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# THE CANADA FARMER



VOL. I. No. 9. TORONTO, CANADA, SEPTEMBER 15, 1869. NEW SERIES.

## The Field.

### Lifting and Storing Potatoes.

The potato crop this year will be a large one, and it is an important item to the farmer how to lift, stow away, and preserve this crop in a safe and economical manner. The price will undoubtedly be low, so low as to be looked upon as discouraging by the grower; but with a heavy crop even low prices are remunerative, if the potatoes do not have to be carried too far to market; and where there is no sale to be had at fair prices at or near the farm, it pays well to turn them into money by feeding out to stock, in order to convert them into pork, beef or mutton. Any stock will readily eat potatoes, and fatten on them, if hay be given in addition. The low price this year will also stimulate their use for some other purposes, such for instance as the manufacture of grape-sugar, to be afterwards made into beer or brandy.

The time for taking up potatoes is as soon as they are ripe, and that is known by the top being dead and the skin firm. To leave them longer in the ground would be useless, and involve the risk of frosts and of sprouting, should the crop ripen early, and the weather prove warm and damp afterwards.

It would be a great help to the farmer if this, as well as other root crops, could be harvested by machinery, but as yet inventive genius does not seem to have been turned in this direction. A large, cumbersome, complicated machine for lifting and gathering potatoes has been constructed and tried in New Jersey, but though it answers in the light sandy soils, with men who make a specialty of raising large crops of potatoes for the New York and Philadelphia markets, it would be too

costly for the ordinary farmer, nor would it answer in stiff soils. We give a cut in another column of a very simple and cheap potato plough, that is spoken highly of in the States, though it has not yet, to our knowledge, found its way into Canada. On most farms, an ordinary plough, if very clean and bright, and having the coulter removed, and the point somewhat long and depressed, will answer well to throw out the potatoes. If run exactly at the right depth, and with a slow team, most of the potatoes will be turned out so near the surface that a kick of the foot by the picker as he goes along will turn them up to view. After the crop has been once picked over, the ground is to be harrowed lengthwise, pickers following the harrow, and again crosswise, after which what few potatoes may be left in the soil will be devoured by the store hogs, if they are turned in as soon as the crop is removed.

When being picked, the crop should be put in small heaps, of about fifty bushels each, and left to dry for a few days, care being taken to cover at night with the potato stalks, to keep out frost. In no case should the crop be stored away except when the tubers are dry.

Cellars or root houses are generally as good places as one can get for storing away potatoes, if they are frost-proof, and can be well ventilated. Put the potatoes in large boxes—empty dry goods cases are the best, holding from fifteen to fifty bushels each—or divide the space into bins like those of a granary, so that each kind can be kept separate, and no great amount of heating can take place where there is space for ventilation. A board floor is better than bare earth. Choice kinds it will pay to sort over in the field, barrel the best for sale and delivery as required, and keep the others for seed. When a frost-proof room in a building

cannot be had, select a piece of dry soil, where water will readily flow off, or can be drained away. Store the potatoes in small round heaps, of fifty bushels each, set in rows, each to be covered first with reversed sods, or a very little clean dry straw, and then with earth, putting on at first but a few inches, and adding more as the weather gets colder, till hard freezing takes place. About two feet of earth will keep out frost. A good ditch is to be made round the lot of heaps, so as to carry off quickly all water that may fall. The heaps when covered should be somewhat cone-shaped, with sides high and sloping enough to carry off rain quickly. The main point in storing potatoes is to have them put away dry and in such a manner as will keep out moisture, and at the same time run little risk of the whole rotting, should rot set in at any point, or with any one kind, some being more liable to rot than others.

If the crop can be sold off the ground in the fall at 40 to 60 cents per bushel, it will pay better to sell than to keep them over winter.

FORESTS AND THE FALL OF RAIN.—A sugar planter at the Hawaiian Island adopted, in 1860, a new way to raise the wind and to make the clouds drop rain. Having a large quantity of arid land and no streams of water within reach, he set his wits to work to bring the moisture from the mountain down on to his plantation. For this purpose he planted 50,000 forest trees, which, under his care, grew rapidly. Soon the clouds hung over the new forest and the rain came down abundantly. Cisterns were built which held about 30,000 barrels of water, and this resource insures the planter against destructive droughts. He has now a very flourishing sugar plantation, but he has made it out of a dry plain, which without water would have very little value.

## Reaping Match.

To the Editor.

Sir,—At Clearville on the 15th August, a reaping match took place, at which five machines were entered, all self rakers. They were as follows, viz :

No. 1, Kirby Harvester, made at Beamsville, by Harris and Son.

No. 2, Oshawa, Ball's Ohio.

No. 3, London, do. do. made by J. Elliot.

No. 4, Hamilton, Ball's Ohio, made by L. D. Sawyer and Co.

No. 5, Chatham, Buck-eye Improved, made by Hyslop and Ronald.

The judges for the occasion were : Col. John Desmond, of Morpeth, Messrs. Augustus Crane, and William Bury, of Clearville. Their decision was as follows : 1st. Kirby Harvester. 2nd. Ball's Ohio, J. Elliot, London. 3rd. Ball's Ohio, J. Hall Manufacturing Co., Oshawa.

About three hundred people were present, the opinions of most of whom were in accordance with the decision of the judges.

T. B.

Cashmere.

## Experiments in the Vegetation of Clover Seed.

On grass land, about the 24th of May last, I noticed some curious growths of young clover seed. Hay had been made on the land last year, and as hands were scarce and high in price, we were late in getting the grass cut, consequently a considerable quantity of the clover amongst the timothy went to seed. At the time mentioned I saw innumerable young clover plants springing up in all directions, but by far the best growth and the greatest number of young plants were in the hollows beside the cradle knolls, and as our land is rather, as a general thing, low and clayey in quality, water had lain in the hollows so much that during fall and winter the grass was quite killed out by it. There had, however, been some light, mucky earth washed from the higher portions of the soil, which left on the subsidence about two inches thick of soft black mud. From this mud thousands on thousands of clover plants were growing. These hollows occurred every yard or two, and consequently there was no want of exemplification of the fact, and the field was about 35 acres in extent. It struck me as very strange that clover seed should have lain over in these hollows all through autumn, fall, winter, and spring, before it vegetated ; we have always been accustomed to consider clover seed that did not come up at once, dead and hopeless for a crop. Now, may it not be more likely, that the fault has, in such cases, lain with old mixed seed, instead of with the tender quality of it, and its impossibility to bear moisture, heat, and frost without injury. We, like most of our neighbours, are often com-

plaining that "such and such a clover field did not "take," whereas we ought probably to have blamed the seed, not the season.

