to curry will not deceive a competent judge. There is another matter that requires notice: some of the best sheep in the

Province are driven from the show ground, for want of rules to prevent over-feeding. I heard Mr. Snell's shepherd state on the show ground that they would cease showing ewes, as they could not do so without injuring them by over-feeding. I heard also one of the Provincial long wool judges, who was looking for a ram to purchase, observe that he wanted one which had not been destroyed by over-feeding. At the same time the principal breeders, in advertising their stock for sale, state that they are in breeding condition. A number of rams are to be seen every year on the Provincial show ground, scarcely able to walk, a condition which must greatly reduce their value, as no experienced breeder will use them.

The judges at the late exhibition recommended a long wool class. What is understood to be the style and quality of a Leicester sheep? It is a well known fact that, without a cross, the old kind of Leicester can do nothing on the show ground. We see one of the largest importers selling imported Leicester ewes for less than half the amount for which he sells improved Leicesters, as he styles them, at the same time stating the improvement is a cross with a Cotswold ram. A cross in the flock of a first class breeder is styled "Improved," while in an ordinary flock "Half-bred" is the name applied. Again, we see gentlemen who act as judges of sheep at Agricultural shows, looking on and saying they are the finest blue-headed Leicesters they ever saw, while the owner acknowledges they are half-bred Cotswolds.

The Leicester, Lincoln and Cotswold, are all mixed together to produce what is now shown as Leicester. Is it not possible to describe, for the information of both judge and exhibitor, the quality and description of a Leicester sheep, and not leave the exhibitor liable to be thrown out from competing through the whim and fancy, it may be, of judges who are not experienced breeders? At the late Toronto Exhibition, there were sheep on the ground that could not be got out to show, on account of all the different classes or breeds being judged at one time, and those attending stock being denied admittance at the gates in the morning for sometimes more than an hour. All of which difficulties ought to be remedied.

J. R.

MARKHAM, April 10th, 1867.

LAZIER'S DOMESTIC SPINNER.—In reply to various enquiries we give Mr. Lazier's address, which is Belleville, C. W.

TYPOGRAPHICAL ERROR.—On page 120 of the last number, under the head of "a Manure Experiment" for "67 (loads of manure)" read 6 or 7.

SHEEP QUERIES.—We have received several enquiries about sheep affected with various symptoms of disease, but the descriptions have not been sufficiently detailed or explicit to enable us to offer any advice or opinion respecting the cases in question.

SHEEP SHEARING.—"A subscriber" sends us the following from Thornhill:—"I saw in the *Globe*, of 29th of March, that the Board of Agriculture had met and disposed of the sheep-shearing question, which they say has occasioned considerable difficulty. It was resolved that all sheep to be exhibited at the next Provincial Exhibition must be closely shorn after the 25th day of April next. Now, Sir, this assuredly is bad management. It was generally taken for granted that the first day of April should be the time when sheep intended for Exhibition were to be shorn, and as this new resolution was not adopted until the 27th day of March, and did not appear in the *Globe* until the 29th day, allowing only two days' notice, and the *CANADA FARMER* is not issued until the first of April, consequently the notice could not appear until after that date in this paper—hence the majority of the farmers could not obtain the notice until the close of the first week in April. By that time most of the sheep would be shorn. Is two days' sufficient notice to give on so important a question, and which has occasioned, as they say, considerable difficulty?"

EWES DISOWNING LAMBS.—A correspondent from Peel county sends us the following, though rather too late to be of much service during the present season. He says:—"Horace Maticer's article on the management of young lambs is excellent, but I have a plan for making a ewe take with her own or any other lamb, which I think rather better than his, which

should be known to all sheep breeders. Drive a staple with a few links of trace-chain attached into the side of a smooth wall, about fifteen inches from the floor, and far enough from the corner or any projection, so that the ewe cannot dash the lamb with her head. Then with a hame strap tie the ewe up, giving her room to lie down and no more. During the first day the ewe will have to be held for the lamb to suck. This any boy can do by putting his hand under her lower jaw and holding her nose up. I have used this plan for the last twelve years without a single failure, when a ewe lost her lamb, and I have another that has twins. If they are two or three weeks old, it makes no difference; as long as the lamb will suck it is all right. Two days is the common time required. I never recollect a case that took more than three until the last that came under my hands, which I let go after four days' confinement; she is now as fond of the lamb as if it was her own. The ewe and lamb must be put away from the other sheep while she is tied up.

SEVERE WINTER AND SCARCITY OF FODDER IN THE WEST.—"T. R." writing from Sycamore (Illinois), under date April 12th, informs us that the winter in that section of the country has been very severe, with an unusual amount of snow. Up to the date of his letter very little ploughing or sowing had been done; but in another week, with favorable weather, these farm operations would become general.

Much inconvenience had been experienced from the scarcity of fodder; for, as the principal dependence of the farmers for fodder was wild hay cut in the low places, or sloughs, in autumn, and the wet weather had greatly interfered with gathering this crop, which was consequently very deficient, and as the reprehensible practice of burning all the straw as soon as thrashed, is still commonly practised, a great many people had found themselves very short of feed for their stock, and numbers had been obliged to gather up for fodder straw that had been left for manure. Perhaps the lesson may be of use for the future. Our correspondent informs us that he is about to be engaged in setting out and tending osage orange fences, and promises to communicate to us the success of his operations. We shall be interested in hearing the results, though we do not expect that the osage orange can ever be serviceable as a hedge plant in Canada.

The Canada Farmer.

TORONTO, UPPER CANADA, MAY 1, 1867.

The Season.

SPRING this year has been somewhat later than usual in its arrival. At the date of our last issue, the plough could hardly have been said to have started, even in the most favoured parts of the country, and only now can it be said to be in general motion. Drained farms have had a decided advantage over undrained ones, in their speedy readiness for the plough, and it would seem as though by drought, wet, and lateness of spring, year after year was commissioned to teach us the importance of drainage, as the grand lesson, yet unlearned, of Canadian agriculture. Though the season is rather late, the winter has been one of comparative mildness, and the usual point of cold has not been touched. In consequence of this, fruit promises well, the buds having escaped injury. The prospects of a peach crop in the Niagara district this year are, we learn, exceedingly good. From the prevalence of snow most of the winter, the ground has been well covered, and both fall wheat and clover have been well protected. Hence they promise a good yield, should the weather prove favourable during the growing season. Farmers are in for a hurrying time, and never needed the aid of an orderly, systematic plan of work more than they do the present year.

The Late Rev. Samuel Smith and the Lois Weedon System of Wheat Growing.

By the late English papers we notice the death of the Rev. Samuel Smith, of "Lois Weedon," Northamptonshire, England, originator of the "Lois Weedon" system of husbandry. Mr. Smith was a clergyman of the Church of England, greatly beloved in his neighbourhood, and of a most persevering and energetic nature. His experiments in farming, particularly in the growing of wheat, have been most pleasantly embodied in several pamphlets which have passed through many editions, and contain much original and valuable matter. We cannot give a better obituary of this worthy and respected man, as well as enlightened agriculturist, than by recounting in short the operation and result of the system which is now so intimately connected with his name. Mr. Smith's experiments extend over twenty-one years, and the results of these experiments have been most carefully noted and agreeably set forth in his writings.

Mr. Smith started with his experiments in the growth of wheat with the maxims enunciated by the great originator of English improved agriculture, "Jethro Tull," namely, that strong clay land, when properly cultivated by exposure to the influence of the atmosphere, contains within itself sufficient elements of fertility for the continuous growth of wheat, without the addition of farm yard or any other manure; and not only so, but that the wheat so produced from such unmanured clays is both a better, heavier, and more certain crop, than when manure is added to such soils; or, in other words, that clay land, properly exposed to the air, sun, and rain, will imbibe from these elements the best possible constituents for the most fertile and certain growth of wheat. Mr. Smith commenced with a piece of strong clay land, which lies on the formation known in England as the Oolitic clay. It was in a meadow. He removed the entire surface by paring off the turf, which he carted off, and started on the absolute stiff clay, without any ameliorating influence whatever in it except the staple, which had been ploughed off five inches deep. He first tile-drained it, and led the tiles into a deep ditch to carry off the water. The ditch he most carefully preserved, in order to show in future years what the soil was like on which he commenced. And this ditch, with its original stiff yellow clay, was always shown to visitors after they had inspected the wheat-growing portion of the property. The first summer he sowed the land to oats, then winter vetches—and then commenced his system of growing wheat. He dug over the whole land with the spade, bringing a few inches of the yellow clay subsoil to the surface; then commencing at the edge near the ditch, he drilled and dibbled in three rows of wheat, ten inches apart. He then left a space of forty inches, then drilled and dibbled in three rows more of wheat, ten inches apart; then left a space of forty inches, and so on through the field; so that the field presented the appearance of a series of beds of three rows each of wheat, parallel to each other, with a space of thirty inches between the beds. The wheat came up evenly, and looked strong and well in the spring. As soon as the ground was dry enough in the spring, the spaces between the beds of wheat were dug with the fork—bringing up a few inches of the yellow clay subsoil; the spaces were cultivated with the horse hoe until the wheat was high, and just in blossom. At this time, with a light plough, he turned a furrow from the space up towards the outside row of each bed of wheat, in such a manner as to afford support to the wheat without burying it: he thus guarded against the straw (which was very high and strong) being laid by the wet and the winds, which prevail to so great an extent in England. So the matter remained till harvest, when the wheat was reaped and found to be a good crop, at the rate of thirty-two bushels per acre of the