You will see the same thing exemplified in another way by carefully removing the manure that has accumulated about the door through which you have been accustomed to pitch hay into your stable loft. Scrape away all the surface and allow the clover seed to vegetate, that has been shaken out from the over-ripe clover, and in a few days you will have hundreds of young plants, and that, too, from seed sown many months before, and lying in moisture during that time. This fact being certain, we have to search for the cause ; either it is due to the good quality of the seed so preserved, or it is owing to the enveloping case of the husk, which in unthrashed clover, protects and covers up the seed, not however as it seems, to its ultimate injury, or prejudice as a crop, but simply, as nature intended it to act, as a protection to the vegetation, until from slight decay, or return of spring season, rapid germination commences. Probably we must look for our reason from both causes. When we sow clover we always sow without husk, and when we buy seed we always buy some old mixed seed, of former years' growth ; no doubt we suffer in the latter case from fraud, but how can we help ourselves? If we test the growth of a few seeds it is not a fair criterion for the whole bulk, unless planted under precisely similar circumstances of heat, moisture, cold, and exposure. Good seed produces fine plants and rapid growth, whereas bad seed, although it may germinate, never attains the same strength and constitution of endurance. Facts, however, are stubborn things, and the loss of ten or perhaps twenty acres of clover for a year or more is quite a serious consideration, if the loss proceeded from bad seed, or if by any other mode of sowing we can succeed in assuring against such a risk.

C.

## Gypsum alone as a Fertilizer.

There has been much controversy as to the nature of gypsum, and its fertilizing powers. My experience goes far to show its auxiliary excellence, but also to throw great doubt on the propriety of its continual use without other aid. Some years since I used gypsum most abundantly on an orchard. The trees thrived, and the grass was greatly benefited by its use for two or three years. Clover grew spontaneously, or from other causes than direct seeding. Dutch clover especially thrived well. But I soon saw a visible decline in the action of the plaster alone as a manure. The grass grew thin and spindling, and it became quite apparent that its constant use without any manure could not be continued with impunity. I then thoroughly manured the whole field, except a small portion for experiment. (I always leave a piece quite untouched in all my experiments. Without this precaution no cer-

tain results can be obtained.) That portion manured and plastered on the manure did very well, and produced an excellent crop. The portion still plastered without manure continued to fail. To make assurance doubly sure, I staked off a square rod in the midst, and sowed a double quantity of plaster ; still no results were obtained to induce me to believe there was any virtue *per se* in the plaster after the constituents were exhausted from the land on which the plants fed. To prove this again, I carefully marked the spot where the barrel of plaster was emptied into the pail from which it was sown, and where a double and treble quantity was spilled. Here again, no perceptible benefit was derived. From all these experiments I am led to believe that plaster acts simply as a vehicle to collect from the air, and to convey or retain in some manner the food the plant requires, and give it out again as wanted ; but to continue its use long after all available food in the earth for the plant has been exhausted, and by its constant stimulating effect to cause the plant to grow from air influence, without other more solid assistants, is very much like giving a man who has done a hard day's work an extra glass of whiskey to force him to continue on into the night. He may do it, but the reaction is sure to come. True, the work is done, but the man must not only rest the next day, but must be plentifully fed to enable him to recuperate. All such demands are contrary to physical and organic laws. Nature will give a certain result if treated with reasonable liberality ; indeed experiments have long since convinced me that there is a grand magazine of regeneration always at work in the vegetable kingdom so far as "organic" (so to speak) vegetable food is concerned ; but we cannot always afford time for nature to act, but must hurry and assist by manure of one kind or another.

C.

## Clover, the Great Renewer.

Since the delivery, by Professor Voelcker, of his celebrated lecture on this subject, (to which for a length of time we have given such prominence in the columns of the CANADA FARMER), all the best English and Scottish Agricultural papers have gone extensively into the matter, and none more so than our respected contemporary, the *Farmer*, (Scottish,) which, in its issue of the 23rd June, devotes three full columns to the subject. The old country agricultural papers are edited by a very superior class of writers, and reflect the public opinion of the most prominent agriculturists. "Scientific agriculture" has had a hard fight with practical agriculture throughout the three kingdoms, and it is only just now that the old-fashioned practical man begins to treat the scientific operator on farm land with anything like respect. In the article alluded to, the *Farmer* (Scottish) says : "Even so far

back as the dawn of the present century, Lord Dundonald, ("the liberator of South America") struggled hard, fighting an "hill battle with "the powers that be," to show the intimate connexion between chemistry and agriculture. And how was he met? When intimating to one of the farmers of that day, who could see nothing good beyond the muck heap, that he looked forward to the time when an acre of ground would be manured effectively with a bag of artificial manure, 'Yes,' was the quaint and sneering rejoinder, 'and the produce carried to the stack-yard in your waistcoat pocket.' But the march of progress in agricultural science carried all before it. Sir Humphrey Davy gave a powerful impetus to calm investigation, and dozens of others have followed in his wake." In the first place, too much was expected from analysis of soils; and it was supposed that a farmer had only to take a small parcel of the land of his farm to the analyzer, and at once know what was wanted, and doubtless in most cases he received the most valuable information, and sound advice; but receiving alone is one thing and carrying such advice into operation is another. Many, if not most, of the farmers of that early day had not knowledge enough to enable them to carry out the advice given, and the consequence was that they blamed the analyzer and the system on which he acted, naturally enough not blaming themselves.