finest red wheat. Immediately after harvest, the spaces of the field were well cultivated with the spade and fork, and finally pressed—for, as Mr. Smith says, "Wheat loves a mellow bed, but loathes a soft one." Then, at the proper time, each space was drilled and dibbled with three rows of wheat leaving the old stubble as a guide for the operation. As soon as the wheat was well up, so as to be seen in row, the last year's stubble was dug and tacked under and the land thrown up as high and rough as possible; so that now the field again showed a series of beds of three rows of wheat each, and a series of spaces—the spaces being heaped up as rough as possible—but the wheat of the second year was, where the vacant space of the first year had been. The next summer these spaces were all dug deeply with the spade, always bringing up a few inches of the raw clay, and finally cultivated with the horse hoe, till the beds of wheat came again into blossom, at which time a light furrow was turned from the spaces to the roots of the outer row of the beds, for support of the growing wheat, which this year was very strong and vigorous, and would have been laid but for this precaution. Harvest again showed that the crop was good, equal fully to that of the previous year. The same system was again carried out, wheat and spaces as before, and so have been continued for twenty-one years, without any addition of manure or other vegetable matter than the roots and short stubble of the wheat of the previous year; and this he would have dispensed with had it been possible, on account of the expense. This system Mr. Smith steadily pursued for twenty-one years on the same ground, without adding manure, but gradually deepening the cultivation till he arrived at eighteen to twenty inches deep; then he stayed his hand, and dug it only about twelve inches deep; subsequently he again went to the full depth twice only, during the whole term. Now for the results: When he commenced, the land was such as was only worth, to rent, £1 7s. sterling per acre. Towards the end of the time it had become so improved by tillage, that all visitors pronounced it to be well worth £3 sterling of annual rent. The soil had been a tough yellow clay, with the ordinary staple of such land of five inches deep; but by cultivation and exposure to the air it had become friable and comparatively light to the full depth of eighteen to twenty inches, and of a dark brown colour; so that were it not for the evidence of the ditch, which remained in its original state, farmers and visitors would not have believed that it was the same soil at all.

We should have said that the rows of wheat were regularly either horse-hoed or hand-weeded; until at last the soil became almost clean from weeds.

The average of the crop during the entire period was thirty-four bushels per acre of surface, measuring the contents of the whole field, spaces and beds together; and this was the result each year during the term. No single failure seems to have taken place in the whole period. As might have been expected, this system, with these results, created a great sensation in England. Mr. Smith made it public by pamphlets, and by papers in agricultural publications. It was received with much incredulity, and with great opposition. Many tried it, but not seeing the force of all Mr. Smith's arguments, or not understanding them fully, tried the experiment imperfectly, and consequently failed. These rushed into print, and abused Mr. Smith and his so-called system most roundly. Others tried it in land deficient in some special mineral element, and consequently were equally disappointed. Unfortunately for the world, Mr. Smith did not require to work the system up into a money-making business, or he would have established lectures, scholarships, a regular system of instruction, and all the usual aids which are required for enforcing a money-making system on the public mind, but he calmly and continuously carried on his plans until a series of years of the most perfect success showed the truth of his maxims and doctrine.

Amongst others who looked thoroughly into the experiments of Mr. Smith was Mr. John Algernon Clarke, of Long Sutton, Lincolnshire, who is considered one of the best farmers in England; and Mr. Clarke finally published a pamphlet on the subject, with the results of his own experiments, which were made with the idea of adapting the "Lois Weedon" system of wheat growing to horse or steam tillage, Mr. Smith having used the spade and fork more than the plough. Mr. Clarke being a large holder, naturally wished to adapt so profitable a plan to his larger acreage, operations and machinery. Mr. John Algernon Clarke commenced his pamphlet in the following words:

"First of all let me premise, that no one personally acquainted with the Rev. Samuel Smith, Vicar of Lois Weedon, no one who has visited the spot, inspected the crops, and examined the soil—as I have done more than once—doubts for a moment the absolute truthfulness of all Mr. Smith's published statements of cost and produce; so that my account may be received without the least suspicion of high colouring, or suppression of unfavourable facts."

Such was the Rev. Samuel Smith, of Lois Weedon, a good man, patient, energetic,—not turned aside by difficulties or clamours, nor to be laughed or sneered out of his course by doubters or scoffers, but content to let time speak for itself, confident that the great agricultural truths which he enunciated would make themselves felt and known, and that by following the course he adopted, others who took the trouble to make themselves understand the system, might do on a large scale what he did on a comparatively small one, with equal and possibly increasing success. He was truly a benefactor to mankind.

Destruction among Bees.

From all accounts there has been terrible mortality among bees during the past winter. We hear from numerous quarters complaints loud and long on this subject; and within the circle of our own observation we can enumerate several bee-keepers who have lost their entire stock of bees, and others who from a dozen hives or more are reduced to one or two. In many cases hasty conclusions and unfavourable opinions as to bee-keeping have been come to in consequence of the losses that have been sustained. One party, who has kept bees for years, and lost his entire apiary, consisting of five stocks, said to us the other day: "I have smashed up my hives, pulled down my bee-house, and am done with bees." Our first thought on hearing this was the selfish one: "Well, so much the better for those who master the science of bee-keeping and succeed in it."

Now, what are the facts? They are these: that last season was the worst for bees which has been known for many years; that timely warning was given by this journal, and all others that bestow attention on bee-keeping, to examine stocks and feed such as were found to be deficient in honey; and that careful managers have escaped loss, while all negligent ones have suffered more or less severely. The moral of it all is not that bee-keeping is a lottery and a humbug, but that like everything else of importance, it requires looking after, and can only be carried on successfully by a thorough mastery of the art, and faithful attention to the laws, few and simple yet rigorous and inflexible, on which success is conditioned.

The lesson of the past winter is a sharp and severe one against the use of gums, boxes, straw cones, and every contrivance which keeps the interior economy of the hive concealed from the bee-keeper. In this climate, at any rate, it is essential to be able exactly to know the condition of your bees when winter sets in. "Hefting," as many old-time bee-keepers call it, is a very uncertain mode of judging what quantity of honey there may be in a hive. For this purpose there is nothing like the ocular demonstration afforded by a moveable frame hive. It gives you the "meridian evidence" that "puts doubt to flight." Our advice

to every bee-keeper, who has lost stock during the past winter, is not to give up bee-keeping, but to demolish the box hives, burn up the straw skips, and resolve never to trust a stock of bees another Canadian winter in anything but a moveable frame hive. There are several hives of this description. Our knowledge, from actual trial, is limited to that of Mr. J. H. Thomas, concerning which we have not changed our mind from the first, except to think better of what we began by thinking well of. We give our experience during the trying winter of 1866-7, the ordeal of which will long be remembered by many a Canadian bee-keeper. On examination last fall, it was evident that our three stocks all needed artificial feeding: No. 1, a little; No. 2, more; No. 3, considerable. They were all fed accordingly, and packed away in winter quarters in a dark attic closet. On being put out of doors, April 5th, Nos. 1 and 2 were found to have plenty of honey, but No. 3 was run pretty low. It was a very weak stock last fall, so much so that it seemed doubtful if it would weather the winter. But it has done so bravely, and with the help of occasional feeding is coming on finely, making brood at a rapid rate, and promising to be a very strong, useful stock, should the present season be a good one.

Not only is the moveable frame hive of value for inspecting the winter stores of a colony, but it is equally valuable for observing the state of things in spring. When winter is over, it is an anxious question with the bee-keeper, "Have my stocks each a queen?" This question can be at once set at rest with a hive that gives access to every cell, and steps taken without loss of time to provide for stocks that are queenless. Nor is it, in our view, one of the least among the many advantages of a good moveable frame hive that it affords an opportunity of watching the varied and beautiful phases of bee-life. Just now, to observe the young bee in its different stages of development, from the egg to the winged insect; to study the wonderful instincts of these busy little creatures as they arrange for the summer campaign, and to see the marks of contrivance and traces of infinite wisdom in the internal economy of the hive, is one of the most agreeable and instructive pursuits that can possibly be engaged in; and it by no means mars the sentimentalism of the thing to take a utilitarian view of it, and indulge the prospect of a bountiful honey harvest.

Traction Engines.

We recently called attention to the subject of these substitutes for horses on common roads, and stated that they were steadily gaining ground in public favour, and coming into very general use in large establishments in England. We stated also that the President of the Toronto Board of Trade, Mr. James G. Worts, had left this country on a visit to England, with a view, amongst other objects, of making personal enquiry respecting the working of these engines, and of introducing them, if found desirable, into this country. He seems to have been highly satisfied with his examination of their capabilities, and has addressed to the head of the firm in Toronto a letter on the subject, which we subjoin. The opinion and information thus given by one of the best practical men of business in the Province is entitled to every consideration, and will set all doubts at rest as to the usefulness and easy handling of these traction engines. The following is the extract from Mr. Worts' letter:—

"WEDNESDAY, March 27.—Yesterday I made an appointment with Mr. Howland, to go and see a traction engine. We had previously written to the proprietors to have steam up on our arrival. On our arrival at the manufactory, we found them with an engine of eight-horse power with steam up and a truck loaded with three cast iron pillars, each about fifteen inches square, and twenty-four feet long, weighing over ten tons—a most ungainly load; they hitched on without difficulty, went through the narrow streets, passed all kinds of waggons, carts, horses, &c. In some places the road was very narrow, and would scarcely allow two common carts to pass, it ascended a hill, longer, and quite as steep as the hill at Lambton (so Mr. Howland thinks), stopped anywhere, started again without any difficulty, and was handier with that ugly load than any horses could be. When we had gone far enough, they commenced turning the engine and truck—how that was to be done where the road was not forty feet wide we could not tell, but they did it one quarter the time it could possibly be done with horses. We proceeded down the hill, the engine going faster than I and Mr. Howland could walk, and under perfect control, stopped in the middle to allow us to get up, and started again; they could guide it to an inch; passed several

horses, some in gentlemen's carriages. When the horses appeared frightened we stopped, and sent a man to take their heads until they passed. The manufacturers advise our getting only an eight-horse power, double-gear, as the most suitable—it will cost about \$2,000 laid down in Toronto. I am satisfied it will go on middling bad roads, carrying one-hundred barrels of flour. I am also satisfied, by what I have seen and ascertained respecting these engines, that in our own case, by running twice a day to Malton from Meadowvale, and having men to load the trucks at both ends, we could haul wheat from Malton to Meadowvale, and flour from Meadowvale to Malton, at the following cost as compared with horses—take what we now pay, viz:—

200 barrels of flour at 8 cents.....	\$16
800 bushels of wheat at 1½ cents.....	12
	\$28

With an engine—take the calculations of the manufacturers, and add fifty per cent. to it, to cover contingencies:—

Cost of working the engine per day..	\$5 30
Labour.....	2 60
Wear and tear.....	2 45
	10 35
Add 50 per cent.....	5 17½
	\$15 52½

The latter calculation is just about half what it costs us now, and this is an outside calculation—so far as fuel is concerned it would not cost as much.

Mr. Howland received a letter from—of—who wants to see if he cannot get such an engine to haul lumber from his saw mills to Lake Ontario, about thirty miles, all stone road. Mr. H. thinks it would answer admirably, and when not used on the road, could be employed at anything it might be required for."

THE THOMAS BEE-HIVE.—By a reference to our advertising columns, it will be seen that Mr. J. H. Thomas, inventor of the above-named hive, has bought out the interest held by his brother in the business of manufacturing them, and is carrying it on entirely on his own account. Having increased facilities for conducting the business to advantage, he hopes and intends to raise it to a standard never before known in America, and make Brooklyn the head quarters of bee-keeping in Canada, in the fullest sense of the word. Mr. Thomas is a skilled and enthusiastic apiarian, and merits the success to which he aspires.

ANNUAL FAIR OF NEW YORK STATE WOOL GROWERS' ASSOCIATION.—The annual fair of this association will be held at Auburn on May 8th, 9th and 10th, when prizes will be offered on six classes of sheep, viz., American Merinos, Fine Merinos, Delaine Merinos. Lambs of the preceding classes, long woolled sheep, including Leicesters, Cotswolds and Lincolns, and middle woolled sheep. Upwards of thirteen hundred dollars are offered as prizes in this competition. The New York Central Railroad will convey sheep to and from the exhibition free of charge.

SHEEP SHEARING FESTIVAL IN MICHIGAN.—The Michigan Wool Growers' Association have arranged to hold a sheep-shearing festival at Jackson, on May 7th to 9th inclusive. Prizes will be offered for thorough-bred Merinos, Michigan thorough-bred Merinos, Michigan Fino Blood, Leicesters, Cotswolds, and Southdowns, and a sweepstakes premium for the best fine wool buck of any age, to be shorn on the premises. Premiums will also be awarded to the best shearers, and six extra prizes are offered by various individuals for the best fleeces. It is expected that the various railroads entering Jackson will convey sheep designed for exhibition free of charge, and passengers visiting the fair at half price.

TRIAL OF PLOUGHS.—The trial of ploughs under the direction of the New York State Agricultural Society, is appointed to begin on Tuesday, May 7th, near the city of Utica. Premiums in the shape of medals are offered for sod ploughs adapted to various soils, ploughs for stubble land, Michigan sod and trench ploughs, sub-soil ploughs, ditching plough for opening drains, machine for excavating ditches, for under draining, steel ploughs for alluvial and unctious lands, and swing or side hill ploughs. Medals are also offered for harrows and cultivators of various kinds.

Agricultural Intelligence.

Moore Agricultural Society.

A DIRECTOR of the Moore Agricultural Society has sent us the following account, extracted from a local paper, of the recent proceedings of this agricultural association. We commend the spirit and enterprise manifested by the directors to the attention and imitation of other similar bodies.

During the year 1865 the Society had dwindled down until the membership numbered only sixty-eight, with a considerable amount of debt on their heads; and it was considered doubtful whether it might be expedient to keep it afloat any longer. But thanks to the then Board of Directors, a new system of management was introduced. Instead of devoting the whole resources of the Society to Premiums, a system by which a few lucky individuals enjoyed a monopoly of a large proportion of the funds at the expense of the many, ultimately resulting in dissatisfaction and withdrawal of numbers, who saw that they were only aiding the few who took the lead at the Exhibitions, and carried off the lion's share of the prizes,—in the year 1866 it was resolved to hold the Annual Exhibitions alternately at the Villages of Corunna and Mooretown, with the hope that increased efforts would be put forth by those who supported the claims of each,—a plan which resulted so far satisfactorily that it had the effect of raising the membership from 68 to 198 in one year.

The Directors then adopted the plan of introducing improved breeds of stock into the Township, by sending a deputation to Mr. Stone's annual stock sale, near Guelph, for the purpose of procuring some thorough-bred sheep, to be disposed of by auction to the members of the Society; and having received a grant of \$50 from the Township Council, in aid of the project, they appropriated in all \$200 for that purpose. They succeeded in procuring 12 young rams, at a cost of \$164, which they disposed of for \$168, thus only losing a portion of the expenses necessarily incurred in procuring the same; a result which must ultimately effect a great improvement in this class of stock in the Township, and has already proved so far satisfactory, that the present Board of Directors resolved to procure several thorough-bred bulls for the Society. The President, D. Hossie, Esq., was accordingly authorized to attend Mr. Snell's sale of stock, near Brampton, in January last, and to procure stock there or elsewhere, to the amount of \$300, should he find animals suitable to our wants. But as young bulls, varying in age from twelve to twenty-two months, brought from \$100 to \$216, he only succeeded in procuring one pure-bred animal, a Galloway, "Cariboo," at \$150, which took the second prize at the Provincial Exhibition. But subsequently having appealed to the Council for aid, a grant of \$150 was received, thus enabling him to purchase two Durhams and one Devon, pure-bred, making in all four of the best bred animals to be had in the West, which the Society will have available at a cost of nearly \$100. The Directors hope to see the friends of improvement appreciate their efforts in introducing pure-bred stock, by coming freely forward with their dollar subscriptions, thus enabling them to enjoy the privilege of membership, in addition to the opportunity of improving their stock. By so doing, they will enable the Directors to hand over their charge to their successors, at the end of the year, free from incumbrance, a result which may easily be attained, if only a fair modicum of zeal is exhibited.

County Agricultural Exhibition.

THE annual Fall Exhibition of the North Riding of Oxford Agricultural Society will be held at Woodstock, on Tuesday, the 1st of October next. The officers of this Riding Society are: President, John Craigh; Vice-President, Ed. Huggins, and John Dunlop, Secretary; Treasurer, R. W. Sawtell.

We shall be glad to receive notice of all forthcoming County Exhibitions for publication in THE CANADA FARMER.

THE CROPS.—The fall wheat never looked better in this part. There is very little killed, and during the last two days of the fine growing weather some fields are quite green.—Peterborough Examiner.

John Hickley, a young man of about 20 years of age, who was in the employ of Mr. Charles Williams, of Glenwilliams, was accidentally killed on the 9th ult., while engaged in chopping a tree, which fell upon him.

NEW WOOLLEN FACTORY AT BULLOCK'S CORNERS.—Messrs. Clark, Langley & Co., whose woollen factory was recently destroyed by fire, at Bullock's Corners, have completed all the necessary arrangements for the erection of a new factory, and they expect to be in full operation some time in the month of June. Mr. Bullock, who owned the buildings destroyed, has let the contract for a fine stone building to replace the old one, and the work has been commenced.—Dundas Banner.

EFFECTS OF A BITE BY A MAD DOG.—Some time ago we noticed that a valuable mare belonging to Mr. Pooley had been bitten by a dog supposed to be under the influence of hydrophobia. The wound was cauterized at the time, and no bad results were anticipated. On Sunday Apl. 21, however, she was attacked with convulsions, and showed other symptoms peculiar to animals suffering from hydrophobia. Mr. Pooley had her shot on Monday Morning. These ownerless and hungry curs which roam about should be put out of the way at once, for they are a pest to society.—Guelph Mercury.

WHEAT PROSPECTS.—We have received from various quarters very favourable reports of the present condition and appearance of fall wheat, of which, so far as we can learn, very little has been winter-killed. The Galt Reporter has the following notice on this subject:—We rejoice to hear, from all the farmers with whom we have conversed, that the wheat appears to have come out of its winter's trials in capital condition. There appears to have been no winter-killing at all, and should we be favoured for the balance of this month with anything like genial weather, the wheat will afford a strong contrast to what was exhibited last spring.