Lord Dundonald was far too wise a man to sneer at the "muck heap." All our trouble in Canada is, that we have not enough of it, and so if we cannot find some substitute we must go without, for our labour is so dear, and our prices so low, that artificial manures are (or are believed to be, which comes to much the same thing), beyond the reach of our ordinary farmers. We must therefore turn to what we have, and what all see they can afford, and in clover they have not only the "muck heap," but the muck heap and the bag of guano combined; for Voelcker says that a good crop of clover which has produced one heavy crop of hay, "and which has been allowed to stand for seed," (for this he insists on), will add to the land a fertility for wheat which could not be attained with the heaviest practical dressing of guano. But to do this in the best possible manner the clover must be allowed to come to perfection; must be treated so that it will produce, and leave on the ground the greatest possible amount of root and leaf, for in those two portions of the plant consists the virtue of the clover crop. How much superior, therefore, must be the method, which has been advocated so often in these pages, to grow the clover in the greatest perfection by letting it grow during the entire year, and untouched by the eating down of cattle, and by the scythe. Let the entire proceeds of leaves and stems go to the soil, instead of leaving merely what leaf matter falls off in the growing and harvesting of a crop of

seed. Encourage the root to make the greatest possible growth by leaving the stems to flourish and come to perfection. Allow the seed to fall on the ground to form the future plant, (for clover seed, when it remains in the original pod or seed case, will keep its vitality for a considerable period of time, certainly more than one year), then the following season allow the roots again to throw up the herbage and flower stems, and as soon as the plant is well in flower, plough all under together, and fallow for the wheat crop. We shall thus combine the "muck heap" and the "guano bag," and the proceeds will be, in all likelihood, a splendid crop of wheat, attained at the mere loss of one year's rent (or its equivalent), over and above the ordinary course of cutting the hay crop and feeding down the aftergrass. In the latter case you have the *seeming* profit of the hay, and the sheep and cattle, but you have also the expense of haying and carriage of manure back to the field, and after all attain only an inferior crop of wheat, instead of having a first-rate one. The ordinary system certainly in time runs the land down; by the other a heavy crop of wheat is attainable every third year, with only one ploughing, and the cultivatings and harrowings necessary to keep the weeds down, and any one can see that under such treatment the land would attain a richness and heart, so much wanted, and so seldom found under present management.

VECTIS.

### Should Stubble be Burned or Ploughed Under?

This is a question which we often hear discussed with considerable earnestness, and so far as we have observed, the disputants are pretty equally divided. A superficial consideration of the subject would certainly lead one to believe that ploughing stubble under is greatly to be preferred to burning it. It seems natural to suppose that by the first plan we restore to the soil a much greater amount of material out of which to form other crops, than we can do by simply burning it. But do we restore to the soil the material in a form that can be assimilated by the next crop? Can we make this stubble instrumental in increasing the fertility of land, either by itself or by its action on other substances contained in the soil? These are questions which it is well carefully to consider.

That any considerable quantity of the stubble of ripe grain finds its way into the next crop that is raised on the field, no one will pretend to argue. Thoroughly ripened straw undergoes a very slow decomposition, unless it is exposed to the combined action of heat and moisture; and experience demonstrates that straw—particularly wheat straw—will often remain in the soil for a whole season with its form preserved entire, and its appearance scarcely changed except

by the absorption of water. Finally, it is true that the fibre of the straw becomes disintegrated, and the carbon is left on the land instead of being consumed. But we must remember that, chemically, carbon is of no use to the soil, though mechanically it may be, as an absorber of moisture and gases. It is from carbonic acid, and not from charcoal, that plants derive their supply of carbon. This inert carbon, if we except about one per cent. of nitrogen, is all that is saved to the soil by ploughing the stubble under, and that would not be returned to it if the same were burned.

Now let us consider briefly the disadvantageous form in which the mineral salts are returned to the soil in the process of turning under. They are in the form of organized matter, and must wait until this organism is entirely destroyed before they can be resuscitated into living forms. The potash, phosphorus, soda, lime and silica, separate or in combination, must remain encased in carbon, which is one of the most indestructible substances, until that is slowly wasted away by the action of oxygen. Years might elapse before the silica, which is so necessary to give strength to the stalk of the grain, would be made available. Now, in all our prairie soils there is a great deficiency of this substance, and consequently the grain grown here is much more liable to lodge than that grown farther north or east. It is plain then that we should manage our stubble so that this silica will not become fixed, but will be in a condition to be used over and over again as often as possible. The same thing is true of all the other mineral substances contained in the straw; they are not impoverished by use nor entangled by constant employment.

Now let us see how burning affects the stubble with a view of making it available as manure for a future crop. The popular idea is that substances are destroyed by the action of flame, but such is not the case. Rot and fire accomplish exactly the same end in changing vegetable substances; but the one effects in a moment what it will require the other years to perform. Each decomposes, neither can destroy; we have before shown that the sooner this decomposition is effected in the stubble of the grain the better will be the results. Straw, from the fact that it contains so little nitrogen, and so large an amount of mineral substance, should be burned; but the same process would be very disadvantageous as regards stable manure, or other substances which are rich in nitrogen. These require to be slowly decomposed, and it is preferable that it be done beneath the surface of the ground, in order that all the ammonia which is formed by the disengaged nitrogen and hydrogen may be saved. Carbon here is necessary to absorb this gas, and that which is produced from the slow rotting of vegetable matter, is very suitable for this purpose. But the same need does not exist in the case of the lower part of grain

straw, as it contains little else than carbon and mineral substances.

Ploughing stubble under may produce some mechanical good on certain soils, that are very clayey or are apt to run together and form a coherent mass: but in the great majority of cases, stubble leaves the soil quite too porous, and there are few instances where it is not advisable to roll stubble before ploughing it, in order to close up, if possible, the cavity of the stalks. This loosening of the soils of clayey land is perhaps the only argument, if we except the retention of the carbon, that can be advanced in favour of ploughing stubble under. To offset this we have the additional expense of rolling the land, and the great disadvantage of the stubble interfering with the movement of the plough and the turning of the furrow.