ACCIDENT IN MARYBORO.—The Listowell Banner says a painful accident occurred to Mr. Geo. Kidd, who resides on the 6th concession, Maryboro', on Saturday Apl. 21. He was found lying in the barnyard insensible, and is supposed to have been kicked by a colt which he was seen leading out of the stable some time before. Dr. Sill was at once sent for, and on examining the unfortunate man, discovered that one of his eye-balls was ruptured, and fears are entertained that he will lose the use of that eye altogether. His nose, too, was broken, and he had a deep circular cut from the inner corner of the eye down over the cheek bone to the temple—evidently done with the hoof of a horse. He remained insensible for several hours, but at last accounts was progressing favourably.

FATAL ACCIDENT IN AMARANTH.—The Orangeville Sun says that on Saturday evening last a young man named Stothart Brown, of the township of Amaranth, met with an accident which proved fatal. The deceased, it appears, went out into the sugar-bush with his little brother in order to prepare for sugarmaking, and while busily engaged in chopping down a dry beech for making firewood, the tree, by some unaccountable means, fell in a wrong direction, and striking against an adjoining tree, broke in two in the middle, the pieces striking the unfortunate young man and crushing him to the earth. The younger brother immediately ran for assistance, but it was a quarter of an hour before the deceased was extricated from his dreadful position. He was removed home in a state of insensibility, from which he never recovered, death resulting in about two hours from the time of the injury.

AGRICULTURE IN FRANCE.—The Journal de l'Agriculture thus sums up the details which it has received from various correspondents:

"The statistics for the year are now completed, and are not very brilliant. The produce of the corn crop is below the average. Wine will be abundant, but of very ordinary quality. Potatoes are rotting in the store-houses; in many places fears are entertained of not being able to preserve sufficient for next planting. Olives will furnish a better crop than was expected; the last fine weather did them much good. Tobacco is affected with the rot. Walnuts and chestnuts have produced the ordinary quantity. We do not speak of the disasters of the silkworm culture, which add darker shadows to the picture. Happily, forage is in general abundant. The cidor fruits also offer a valuable resource, and several special crops, such as hemp and colza, have been good. There is, therefore, some compensation for the evil, and above all, hopes for the future; for all our correspondents are unanimous in recording the happy conditions under which the autumn sowing has taken place."

Poultry Yard.

Prize Poultry at the recent Exhibition of the Canada West Poultry Association.

The accompanying illustration represents some of the first prize Poultry recently shown at the exhibition of the Canada West Poultry Association. The most conspicuous pair in the group are remarkable looking, and very fine birds, belonging to a variety largely bred and highly esteemed in France, and called La Flèche fowls, from the name of the place where they were first most extensively raised. The pair represented (No. 1) are the property of R. L. Wood, Esq., of Toronto, and obtained an extra first

which is white in the silver, and a rich bay in the golden birds. These pencillings have given rise to the name of the variety." Mr. Howard has kindly furnished us for publication a paper read by him before the Canada West Poultry Association on this variety of poultry; we need not, therefore, say more about them at present, except to add that Mr. Howard has been very successful in raising this beautiful breed, and exhibited the gold-spangled variety as well as the pair represented above. The variety are very prolific layers, as may be judged by their synonym of "Dutch Everlasting Layers."

The third pair in the group (No. 3) are a splendid pair of white Dorkings, ruled out as too late for competition, but well entitled to the highest honours. They are the property of Mr. J. Boyne, of London,

of game birds of the variety known as black-breasted red or Derby game. They were exhibited by Mr. John Peters, of London, and ought to have obtained a first prize. This variety was bred with much care at Knowsley by the late Earl of Derby, and is esteemed the finest and most select in England. The erect carriage, beautiful form and plumage, indomitable courage and wonderful pugnacity of these birds are too well known to need comment. They are emphatically an English breed; for from whatever country they may have been originally imported, it is to the assiduous care and cultivation that the breed received in England that they owe their distinctive characters and excellencies. They are beautiful birds, possess many excellent properties, and their flesh is highly esteemed for the table; but they are generally consid-



1 LA FLECHE. 2. GOLD PENCILLED HAMBURGHES. 3. WHITE DORKINGS. 4. SEBRIGHT BANTAMS. 5. DERBY GAME.

prize at the recent exhibition. They are tall and handsome birds, so close and hard feathered that they are much heavier than they appear to the eye. They are said to be capital layers of large eggs, and to afford, as a table bird, an abundance of very white and delicately-flavoured flesh.

No. 2 represents a pair of gold-pencilled Hamburgs, exhibited by A. McLean Howard, Esq., of Toronto, and for which a first prize was awarded. These are beautiful birds; their graceful forms and delicate markings render them very attractive. In describing this variety, Tegetmeier observes: "The general character of pencilled Hamburgs may be thus stated:—they are birds of small size, compact and neat in form, sprightly and cheerful in carriage. In the plumage on the body of the hens, each feather (with the exception of those on the neck hackle, which should be perfectly free from dark marks) is pencilled with several transverse bars of black on a clear ground,

who had also an excellent pair of grey Dorkings at the show, likewise labelled "too late for competition." The white birds resemble the grey Dorkings in form and carriage and in the peculiarity of the fifth toe, but they are somewhat smaller birds, and are entirely destitute of markings, being, in the best specimens, of the purest white.

The small birds to the right (No. 4) are a pair of silver laced or Sebright Bantams, exhibited by Lt.-Col. Hassard, and winners of a first prize. This variety is amongst the most valued of the class amongst poultry fanciers, and was brought to the present perfection of miniature beauty by the late Sir John Sebright, M. P. for Hertfordshire, England, who is said to have obtained the first specimens from India, and exercised a large amount of skill and perseverance in obtaining the requisite points of the breed, which he may be said to have originated.

The last couple in the illustration are a superb pair

ered too pugnacious for ordinary barn yards. Mr. Dixon, a warm admirer and defender of their merits, says that "though the game cock will not submit to intrusion or insult, he will not go out of his way to quarrel; and thinks that other poultry which may happen to be killed by him, have themselves to blame for some impudence or aggression on their part;" on which Mr. Doyle remarks that "it is enough to say of him that he is quiet when not vexed, which is but negative praise after all, and such as we may safely award to very troublesome characters even of the human kind." The fighting propensity shows itself at a very early age; so that it is no uncommon thing to see mere chicks pegging away at each other in most determined fight, and leaving marks of the fray in bare and bleeding heads, that no humane person can regard as at all ornamental to the poultry yard. The same spirit, however, in the hen makes her a capital mother and guardian of her brood.

Feeding Poultry.

OYSTERS are said to be an admirable food for fowls, or rather an adjunct to their ordinary food. If given regularly, it is said that they will prevent the attacks of the more ordinary diseases of poultry.

Meat is said by some authorities to be an essential food for poultry, especially in the Winter, when they cannot get the worms they pick up in the Summer. Others, again, maintain that the habit of giving meat to poultry is productive of grave evils—the cause of many of the worst forms of disease which affect them. By these authorities it is called an unnatural food, inasmuch as the digestive organs of the birds are not fitted to assimilate it. There must, we think, be some mistake in all this; for we know of a surety that fowls do eat when they can get it, and entirely of their own accord, an enormous quantity of animal food; here it is not cooked; the game found in nature's garden is raw. If meat is unnatural food for poultry they certainly have a most unnatural appetite for it. Throw in one lump of meat amongst a lot of fowls; if not literally a bone of contention, it is something vastly like it, so eager are all to get a grab at it.

We believe the habit of giving much food in a short space of time to poultry is a very bad one. If you notice their habits you will perceive that the process of picking up their food under ordinary, or what we may call the natural condition, is a very slow one. Grain by grain does the meal get taken, and with the aggregate no small amount of sand, small pebbles, and the like, all of which passing into the crop, assists digestion greatly. But in the "hen-wife's" mode of feeding poultry, a great heap is throw down, and the birds are allowed to "peg away" at such a rate that their crop is filled too rapidly, and the process of assimilation is slow, painful and incomplete. No wonder that so many cases of choked craw are met with under this treatment.—*Mark Lane Express.*

Why do honest ducks dip their heads under water? To liquidate their little bills.

PRESERVATION OF EGGS.—*Le Bétier* (a Parisian paper) recommends the following method for the preservation of eggs:—Dissolve four ounces of bees-wax in eight ounces of warm olive oil, in this put the tip of the finger and anoint the egg all around. The oil will immediately be absorbed by the shell, and the pores filled up with the wax. If kept in a cool place, the eggs after two years will be as good as if fresh laid.

CORRECTION—We find that, in our poultry prize list, the two pieces of plate offered as prizes for silver-spangled Polish and gold spangled Hamburg fowls were both credited to J. E. Ellis and Co., of Toronto; whereas the first only was given by that firm, and the other was the gift of J. Joseph and Co., of this city.

Veterinary Department.

Painless Surgical Operations on Animals.

RECENT applications have been made in England of ether, to produce local insensibility to pain in the horse and other animals. The principle has for some time been successfully applied to surgical and other purposes in the human body. The effect of ether, which is a very volatile fluid, is to produce, by evaporation, an intense degree of cold, and this being continuously applied for a short time on any particular part of the body, produces at length such a complete numbness that all sensibility to pain is temporarily destroyed. While this condition lasts the operation is performed, and much aggravating and sometimes dangerous suffering is thereby avoided, to the immense relief of both surgeon and patient. This method

is entirely free from the serious objections which exist to the use of chloroform and other vapours inhaled by the lungs, and producing general insensibility; but at the risk occasionally of a fatal termination. If its introduction into veterinary surgery should be found satisfactory and efficient, and we see no reason why it should not, science will have conferred alike on man and his faithful and patient servants of the brute creation a boon of inestimable value. We extract from the *Field* an account of Dr. Richardson's experiments, to show the feasibility of producing local anaesthesia (painlessness) in the inferior animals for the safe and merciful performance of surgical operations. They are only not conclusive, because the amount of pain caused by passing a sharp needle through the skin, and into the flesh, can by a little dexterous manipulation be reduced to a mere trifle, without the employment of any anaesthetic agent whatever. We have, however, Dr. Richardson's testimony to the successful application of the principle to actual operations of a very different character from simple acupuncture, and the practice of veterinary surgeons of repute to vouch for the success of the treatment. The *Field* reports as follows:

"The committee of the Royal Society for the Prevention of Cruelty to Animals met Dr. Richardson on Wednesday, at the society's rooms, 12 Pall-Mall, to witness his demonstration of the production of insensibility to pain by means of ether spray, and to hear his views as to the extension of the process to the performance of operations without pain on the horse and other inferior animals. There were present at the meeting—the Earl of Harrowby, in the chair; Mr. John J. Briscoe, M.P., Mr. W. Mackinnon, M.P., Mr. S. Gurney, M.P., General Sir John Scott Lillie, Dr. Fraser, Dr. Sedgwick, Professor Tuson, and a large attendance of members. Dr. Richardson first described why general anaesthesia had not been commonly applied to veterinary operations, and explained that the difficulties connected with the general method were all removed by the local process. He next demonstrated the principle and practice of the local method by ether spray, and narrated briefly the line of inquiry which led him to the invention. He then demonstrated the process on his own body, making, with the assistance of Dr. Sedgwick, large surfaces of his arm insensible to pain, and passing large needles deeply through the benumbed parts. This was repeated on the flesh of Dr. Fraser, Mr. Gurney, and Mr. Mocatta, who testified to the painlessness of the operation. In veterinary surgery this local anaesthesia is, Dr. Richardson said, applicable to all operations, and it has been practised with entire success by several veterinary surgeons, especially by Messrs. Mavor, of Park Street. The details of many painless operations on horses were next supplied, particularly the operations of nerving, of firing, of introducing setons, of removing tumours, of opening cavities of the body where there was obstruction, and of applying caustics and escharotics to irritable and open surfaces of the animal. The value of the method as a means of removing pain from inflammation and other causes was also discussed, together with the application of the plan of discovering the seat of disease in cases of lameness. The simple little apparatus used was greatly admired, and Dr. Richardson showed that the assistance even of an uneducated person was sufficient to enable the veterinarian to proceed to painless operation. Messrs. Robins & Co., of Oxford Street, had prepared an ether specially for veterinary purposes, at 4s. 6d. per lb., which would suffice for twenty operations. Towards the end Dr. Richardson referred to the varying degrees of sensibility belonging to different animals, as proved by the degree of anaesthesia required in order to produce perfect local insensibility. He concluded by stating that, whenever members of the community demanded it, every animal that was considered so valuable as to be a proper subject for a surgical operation could now be submitted to operation without physical suffering, and that, too, safely, quickly, conveniently, and cheaply. It was hardly to be expected, in the present state of civilization, that this process for removing the suffering of the inferior creation would make rapid progress in the world at large, but in England it ought to make way, and especially if the society addressed would lend its powerful aid. A vote of thanks was presented to Dr. Richardson, and his paper ordered to be printed for general circulation."



The Hamilton Nurseries.

HAMILTON enjoys a well-earned reputation for eminence and progress in all departments of horticulture, and possessing many advantages as to location, exposure, climate and protection, would be culpable indeed if she did not avail herself of them. Ample opportunity for doing so is afforded by the well-kept nurseries in and near the city, where practical fruit growers and amateur gardeners can both inspect samples in the specimen grounds, and obtain fac-similes for transfer to their own domains. Hamilton is also a good point for supplying a large section of country with trees and plants, from the ready facility of shipment and transportation by water and rail which it offers. Having within a few days paid a visit to the Hamilton nurseries, a short account of them may not be unacceptable to our readers.

Messrs. J. A. Bruce & Co. have an extensive nursery and seed establishment, comprising a large store and warehouse on King Street; nursery grounds, green-houses, and graperies on Ferguson Avenue; and a seed farm of thirty-five acres on Main Street East, just outside the city limits. The store and warehouse are stocked with a large and varied assortment of seeds; garden implements of every description; and the standard works on Agriculture, Horticulture and Rural Economy.

The seed business has grown from a small beginning to almost mammoth proportions, and it is very gratifying to find that in the increased and constantly augmenting demand for certain seeds, there is conclusive evidence afforded of steady agricultural improvement. Especially is this the case with regard to root crops. In 1851, fifty-six pounds of carrot seed sufficed to answer all calls; this year the Messrs. Bruce expect to sell at least 5,000 pounds. In 1851, less than fifty pounds of mangold seed was enough; last season upwards of a ton of it was sold. In 1851, ten bushels of turnip seed were required; in 1866, 570 bushels were disposed of. These figures speak volumes; and yet, when root culture receives proper attention at the hands of our farmers, they will be multiplied ten-fold. We are glad also to learn that a demand is springing up for miscellaneous grass seeds, and that there is a less exclusive use of clover and timothy in laying down meadows and pastures. Orchard grass and Kentucky Blue grass are especially spreading, and in the Niagara District, Kentucky Blue grass seed of choice quality is now raised quite extensively, and is in much request for the Kentucky markets, being better than can be raised there. The Messrs. Bruce have imported this year a small lot of seed of the *Bromus Schraderi*, that trial may be made of its suitability for this climate. They have also been testing an extra early potato obtained from England, the early Handsworth, which they find not only much earlier than the Ash-Leaf Kidney, but far more prolific, it having yielded in their grounds at the rate of three hundred bushels per acre. Market gardeners will do well to make trial of this variety.

The nursery owned by this firm is well worth seeing, and presents many features of interest, prominent among which may be mentioned the beautiful samples of dwarf apples and pears in full bearing condition,—the hardy grapes and grapes under glass,—an unusually large and varied assortment of roses,—a large stock of bedding and green-house plants, and a very beautiful lot of evergreens. The cultivation of dwarf pears is a sort of specialty with this firm. They have for some years past carried off the

nurseryman's prize for pears at the Provincial Exhibition, and their young trees have an exceedingly clean and thrifty look. Some of the pyramidal dwarfs in the specimen grounds are of very beautiful shape, and give evidence of skilled and careful culture.

The Messrs. Bruce have about 8,000 feet of glass at their city grounds, comprising, in addition to ordinary frames, a large green-house for miscellaneous plants, a heated grapery well stocked with the choicest foreign sorts, and a cold vinery, in which grapes are grown both in borders and pots. The pot culture of grapes is now becoming very common, and found to answer well, though it requires more assiduous care than the ordinary method. Parties building cold vineries may gain a season by obtaining two-year-old vines in pots, which will grow without check by removal, and make a show at once. It is needless to say that, beside the usual supply of tender and half-hardy plants grown under glass, this firm have a large and varied assortment of fruit and ornamental trees, shrubs, climbing plants, evergreens, herbaceous plants, and the various things forming an out-door nursery collection.

The nursery of Mr. Warren Holton, comprising fifty acres of land, is located two miles out of the city, has a most favourable exposure, and a light, easily worked soil. This establishment is wholly devoted to open-air cultivation, and contains a large assortment of all hardy trees, shrubs, and herbaceous plants. The stock of standard apple trees is very fine. Standard and dwarf pears are also a prominent feature in this nursery. We have seldom seen a more beautiful collection of evergreens, among which we noticed the finest lot of native Canadian spruces we have met with anywhere in the country. This spruce is nearly if not quite as handsome as the Norway spruce, and deserves a place in every plot of ornamental shrubbery. Mr. Holton appears to be a most careful and systematic nurseryman, and his stock throughout presents a very healthy appearance. We are glad to find that the nursery business in Canada is improving,—that farmers are planting much more largely of fruit than heretofore,—and last but not least, that in the opinion of intelligent nurserymen and fruit growers, this journal is contributing not a little toward promoting general interest in garden and orchard matters.

Renovating Unsightly Climbing Rose-Trees.

When against walls of a good height, Rose trees are sometimes very liable to become too naked and unsightly all along the lower portions; even the most careful cultivator cannot always ensure a nicely trained Rose tree, and, at the same time, one well furnished with leaves all over its lower portions. It is to be observed, many trees, when trained against walls, are very liable to run a-head, and thus become too naked about their stem. A little judicious treatment, at a proper season of the year, would go a good way to remedy the unsightly appearance, and be a means of giving quite a fresh look to the tree. There are two ways which we have acted upon, the one differing somewhat from the other.