But even in the case of clay lands the argument is with the fire. Nothing renders clay so available for agricultural purposes as heat. It tends to pulverize it and at the same time to render the silica soluble, and in a condition to unite with potash and soda. Every vine dresser knows, and every grain grower should know, that there are few better substances to apply to either a vineyard or a field than pulverized brick. The cheapest and by far the easiest mode of applying this manure is by burning over our clay fields.

But besides the chemical argument in favour of burning stubble, there are others which are equally forcible. Fire has always been spoken of as a purifier, and in no place is it so efficient as in a stubble field. The seeds of the tares which have grown along with the wheat till the time of the harvest, are, in a great measure, destroyed by the fire that consumes the stubble, and the same is true to an equally great extent of the eggs and larvae of insects.—*Prairie Farmer.*

### Smut in Wheat.

This is caused by a minute sporadic plant, the spores or seeds of which are so very small as scarcely to be distinguishable, even with a good microscope. These spores attach themselves to the seed of the wheat in the first instance, and from thence ascend into the plant through its sap vessels, fastening on the grain when the ear is in bloom, and turning the seed into a mass of soft blackish fungous substance, which is poisonous to man or any of the animals eating it, either in the green or ripe state. Indian corn, barley, oats, and other grains are liable to become the medium for propagating smut. In corn it assumes quite a heavy growth, making the ears affected by it large, unsightly, and disagreeable to handle. Generally speaking, the smutty stalks of grain are shorter than those that are not affected, so that the crop will show it but

little till harvest time, except on close observation.

Wet, backward seasons are peculiarly favourable to the development of smut, and this year it is likely to be unusually prevalent in our grain crops and corn.

Even a farmer who is particularly careful to grow clean crops and sow clean seed, will often find smut where he least expected, the germs being carried from one place to another in the travelling threshing machine. It seldom affects the wheat crop so as to injure it to any extent, but is often very destructive in late oats and corn, and it is well to make sure that the crop of the next year will be pretty free from it, by destroying the spores or germs that may remain attached to the seed grain to be sown. Salt, it is well known, has a peculiar effect on all fungoid growths, destroying the vitality of the spores whenever brought in contact with them. So it comes that the best methods we can adopt to prevent smut is to either steep the seed grain in a strong solution of salt in the form of brine, or sprinkle brine over the grain on the barn floor. Old brine, in which pork or beef has been kept, if re-boiled, answers the purpose. When the grain is steeped in brine, it need not remain in it more than ten to twenty minutes, and if the brine is strong, many of the lighter grains and fowl seeds will float to the top, and can be skimmed off. The grain is then taken out and spread on the floor, and a small quantity of slaked lime in powder strewn over it, and the grain turned over several times, till each seed gets a slight coating of the lime dust, and it is then ready to sow, but if to be sown by a drill, will need to be dry before using, to prevent clogging up the drill spouts. We have often used a solution of copperas for the same purpose, and in the same way, but the copperas requires first to be dissolved in boiling water, and care taken that none of the grain, after being put through the process, gets back into the bin, or within reach of pigs or poultry, or some of them will be poisoned by the minerals used in the solution.

### Mowers and Reapers

A great number of advertisements constantly appear relative to the excellence of this or that mower or reaper, or combined machines. When about to purchase a machine, of whatever kind, it becomes very advisable to know how long such an implement is supposed to last, and the careful construction of it adds immensely to its endurance. I would particularly call the attention of the judges of the various kinds to

this fact, and impress on their minds, that on no account should the substantial construction of the machine be lost sight of, when awarding a prize for its work. We all look to the decision of the judges, and the certificate of first prize at any of our agricultural implement shows, or trials, as a guide to assist us in purchasing a machine; we all have not the advantage of seeing the trial, and comparison, and hence, are glad enough to accept the decision of the judges as our guide in purchasing.

To show the importance of these remarks, I will only instance the loss or gain that may accrue to farmers purchasing, say only five hundred machines in any one locality, where a trial has been made and certificate granted. Let us suppose, for example, that the cost is \$100, and that each good machine will last ten years, and that five hundred machines of three kinds are sold; named respectively No. 1, 2, and 3. No. 1 costs \$100, and does good work, but is constructed of such materials and workmanship, that it will last only five years. No. 2 is a little better constructed, and will last seven and a half years. No. 3 is so constructed that it will last ten years. These may be slightly exaggerated prices and terms, but they will serve as illustrations.

Now, the work of all may be good, but still that of No. 1 may be the best, and the judges are compelled to give it the premium, although it is in reality twice as expensive as those that last double the time, and probably will not work as well the second and third seasons as the first. The same relative value in proportion will apply to Nos. 2 and 3, but look at the result in figures. The purchasers of No. 1, which took the first prize, five hundred in number, absolutely lose, amongst them, \$25,000, as in five years they must all purchase new machines; whereas No. 3, lasting twice as long, ought certainly to have had some benefit from its good construction and causing the saving of so large an amount of money; and moreover, five hundred or five thousand do not cover the whole number sold in Canada in one year. I would therefore respectfully call on the judges, who, although ostensibly acting as umpires for the manufacturers, are in reality acting as advisers for all who buy under the certificate of first prize, to take the above view into their consideration when granting premiums. Of course if prices were in proportion to goodness of construction, and were mentioned and taken into account, there would be no longer any need to attend to duration; but they are not, and a most inferior machine may often obtain the first prize from its good work, while, from its inferior construction, it may not endure for more than half the time that others better made will. C.

The hay crop on Prince Edward Island this year is heavy beyond precedent, being double that of any previous season.