Firstly, supposing you have a Rose tree trained against the wall, covering the latter well for some feet or yards on each side of the root, upwards to the top of the wall—having been for years generally well furnished all over with spurs and flower-buds, but in the course of time the lower portions gradually lessened in their leafy covering, as well as in their apparent ability to produce flowers—if the spurs are not dead, it may be recovered by judicious pruning. Wait and see March well advanced before you attempt to prune it; and when you prune the first portion of it, let this be only the lower part of it; and let some weeks elapse ere you attempt to cut in the higher portion. Indeed, perhaps you had better let all the upper part break away into life before you prune any of the higher part. By doing so, you will find that all the buds towards the base of the shoots or spurs remain dormant; while those more towards the points of the shoots burst away into leaf. Well just let them do so, and in the end of April, or the beginning of May, cut back all those shoots to their proper position. By this way of acting, it often happens that all the lower parts, where first pruned, will

have time to burst away and go a-head before the upper portion can break forth from the eyes, close along the bottom, where you can cut it back to.

Another way can be acted upon; and this we have proved, in several cases, to render great service in restoring unsightly Rose trees, and to clothe again the lower portion with foliage and flowers. The mansion-house where we were about to be renovated, and a portion of its walls painted outside, where there were several Rose trees nailed up against the wall. These had to be unfastened, and laid backwards as far as they would admit of. A few stakes were firmly driven into the ground, and the Roses tied slantingly backwards. This was in summer, and thus they remained, while the wall was painted over several times; and before all was ready for the Rose trees being trained up again, it was pleasing to see all the bare lower parts breaking out with a healthy and vigorous covering of shoots, which in due time repaid us with a nice crop of flowers; and by judicious management, this kept the trees in very fair condition for several years. Since then, we have tried the Gloire de Dijon Rose, as well as several others. It is only to put up with the unsightliness of the trees being unfastened and brought forward for a few weeks at most; rather than allow them to remain unsightly for a yard or two up the wall for years.—G. Dawson (*Scottish Gardener*).

M'Indoe's Transplanting Machine for Light Weights.

The following is a description of this machine, for which a prize of £3, given by the Society of Arts was awarded at the International Horticultural Exhibition to the inventor, Mr. M'Indoe, gardener to Mr. Coles Child, of Bromley Palace, Kent. We quote from *The Farmer* (*Scottish*).

This implement is capable of transplanting trees or shrubs of from 5 cwt. up to nearly 2 tons. The machine can be passed through a 4-foot gate, over narrow walks, grass lawn, &c., without doing any injury. It has two wheels or rollers, 3 feet in diameter and 13 inches across. Between these, fixed on the same axis, is a narrow cog-wheel, 2 feet 8 inches in diameter, and over it a ratchet-wheel, 9 inches in diameter, the turning of which with the handles enables the operators to move the machine backwards and forwards without difficulty. The pole over the wheels is supported by strong iron bands (1 by 3 inches), and when level is 5 feet 6 inches high, 17 feet long, and, with the addition of the auxiliary pole, can be extended to 22 feet. Along the sides, where the greatest strength is required in leverage, iron bands (2 inches by 3/8ths of an inch) are inlaid in the wood. There are prongs extending from the end of the pole, 2 feet 6 inches long, and the same dimensions across the points. They are covered with canvas stuffed with moss, to prevent the sharp edges rubbing the bark off the branches of shrubs. From these prongs are suspended two belts, made of strong tarred cord, about the thickness of sash-line; they are 6 feet long and 1 foot across, with three feet of chain to each end. At the opposite end of the pole are two small wheels, 18 inches in diameter, and there are hooks under the pole, for hanging half-hundredweights, which, with two more hung on the axis of the small wheels, are of great use when the machine is loaded.

When a tree or shrub is to be transplanted, the operators commence in the usual way by digging out a trench, at a safe distance from the stem, and, with a pick and fork, work towards the place, taking all possible care of the small roots, and pegging them up as the work proceeds, till the plant stands on a pivot of about a foot in diameter. Then the belts should be placed crossways round the ball, and the machine should be backed (if on two planks all the better). The small wheels should then be taken off, and a rope put round the end of the pole, which should be raised till the chains can be hooked on to the prongs. The pole must now be pulled back again, and if a block and tackle be at hand they will be found of great service in this operation. When the pole is got down again put on the small wheels and weights; and with two men at the end of the pole and four at the handles, a tree a ton in weight may be moved anywhere if the ground is tolerably hard and level.

In this way the inventor has within the last two years superintended the transplanting of upwards of 100 trees and shrubs, including evergreen oaks, and conifers (from 10 to 30 feet high, yews, hollies, Portugal laurels, the laurustinus, the arbor vitæ, the juniper, &c., from 6 to 10 feet high. With the exception of two large trees, which were transplanted under very unfavourable circumstances, every one of these is said to have turned out a success.

Fruit Capabilities of Owen Sound.

To the Editor of THE CANADA FARMER:

Sir,—Seeing in your journal of the 1st April an enquiry from "Hemlock," Leith, concerning the best and most suitable kind of apples, with a short list of a few varieties, some of which you endorsed, and others you rejected as unsuitable, among the latter being the "Rhode Island Greening," on the ground of the locality being too far north for the successful culture, I take the liberty of stating that I have seen in this neighbourhood many trees of this variety loaded with fruit, and have understood from their owners that this excellent winter apple does well in their orchards.

There seems to be a general feeling that this is too far north to grow any fruit except of the most hardy description; but such is not the case, or how would you account for farmers in this neighbourhood, and within less than one mile of Leith, growing thirty bushels of peaches yearly for the last two seasons from a few ordinary seedling trees, without any particular cultivation?

I account for the fact in this way. Like the Niagara district, we have the Lake to the north of us; and we have a warm limestone formation. Snow comes on before the severe frosts, and remains till they are gone. The frosts with us are, moreover, much less severe than in Toronto. In 1866, the coldest temperature here was 6° below zero, while the *Leader* announced it 20° below at the same time in Toronto, Stratford 15°, London 16°, Quebec 20 to 31°, Burlington, Vermont, 23°, Troy 20°, Rhode Island 17°, Albany 16°, Portland 25°, Bangor, Maine, 30°, Brooklyn Navy Yard 23°.

That same frost, I know, killed quite a number of fine bearing dwarf pear trees at Mr. Le-lie's garden, Toronto Nursery.

I know over a hundred pear trees grown in one garden here, the greatest part dwarf, and not one of them was the least injured.

I hope the above remarks may help to correct a general false impression regarding the coldness of this region.

I may add, for the information of "Hemlock," that I have planted 943 apple trees in spring, from trees taken up in fall, well trenched and protected under the snow, without having a single failure. O. S.

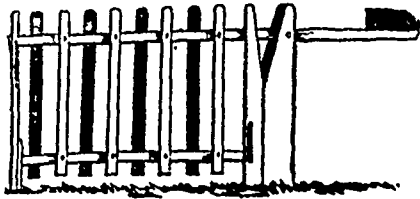
Owen Sound, April 17th, 1867.

Evergreens for Screens and Fences.

AMERICAN *Arbor Vitæ*, or white cedar, is probably the best evergreen for a fence or hedge which it is desirable to keep rather low; if a wind screen, or barrier, ten or fifteen feet in height, would not be objectionable, (and it certainly would not around most farmers' premises), then plant Norway Spruce. Small or large ones may be set, but they should average as near of one size as possible. We should prefer those about three feet in height, well limbed down to the ground, and stocky. We cannot give prices; those will depend a good deal on your skill in buying. If possible get them near home, so you can transfer them in a lumber wagon. When the soil will do to work in the spring, spade up the ground where they are to be set to a depth of twelve inches and a width of three feet. Do this work thoroughly, putting the bed in as good order as if you were going to plant garden seeds on it. Have some leaf mould from the woods ready, and mix in as you spade, and also scatter plenty on the top and rake it in. Beware of coarse or stimulating manures. Having your bed prepared, wait patiently until the latter part of spring for a warm, foggy, drizzling day and then transplant your trees. Do not let the sunshine touch their roots, or the wind dry them. You can transplant them very fast, having the bed all prepared. Set two feet apart, and trim the tops and sides as you would any hedge. The form of the hedge will depend wholly on your trimming; you may make it broad or narrow, oval or pyramidal, according to your fancy.—*Cor. Rural New Yorker*.

DESTROY CATERPILLAR EGGS—While the orchard trees are still bare of leaf, the nests of various species of caterpillars, especially of the tent caterpillar, may be readily seen; and the present is the last chance afforded to the fruit culturists for thoroughly destroying these prolific pests before they mature and multiply. No time should therefore be lost in examining the trees and removing the small twigs, where the nests cannot otherwise be abstracted, collecting them together and burning them.

Advertisements.



THE FARMER'S GATE!

CHEAP, LIGHT, AND DURABLE; with no hinges to get out of order, cannot sag and stick in the ground, out of the way of vehicles, cannot be left half open, never blocked up with snow, and So Simple of Construction that Every Farmer can make it, if Supplied with the Plans.

"THE BEST FARM GATE WE KNOW OF."—"CANADA FARMER."

PLANS AND SPECIFICATIONS

For all sizes, from a three foot wicket gate to an eleven foot wagon gate, will be sent post paid to all parties remitting Over DOLLAR, with address, post paid, to BOX 93, GUELPH P. O., or to, CHARLES DAWBARN & CO., 124 King Street, East, Toronto, C. W.

YOUNG PERFORMER.

THAT remarkably fine three year-old Stallion, that took the first prize at the Provincial Exhibition last September, will stand for mares the coming season. Particulars of route, &c., will be duly announced.

He was bred by Mr Hall, and is coming four years old, is a beautiful

BRIGHT BAY, WITH BLACK LEGS,

possesses superior action, and stands 16 1/2 hands high. He was bred by James Galt's Ph non-non Dam was sired by Grand Exhibition, out of Mr Tross's celebrated Mare, which was imported from Scotland, and of the Rainbow breed.

Oroxo, April, 1867

E. HALL, v4-9-2t

SEED POTATOES.

A LARGE quantity of sound Peach Blooms, Kidneys, Buckeyes, Garnet Chins, Mechanocks, and other good kinds, for sale by the subscriber.

Orders from a distance promptly attended to.

v4-9-11

F. W. FEARMAN, Hamilton, C W

Goodrich's Seedling Potatoes.

- Early Goodrich.....\$4 00 per barrel. Gleason's.....\$5 00 " " Cuzco.....\$2 50 " " Calico.....\$3 00 " "

The four varieties in one barrel \$4. All warranted true to name.

Address, ADOLPHUS C. CASE, Hamilton, v4-5-6t (King Street East.)

DURHAM BULL FOR SALE.

THE undersigned will sell his four-year-old Durham Bull, DUKE OF MOUNT PLEASANT—quiet, beautifully marked red and white and a pure calf getter. Pedigree in American Short-Horn Herd Book, vol. 6, page 59, paragraph 4742.

THOS GRANTHAM v4-3-1t

RICH'S SHEEP DIPPING COMPOUND

Pronounced Superior to all Others!

IT has now been used in Europe for many years with great success, and for the past six years in the counties of Elgin, Middlesex, Kent and Norfolk. It will free your sheep from ticks, produce you more wool, and the sheep will thrive much better on the same food.

Price 25 cents per tin; will dip 20 sheep will dip 40 sheep.

For sale Wholesale and Retail by

CHARLES DAWBARN & CO., 124 King St. East, Toronto. v4-9-1*

GREAT EUROPEAN SEED STORE, CHARLES DAWBARN & CO., 124 KING ST. EAST, TORONTO.

DESCRIPTIVE Catalogues of choice FIELD, GARDEN, and FLOWER SEEDS with full directions for their successful cultivation, post free to all who send their address.

Agricultural Societies will find it greatly to their interest to write for special prices. v4-9-1t*

SEEDS.

THE UNDERSIGNED HAVE A COMPLETE STOCK OF FARM, GARDEN, & FLOWER SEEDS.

Catalogues furnished on application.

2,000 bushels Timothy Seed. 100 do. Large late or Pea Vine Clover.

MEDIUM Red Clover; Cow Grass; Alsike Clover; Hungarian Grass; Tares or Vetches; Golden Vlna Peas; Black-eyed Marrowfat Peas; Native and Imported Rigla Flax Seed; with a large stock of Swede and Soft-Tosh Turnip Seed, White Belgian and Red Carrot; Mangel, &c. JAMES FLEMING & CO. Seed Merchants, Toronto. v4-9-1t

April 29, 1867.

ARTIFICIAL MANURES.

SUPER-PHOSPHATE OF LIME.

A STANDARD MANURE for all field and garden crops. It greatly increases the yield, and matures the crop much earlier. An exceedingly valuable fertilizer, which all farmers should use.

PARKER'S SUPER-PHOSPHATE.

PRICE, per ton.....\$40 00 Put up in barrels of about 200 lbs., more or less, per 100 lbs. 2 00

In offering PARKER'S SUPER-PHOSPHATE, for the sale of which we are the Sole Agents, we would state that it is made of the BEST MATERIAL, and superior to any other in the market. Super-Phosphate may be offered for sale at various prices, but an article equal in quality to "Parker's" cannot be offered at a lower figure.

HENRY CROFT, D.C.L., Professor of Chemistry in University College, Toronto, and Chemist to the Board of Agriculture of Upper Canada, in giving us an analysis of Parker's Super-Phosphate writes us as follows:—"The principal value of the manure sold under the name of Super-Phosphate depends on the quantity of soluble phosphate of lime contained in them, which is in such a condition as to be readily taken up by the roots of plants. PARKER'S article, containing eleven per cent. of this salt, is, therefore, well adapted for the purpose; the other ingredients, such as insoluble phosphate and sulphate of lime, together with a large amount of animal matter capable of supplying ammonia by its gradual decay, being of such a character as to increase its value."

BOUNE DUST,

Of superior quality. Price per ton, \$27 50.

April 29th, 1867. v4-9-2t

JAMES FLEMING & Co., Seed Merchant, Toronto.

FOR SALE, TWO PURE DEVON BULLS,

One and two years old, from imported cows.

v4-8-2t

SAM'L TOMS, Oshawa, Canada West.

CANADA VINE GROWERS' ASSOCIATION.

PERSONS desirous of obtaining cuttings from the celebrated vineyards of the Association, will please to forward their orders during the month of April, accompanied by a remittance in

REGISTERED LETTER OF ONE DOLLAR A HUNDRED,

for the quantity required.

Cuttings are almost altogether used in the vineyards of Europe, and are considered superior in every respect to rooted plants.

Persons ordering one thousand and upwards will receive

"THE CANADA VINE GROWER,"

a pamphlet containing instructions which will enable every farmer to plant his own vineyard, and make his own wine.

v4-8-2t

CLARE HOUSE, Cooksville, C W

GRAPE VINES.

100,000

CHOICE varieties, \$30 per 100, or 4 by mail, post-paid, for \$1. A few large bearing vines left at \$2 each, or 10 for \$10, to one address.

v4-8-2t

W. W. KITCHEN, Grimsby, C.W.

FEATHERS, FEATHERS, FEATHERS.

THE subscribers will pay 45 cents per pound for good

LIVE CHEESE FEATHERS

delivered at their Warerooms, Toronto. v3-23-10t

JACQUES & HAY.

The Annual Entire HORSE SHOW

OF THE NORTH RIDING, County of Waterloo, Agricultural Society WILL BE HELD AT

WATERLOO VILLAGE,

ON TUESDAY, 9th day of APRIL, next, when the following prizes will be awarded, and paid at the close of the Season:

- Best general purpose or coach horse.....\$50 00 Best blood horse, with registered pedigree.....25 00 Best draught horse.....25 00

The horses receiving the prizes will be compelled to travel according to the Directors' instructions.

WATERLOO, March 1, 1867.

MOSES SPRINGER, Secretary. v4-7-3t

MILLER'S

INFALLIBLE



TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c, 70c, and \$1, with full directions on each package. A 35c. box will clean twenty sheep.

167 King Street East

HUGH MILLER & Co., McVeal Hall, Toronto v4-7-3t

LAMB'S SUPER-PHOSPHATE OF LIME.

Analysis by Henry H. Croft, Esq., Professor of Chemistry, Toronto University:

- Moisture, - - - - 3.00 Phosphates, - - - 45.85 Salts of Ammonia, - - 11.75 Organic Matter, - - 27.75 Sulphate of Lime, - - 11.65

100 parts.

Farmers will please take notice we are the only manufacturers of Super phosphate of Lime who advertise its strength and richness, and manufacturing it under our personal supervision, Farmers and others can rely upon every barrel being up to the above standard.

PRICES:

- Super-phosphate of Lime, - - \$40.00 per ton Fine Bone Dust, - - - - \$27.50 " Half-Inch Ground Bone, - - - \$22.00 "

SEND FOR A CIRCULAR.

PETER R. LAMB & Co., Toronto, C. W. Toronto, March 25, 1867. v4-6-4t

Seeds Direct from the Growers.

CHAS. SHARPE & CO., SEED GROWERS AND SEED MERCHANTS, SLEAFORD, ENGLAND,

Will be glad to send on application special quotations of FARM AND GARDEN SEEDS, of their own growth, from choice Transplanted Stocks. v3-11-24t

To Owners of Cheese Factories.

FOR SALE twenty four of the most approved Curd Mills, such as used by Morton Cheese Factory Co., the winners of the 1st Prize at the Provincial Exhibition, 1866. for factory cheese Price \$25 on Grand Trunk.

Apply to J. & S. NOXON, Ingersoll, C.W. or, GEO. MORTON, Morton, C.W. v4-8-4t

Peruvian Guano Substitute.

BAUGH'S RAW BONE SUPER-PHOSPHATE OF LIME



BAUGH & SONS.

Sole Proprietors & Manufacturers.

Delaware River Chemical Works. PHILADELPHIA, U.S.A.

For Wheat, Rye, Barley, Corn, Oats, Potatoes, Tobacco, Buckwheat, Sorghum, Turnips, Hops, Garden Vegetables, and every Crop and Plant.

Especially recommended to the growers of

STRAWBERRIES, RASPBERRIES, BLACKBERRIES, AND ALL SMALL FRUITS.

MORE than 15 years of regular use upon all description of Crops grown in the Middle and Southern States, has given a high degree of popularity to this MANURE, which places its application, now entirely beyond a mere experiment.

BAUGH'S RAW BONE SUPER-PHOSPHATE OF LIME,

is eminently a success as a Substitute for Peruvian Guano and Stable Manure—and is offered to the Agriculturists of the Northern and Eastern States and British Provinces, as a fertilizer that will cheaply restore to the Soil those essentials which have been drained from it by constant cropping and light manuring.