### Potato Diggers.

The potato crop is an unusually heavy one this year, and any implement that will reduce the cost of harvesting it is much needed. We give below an illustration of Allen's Potato Digger, or plough—one that is highly spoken of in the States, where it has been in use for some time. It is of light draught, the weight of the implement being only one hundred pounds, and with a pair of small horses, or one heavy horse, and a boy to ride or drive, while a man guides the handles, it is said that it will throw out the potatoe as fast as twenty men can pick them up, and turn them out so cleanly that not over one bushel in fifty will be lost or left in the ground. The vines when dead do not clog



mence to level. To do this, however, requires a level, and one must be had. A simple and efficient one may very quickly be made by taking a board about six inches wide, perfectly straight, and twelve feet six inches long. Then take a similar one, three feet long, and screw it firmly with four wood screws on to the face of the long piece, and at right angles from it, attaching a brace on each side, with screws well entered, and jointing through the lower end of the brace, whilst the upper part is firmly screwed down. Then draw a line down through the centre of the upright piece, and cut three saw cuts about an inch deep into the upper end. Now hang on a weight by a piece of twine attached to the top of the upright piece, and

line, and drive another peg into the earth at twelve feet distance, just so deep that a block of five inch scantling resting on the second peg will cause the level to appear to be correct. Again, place one end of the level on this second peg, and directing the other end along the same line, towards the centre, drive a third peg into the ground, just deep enough to make the level true when placed upon it with the intervention of the five inch block, in the same manner as before. Repeat this process as often as necessary till the centre line is reached. This will give you just five inches fall every twelve feet, or in the fifty feet about twenty inches fall to the centre. Do this at each peg, all over the yard sides and ends, driving in each peg firmly into the earth. Your yard will, when finished, be correctly surveyed and levelled, forming a square or oblong basin, as the case may be, with twenty inches depression in the centre. Your pegs being all driven in firm, now commence with plough and scraper, to move just one-half the earth so surveyed, and haul it away to the upper side all around, until the pegs show you have depressed ten inches in the middle, and raised ten inches on the outside. Then, when all is carefully and correctly levelled, according to the pegs, your work will be near done so far.

the implement, but if they are green and the land is very weedy, it would be well to pull them first. It is made and sold by R. H. Allen and Co., of New York, U. S., and can be had for \$15 American Currency, as shown in the cut, made of wood and wrought iron. A cheaper one, costing \$10, is made of cast iron.

### Constructing Farm Yards.—Saving Manure.

The time has now arrived when almost all farmers have their farm yards clear of manure, and no better opportunity can be found than the present to turn their attention to the remodelling the yard, and so constructing the surface as to effect the saving of all the most valuable portions of the manure that are usually lost by drainage.

Your farm yard must first be graded, and to do this effectually all manure must be entirely removed, and the yard carefully and thoroughly shovelled over, all surface mould must be turned up into heaps, and at once carried out on the grass lands. Then make a measurement and survey of the yard by driving short stakes every twelve feet all round the outside of that part to be appropriated for the purpose, taking care so to plan the yard that any buildings you erect in future may be now laid out, so far as a ground plan is concerned, the object being to make the yard into the form of a square or oblong, with depression in the centre. When all round the edge is staked out as described, at every twelve feet, you may com-

rest the end of the long piece of board on two pegs exactly twelve feet four inches apart, driven into the ground and allowed to project somewhat. You will now proceed to test your level by putting it on the pegs so as to allow the centre weight or "bob," technically so called, to hang down. Rack the upright piece, and tap in one or other of the pegs, until by reversing the level, that is turning it end for end, you find it is absolutely level and true. When the string with the "bob" attached to it hangs perfectly down the line, whether the level is one way or reversed end for end, then you have an absolutely true level, and must now screw the screws of the braces firmly into the main portions of the level, and there will be no danger of its getting out of "truth;" but should it do so, you can easily test it in the same way; though hereafter you must alter it by taking a little off at either end, as required to adjust it. You are now ready to level all round the yard, at the upper edge, or outside, moving your level from peg to peg, as you go on, until you get back to the one you started from. If then, after going all round, you find much variation, just go back again, and be more accurate, tapping in the pegs as you proceed. When this is corrected, measure to the centre, as nearly as convenient, from the pegs all round, and the middle will be the place for your reservoir or tank. Now say you are laying out a farm yard 150 feet by 100 feet, or any size and shape that may suit your premises or locality; you now commence at any one of the pegs on the longer side, and place one end of your level on it, pointing at right angles towards the centre

You may now remove all the pegs, and the first wet time that nothing else can be done, get all the animals you can into the yard and drive them round and round until the surface is entirely and thoroughly puddled, being all trodden into mud, about ten inches deep. Your yard will now be watertight, or nearly so, if the soil is clayey. In a few days it will be dry and solid, and may now be harrowed smooth, and the cattle feet marks all levelled in.

Now run a box drain along the line in the centre of the yard, and leave a space of about twelve feet in the centre, into which you must now proceed to sink your tank. A full description of this, and the way to construct it, with manure pump and power applied to empty the tank occasionally, will be given in another communication.

### Saving Manure.

#### No. II.

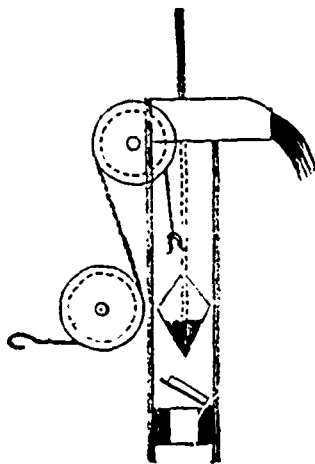
Having in the previous article described the first steps in laying out and preparing a farm yard, with a view to saving as much of the manure as possible, we now come to the most important part of the construction and utility of our undertaking, namely, means by which the labour in constructing such a dish-shaped farm yard as that described shall be made remunerative, and not in its practical application cost more than it is worth. It will be remembered, that all through the centre of the graded yard there is a line, (longer or shorter according to whether the shape is more or less oblong).