IT is very prompt in its action—is lasting in effect to a degree unattained by any commercial manure in the market, and is afforded at a much less cost than bought Stable Manure, or Peruvian Guano. The labor involved in its use is far less than that of applying stable manure, while there is no risk from the introduction of noxious weeds.

Farmers are recommended to purchase of the dealer located in their neighbourhood. In sections where no dealer is yet established, the Phosphate may be procured directly from the undersigned. A Priced Circular will be sent to all who apply.

Our NEW PAMPHLET, 'How to Maintain the Fertility of American Farms'—90 pages, giving full information in regard to the use of manure, &c., will be furnished gratis on application.

BAUGH BROTHERS & CO., GENERAL WHOLESALE AGENTS, No. 181 Pearl St. and 4 Cedar St., NEW YORK.

AGENTS IN CANADA.

CHAS. DAWBARN & CO., 124 King Street East, Toronto.

C. A. SHARPE, Guelph.

LYMANS, CLARE & CO., 226 St. Paul Street, Montreal.

J. E. BURKE, Market Place (Upper Town), Quebec.

To whom Farmers are requested to apply for pamphlets, or in purchasing. 14 5-61

ATTENTION!

BEE-KEEPERS!!

HAVING purchased the interest held in the Firm of J. H. Thomas & Bros by H. M. and N. M. Thomas, the business will hereafter be conducted in my own name, with the same promptness and despatch as heretofore.

Being now more favourably situated, I shall endeavour to raise the business to a standard never before known in America, and make Brooklyn the "head-quarters" in Canada, in the truest sense of the word. Believing that nearly all Italian Queens offered for sale have a dash of black blood, I have, at great expense, secured queens for breeding purposes bred from last year's importations. Queens bred from these and guaranteed pure, \$5. I have also made arrangements to import, direct from Italy, an Italian queen at a cost of \$50. The order has gone forward, and if successful, she will arrive about the last of June, when I shall be able to supply a limited number of queens bred from a native purity, price \$7. Having secured the services of an experienced apiarian to assist me I shall be able to supply the demand. No queens will be sent away until proved to have met it with pure drones. Safe arrival by express guaranteed. All orders will be registered, and filled in regular order as received. I shall also be able, in the fall, to supply a limited number of Italian Stocks, in my Movable Comb Hives, at the following prices:

In the S. B. Hive, including a right to make, \$15; in the D. B. Hive, including the same \$10.

They will be securely put up and sent by express at the risk and expense of purchaser. Third stereotyped edition of the

BEE-KEEPER'S GUIDE,

now ready, price 25 Cents, post paid.

N.B.—All orders for Hives, Books, Bee-furniture, and Pure Queens must be accompanied with the money, and addressed to J. H. THOMAS, Apiarian, Brooklyn, C. W.

Markets.

Toronto Markets.

CANADA FARMER Office, May 1, 1867.

The market continues quiet with a slight tendency to rise. Flour—Some lots sold at \$7 90, and to-day a lot of 600 barrels changed hands at \$9. The market closes firm and with an upward tendency. The shipment at present being made will leave us very bare of stocks. In the higher grades but little has been doing, but a better feeling prevails. Extra is held at from \$9 to \$9 25; and superior offered at \$10.

Wheat—Has been quiet, and transactions have been limited. Spring wheat opened dull and heavy, with little demand; sales in a small way of ordinary at from \$1 70 to \$1 75 are reported; good and choice held at from \$1 85, \$1 90, and \$1 95, according to quality. Fall wheat has been more enquired for, with sales at \$2 05 and \$2 10; closes steady.

Peas—Have been in active request, and the sales have been numerous at advancing prices. Round lots f. o. b. sold at 75c to 80c. On the street 72c to 75c, and latterly 75c to 78c have been paid; closing active.

Barley—is much wanted by beer brewers at from 64c to 68c, according to quality. Some round lots at out ports sold at 62c to 65c, f. o. b. and on the spot at 66c, f. o. b.; closed in good demand at quotations.

Rye—Has sympathized with the prevailing quiet, and we hear of no transactions of moment. A lot was offered on change at \$1 10 without finding buyers.

Oats—In better supply, and are a shade easier. Lots by teams and cars sold with difficulty at 46c to 48c. Some round lots were offering for future delivery without finding buyers.

Seeds—The market is still overstocked and very dull. Timothy of good quality offering at \$1 75, and clover at from \$7 25 to \$7 50.

Provisions—The market dull, as is usually the case at Easter, Mess Pork offering at \$18 50; primo mess offering at \$14 50; Bacon, Cumberland cut, 7c to 8c; hams, 8 1/2c to 9c, smoked 10 to 11c, butter, 10c to 12c; cheese, 13c to 14c; lard, 8 1/2c to 9 1/2c; eggs, in round lots, 10c; on the market, 11c; dried apples, 9c to 10 1/2c.

Hops—Canada, 30c to 55c.

THE CATTLE MARKET

There has been the usual number of cattle offering on this market. Prices are without material change. The following are the quotations per 100 lbs, dressed weight—1st class cattle \$7, 2nd class do, \$6; inferior do, \$5.

Hamilton Markets, April 27.—The prices of wheat have slightly declined. Red Winter selling at \$1 60 to \$1 80; Spring brought \$1 70 to \$1 85. Barley coming in slowly at 60c to 65c. Oats and Peas are advancing in price, the former sold at 37 1/2c to 40c, and the latter at the remunerative figures of 65c to 75c per bushel. Corn 70c, Clover Seed \$8 to \$8 50, and Timothy Seed \$2 to \$2 50 per bushel.

London Markets.—Fall Wheat, \$1 80 to \$1 90. Spring Wheat, \$1 75 to \$1 80. Barley, 56c to 62c. Peas, 70c to 74c. Oats, 45c. Corn, 60c to 70c. Buckwheat, 40c. Rye, 65c to 70c. Seeds—Clover \$7 50 per 60 lbs, timothy, \$2 75 to \$3 per 45 lbs. Hides, \$7; sheep skins, \$1 to \$1 50 each. Wool, 25c per lb. Butter—Primo dairy-packed, 13c, No. 2, 9c to 10c per lb; fresh, in rolls, by the basket, 15c to 16c per lb. Eggs, 11c per dozen.

Belleville Markets.—Fall Wheat—none, Spring wheat—small deliveries at \$1 65 to \$1 70. Rye—Quick demand at 85c to 85c. Barley—55c to 63c. Corn—70c. Peas—70c to 72c. Butter—15c to 17c. Oats—4 1/2. Dressed Hogs—\$6 50 to \$7. Potash—\$5 75.

Galt Markets.—Flour—F. W. per 100 lbs \$5; spring wheat, do, \$4. Wheat—Fall, per bushel, \$1 80 to \$2, winter, per bushel, \$1 70 to \$1 80; Spring per bushel \$1 60 to \$1 75. Barley—45c to 50c. Oats—35c to 40c. Butter per lb. 12c to 14c. Eggs per doz., 10c to 12 1/2c.

Guelph Markets, April 27.—Fall wheat per bushel \$1 75 to \$2; Spring wheat do \$1 50 to \$1 70. Oats, 40c to 45c. Peas do, 60c to 65c. Barley do, 50c to 58c. Hides, per 100 lbs, \$6 50 to \$6 75. Beef, per 100 lbs \$6 to \$7. Pork \$4 00 to \$4 75. Wool per lb. 34c. Eggs, per dozen, 10c to 11c. Butter per lb, 12c to 14c.

Montreal Markets, April 27.—Oatmeal—\$5 80 refused for crack brands for delivery in May. Ashes—Pots, \$5 90 to \$5 95; pearls, \$8 15 to \$8 20. Flour—Superior extra, \$10, Extra, \$10 to \$9 25; Fancy, none; Welland Canal Superfine, none; Superfine No. 1 Canada wheat, \$9 40 to \$8 60, Superfine No. 2 Canada Wheat, \$9; fine, \$7. Wheat—Fall, none, Spring, none, Western, none. Oatmeal—\$5 80. Rye—none. Oats—Per 32 lbs, 41c to 42c. Barley—Per 48 lbs, 70c to 75c. Peas—Per 68 lbs, 95c. Butter—11c to 15c. Pork—Mess, \$19 50 to \$20, Primo Mess, \$14 50 to \$15, Prime, \$13 50.

New York Markets, April 27. Flour—Receipts, 3,068 barrels, market less active; prices without decided change; \$19 15 to \$11 for super State, \$11 50 to \$13 25 for extra State; \$12 40 to \$13 80 for choice do.; \$10 20 to \$11 for super western \$11 85 to \$12 40 for common to medium extra western, and \$13 to \$14 50 for choice do. Rye Flour quiet at \$7 75 to \$8 60. Wheat—Rules active, and spring is in favor of the buyers, sales, \$2 60 to \$2 70 for common to choice. Rye—scarcely so firm; sales 21,000 bushels at \$1 55 to \$1 57 for western, \$1 60 for Canada free. Barley—fall. Corn—market irregular and unsettled, sales at \$1 32 to \$1 33 for mixed western in store, \$1 30 to \$1 31 for new western mixed at Railroad depot. Oats—Receipts, 60 bushels, market lower, sales, 41,000 bush at 75c to 76 for Western, and 82c for State.

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