extending through the centre. Along this line an angular drain, (say about twelve inches wide and pointed at bottom similar to a hog trough), must be constructed, so arranged and protected that all drainage can fall into it, and be carried to a well or cistern sunk in the centre, capable of holding about two hundred barrels. This will require a cistern sixteen by sixteen feet, and six feet deep. This cistern must be made of pine, two inches thick, and hooped with four hoops of 2½ hoop iron, and constructed in the ordinary manner, with joists and plank floor to cover it. Any carpenter can make one, or indeed any one who can make a straight joint, and will make the attempt, after looking at one either in process of manufacture or when completed. I will, in a subsequent article, carefully describe the process of making a cistern, as nothing is more useful or more wanted on a farm than water cisterns, and the knowledge of how to make them is, in many situations, necessary to secure their advantages. I have myself often made them for my own use. The cistern, then, must first be constructed, and the bottom planks must be firmly spiked with abundance of spikes to strong pieces of six by six inch scantling, which cross the joints of the bottom on the outside, at each three feet distance; joists must also be placed across the top, and covered with planks. The cistern is then lowered into the hole dug to receive it, and clay puddle carefully rammed down all round it, so as completely to prevent any leakage between the sides and the earth. A half square or angular hole is now to be cut at the top on each side to receive the mouths or outlets of the drains delivering the drainage into the cistern. After wet weather, of course, rain will fall on the yard and run into the cistern as well, and as fast when there is no manure to leach, as when there is; this will, however, be of little consequence, and need not be any obstacle to the utility of the whole concern, as will be shown hereafter. We now come to the means of emptying this cistern, or liquid manure tank. An octagon pump is to be constructed of two inch plank, well jointed and spiked together. This is a very simple affair, and works much better than a square one. The inside must, of course, be planed smooth, and the eight pieces composing its sides all carefully gauged, and well and firmly spiked into one eight-sided trunk, about twelve inches in diameter.

When completed, there is at the lower end an octagon block, six inches deep, that just fits the barrel, with a six inch hole through it, on which is nailed an ordinary pump valve. This valve is composed of a piece of sole leather about eight by eight inches, and on which is nailed, with plenty of tacks, a piece of hard wood board, seven by seven inches, allowing one inch projection of the leather all round. Through one side of this projecting part the nails are to be driven that fasten this valve on to the block, which, when

placed in its proper position, and fastened by two small bolts, passing (one on each side of the hole) through the trunk, will now be ready for use. The trunk will be about fourteen feet long, and must be stepped into a small reservoir or half barrel let into and through the large trunk about the centre, and well nailed to the bottom and made tight with caulking. This forms a small supplemental tank below the main one, and its use is simply to step the pump into, and enable the cistern to be pumped quite out. It is not important otherwise to have any barrel so adapted, and the addition may be dispensed with if the cistern is not required to be emptied completely. It is important that the pump be well and carefully fastened by cleets to the bottom of the reservoir, and also in the part that comes in contact with the cover. The pump must be strong enough stayed to bear a horse to pull at it without shaking it.

Previously to the pump being securely fastened, do not omit providing an opening in one side of it, formed by cutting away about one-half of the lower end of the pump, below



the octagon block forming the lower valve, so as to allow at least three inches by eight for free access of liquid manure to flow in; otherwise, if the opening is too small, the pump will work very hard. The best way I could ever find to work such a pump is, to insert vertically into the top of the pump a cast iron shieve, about twelve inches in diameter by two inches thick, with a circular groove in it, to secure the chain used with a horse in raising the pump bucket or sucker. A second wheel is fastened against the centre of one side near the cover, about eighteen inches from it and outside the pump, and pieces or checks firmly screwed to the sides of the pump, and projecting far enough to allow of the revolution of the shieve, with a strong inch iron pin passing through it. The wheels, or shieves, must be provided with thin iron plates, projecting about two inches all round, or the groove must be correspondingly deep. This is to prevent the chain, by which the pump is worked, coming off the wheel on the return of the horse; the tackle

and pulley blocks used in ordinary horse hay forks will answer well enough as a makeshift. The accompanying diagram will sufficiently explain the arrangement. The straps which connect the leather of the valve to the rod should not be represented as attached to the edge of the leather, but from the inside, a little below the edge.

The pump sucker is made by taking a half circle of strong sole leather, cut as follows: take a straight edge and draw a straight line on the edge of the side of sole leather, of say twenty-four inches long, then get the compasses at twelve inches wide, and one point on the line, and describe half a circle, with the radius twelve inches. Cut out the half circular piece, and sew it firmly into the form of a cone, the circle forming the base, and the point at which the radius was struck the apex. Then cut a block of hard wood, six inches in diameter, and shape it so as exactly to fit the cone to about one-half its depth from the point; bore a 2½ inch hole through it, and nail the wooden cone firmly into the leather cone. Fasten to the edges of the cone eight small straps, about one inch wide and say twelve inches long, well riveted on the inside of the upper edge of the cone at equal distances, and attach them firmly by screws to the pump rod. This must be made of three by three inch oak or maple, and securely let into the block of wood that forms the centre of the cone, and firmly bolted there, as this rod has all the work to do, and must be very strong. The shaft or rod to be used must be about the length of the pump; less length would answer but for the need of having considerable weight to sink the bucket in its return stroke, (and at the same time to draw up the slack chain), as the horse backs up. A guide must be constructed, attached to the side of the pump near the top, with bolts, to form something to firmly stay the pump rod when on its upward stroke, and at the same time to allow the shaft, if well greased, readily to pass down again on its descent. We will now commence to pump. Take your horse and shorten up his traces so much that the whipple tree lies close to his hams, and above the hock joints; cover it with a piece of bagging to avoid chafing the skin, then take a small logging chain and receive it under the shieve, up the side of the pump and over the upper shieve, and hook the hook firmly to a large staple or eyebolt, inserted into the pump rod, near the cone. You will now push down the rod, or rather allow it to descend by its own weight, which must be great enough to cause it readily to do so; of course the liquid manure will at once gush up all round the leather cone, and when you move on the horse, you will draw the cone to the top of the pump, and with it about a flour barrelfull of manure or more, according to the distance you allow the horse to walk. This will flow into the square head on the top of the pump prepared to receive it, and consequently into the shute under which your manure convey-

ance is placed; when you back up your horse, the bucket will of course descend for a fresh supply, and a few moments of work for the horse and none for the driver, will furnish a two horse load. The construction of manure carriage, and distribution of manure on the land, will be the subject of a future article.

In constructing the cistern, if done by an amateur, read carefully the article on water cisterns in a future number, and the intelligent farmer will find little or no difficulty. Should wet weather and consequent filling up of the cistern be found troublesome, when no manure exists to yield its virtues, the cistern can remain full, or a drain outside and spongy communicating with it will carry the watery contents away, until manure time commences, when the pump can be made to empty the water in fifteen to thirty minutes.

Many farmers in Europe, and among them, I believe, Mr. Mechi, of Tiptree Hall, England, raise the water in the tank or cistern, and by again passing it through the mass of manure lying all round the yard, more thoroughly and entirely leach out all such constituents as water will dissolve, and which are found to be much more certainly preserved when combined with water than when subject to evaporation, and so passing away into the air. C.

### Pioneer Agricultural Societies.

To the Editor.

Sir,—In your issue for February 1st, 1868, you inserted a first prize essay on the culture of wheat, which had been read to the first agricultural society of the county of Northumberland. The following is the second prize essay, read at the same time, now forty years ago, which I send, hoping that you will find room for it in the pages of your journal. Whether they are the oldest essays on the culture of wheat published in this Province or not I know not—they are the oldest I have seen. The pamphlet from which the essays are copied is entitled, "Report of the proceedings, &c., of the County of Northumberland Agricultural Society, from its commencement in May, 1828, down to the present period, 9th November, 1829." It is of small size, five and a half by three and a half inches, and contains as much reading matter as would fill about two and a half pages of the CANADA FARMER. Besides the essays, which fill about half its pages, it contains an excellent introduction, by their able secretary, J. Steele, on the objects and benefits of Agricultural Societies, gives an account of the first formation of these societies, the rules and regulations of the society, and lists of the officers and directors.

The report was printed at the *Herald* press, Kingston. At that time there was no printing office between Kingston and York, now Toronto.

May I ask, are there any other of our older agricultural societies that published such re-

ports? If so, would it not be well to republish some of their best portions. If there were any such published, their circulation then must have been very limited, and if now republished, would not only be read by a new generation, but also by a greatly increased circle of readers, to whom they would be new.

W. R., Cobourg.

The following extracts embrace all the practical portion of the essay referred to, omitting a considerable amount of other matter, which, however pertinent to the occasion and time, have only a local and personal bearing, and would not now be interesting to the agricultural reader. The extracts are given without alteration or comment:—

#### ESSAY ON THE CULTURE OF WHEAT. BY C. POWERS.

"Permit me, as an agriculturist, to submit some few practical rules for the growing of wheat with success. To that end, much depends on the choice we make of our soil for the purpose. Although it may be raised to considerable advantage on several kinds of soil, still a clay, mixed with what is called a vegetable or black soil, is undoubtedly the best. That kind of soil which has the greatest absorbent power with respect to atmospheric moisture, is the most fertile. Sir H. Davy, in his *Elements of Agricultural Chemistry*, states that "1,000 grains of a very fertile soil, dried and exposed to the air at a temperature of 62°, absorbed 18 grains in an hour, while another sandy soil, under the same circumstances, absorbed no more than three grains."

In making your fallow, grass sward is preferable to stubble of any kind, and should be turned over in the fall or early in the season, if the tiller intends to make it fine; otherwise the grass will not be properly subdued, and the undecayed sods be a great preventive to a good crop. But if the pressure of other business has delayed you from breaking your fallow till August, do not despair even then of growing a tolerable crop. In this case it should be pasture land, turned well, first dragged, then sowed on the furrows, and well put in. It will be less apt to winter kill, and frequently gives a good crop. A good coat of manure is not only highly requisite to the insuring a bountiful harvest, but the best possible preventive to winter-killing.

In respect to the seed you sow, I would recommend old in preference to new. New seed, if it be contaminated with smut, will have a more natural tendency to transmit the disease to the succeeding crop. Old wheat, if it should be smeared with smut, has had more time to evaporate, and thereby disengage itself from its infectious qualities. Experienced farmers are aware that little is to be apprehended from smut after seeding with old wheat; besides, they will tell you that it is more excellent and abundant in its growth.

Everything that grows or has life requires rest, and to this end Providence has ordered a biennial rest to the fruit trees, shrubs, vines and bearing trees of the forest. And I believe it holds good in philosophy that to multiply the growth of seeds, either animal or vegetable, with too great rapidity, in succession, is but to degenerate its kind. Procuring your seed from a distance, or changing it from a poor to a more fertile soil, is also of considerable advantage. The idea that shrunk seed is as good as plump, fair seed, is very erroneous. To plant the shrivelled corn from the unmaturing ears would do as well. The absurd idea that wheat occasionally turns to chaff has most astonishingly gained credence among many farmers. This is physically impossible, and must have been a fabrication of some slovenly farmer, to excuse himself for his negligence in not procuring and sowing clean seed. Equally marvellous is it that some farmers attribute the cause of smut to its being sowed in the waning of the moon; others to a cloudy day or a dewy morning; others to a mealy bag, or pestilential hand from which it is thrown. These are idle whims, idle as the transmutation of wheat to chaff. I consider smut in wheat perfectly to answer to smut in other kinds of grain, as in corn, rye, and oats. Few, I imagine, have noticed it in the tops of the June grass; but, in fact, it may be seen plentifully early in the season. The New England farmers, on account of their considering it the cause of the very destructive disease among cattle called the "Black-hoof," defer cutting it till September, at which time the "ergot," as they term it, will have fallen. Smut in wheat is natural to most climates and soils in North America, and I believe as far as the cultivation of wheat extends. This cereal has a strong inclination to smut in low vegetable soils.

To prevent the destructive effects of smut and the wheat insect, one process is a remedy for both. The application of a solution of lime is too common to need explanation. A pickle of salt mixed with ashes is also applied in a similar manner, and answers the same valuable purpose. I think a still more convenient and sovereign remedy, is lye from wood ashes, sufficiently strong to amalgamate with oil. Every farmer makes his own ashes, and in that respect it is not only a convenient, but an independent process. It may be drawn from the leach during seed time at pleasure, and mixed in a tub or other convenient vessel, by pouring on the lye and stirring it with a broad stick, or even the hand, till the grain is completely tinged, and turns yellow, and the husk will clean from it by rubbing it in the hands. It is then prepared for sowing, and five pecks to the acre, from the first to the twentieth of September, are sufficient. Another remedy for smut in the field is to let it remain until late before harvesting, and it will fall off and disappear. Trampling the seed in with sheep is well approved in England. A very proper



time to use your field roller, is immediately after dragging your wheat, on a light soil, and particularly in a dry time, to accelerate germination. A field roller will likewise do good in a dry frosty spring, but I think never in a wet one. With regard to ridging your ground for sowing, much depends upon the nature and situation of it. To ridge descending ground, would be like clearing the course of a rapid stream, that it might discharge its waters with still greater rapidity, but not with more certainty. The wheat would do better to let the water take its natural direction on such fallows. I am of opinion that wheat should never be sowed so early as to require fall feeding, but when the growth in the spring is rapid and luxuriant, it should be grazed by young cattle or sheep. At last, let your harvesting be done neatly and early, except in the case before cited. Set your faces against a sloven in your wheat field; dismiss him, and you will save his wages and gain enough to pay a better man."

seeded the previous fall on well prepared land, and judging from its appearance, in May last, there would be a fair crop of grass cut this season. If the timothy has the land to itself, is sown thickly, say a bushel of seed to the acre, and the land is rich, and has been well cultivated, it ought to give a fairly good crop of hay the summer after seeding in the fall.

The month of September is the time to sow timothy in the autumn, and the earlier the better, provided the land is in proper tilth to receive the seed. No harrowing or covering is needed, as the first rain shower will cover it quite deep enough, and grass seed should always be very lightly covered.

### The "Little Giant" Thresher and Separator.

We have frequently received enquiries from farmers wishing to know if there was any small threshing machine manufactured in Canada that could be worked with four

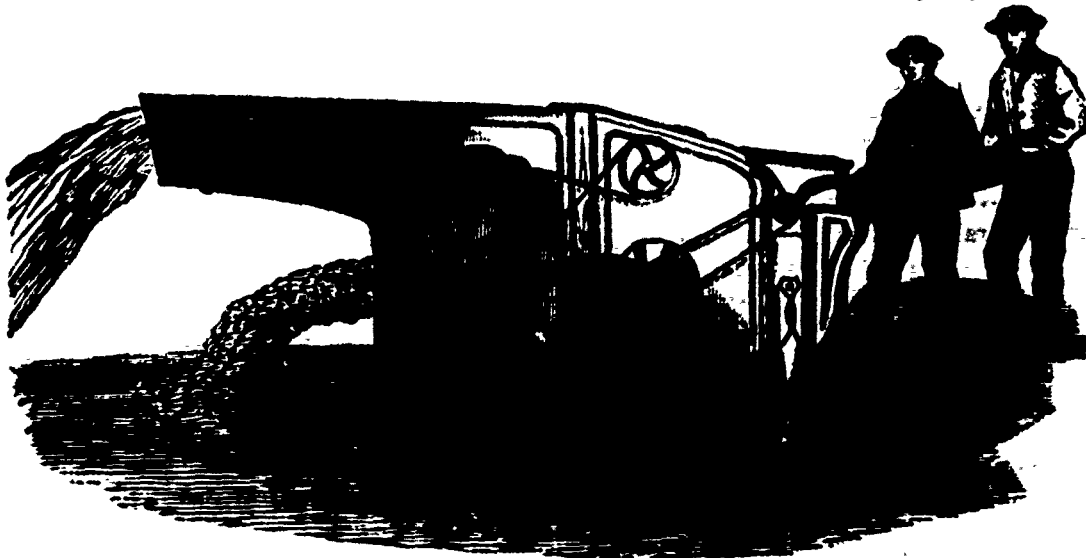
### Haystacks Fermenting and Firing.

To the Editor.

Sir,—This being a very unfavourable season for haymaking, I hear a good deal about mouldy hay, heated hay, and even of the danger of the haystack catching fire by fermentation. Having lived for many years in a country where grazing and haymaking was the usual way of farming, I have seen numbers of stacks smoking, but never one on fire. I should like therefore very much to know whether there are any authentic cases of hay getting lost by spontaneous combustion.

INQUIRER.

REPLY.—In England and countries with a similar climate, there can be no question of the occurrence of spontaneous combustion in haystacks put up in a wet condition. In this country we have never heard of such an instance. The danger here is of mouldiness, to which the hay of this season will no doubt be liable in some cases. It has been stated that mouldy hay can be made good and



### Sowing Timothy in Autumn.

The practice of sowing the seed of timothy grass in the fall is frequently met with in the United States, and might be adopted with advantage here, where it is desired to have permanent meadow seeded down on winter wheat.

Timothy is a hardy grass, and there is no danger, or very little, of the young plants being winter killed on land that is properly prepared for winter wheat, and it ought to be taken into consideration that the soil is in a much better state for the reception of the seed in the fall, just after wheat seeding is done, than in the spring, when it has become run together and solidified by the action of the snows and rains of winter and early spring. There is much more chance that the seeds will germinate when sown in early autumn, and the soil still contains heat, than if sown in spring, when the soil is cold, and the weather often ungenial. We saw a very fine field of timothy this spring on Colonel Taylor's farm, that had been

horses. Such a machine, which can be kept among the ordinary implements of the farm, or jointly owned by neighbours, is, no doubt, very desirable, and enables the farmer to thresh his grain at his own convenience, without being dependent on the travelling machine. For this purpose, we believe that the "Little Giant" Thresher, manufactured by Mr. Joseph Sharman, at the Stratford Agricultural Works, is an excellent invention. The accompanying engraving represents the machine. Those who have used it speak in high terms of its efficiency. It will thresh from 200 to 300 bushels of wheat in the day, and delivers the grain clean and free from straw and chaff. Five hands and four horses, it is said, are sufficient to work it—though no doubt six horses would be used to advantage. For particulars we refer our readers to the manufacturer. The price of the Thresher and Separator alone is \$100, cash, or \$105, with credit on certain conditions. For \$180 cash, or \$185 credit, a horse power and the requisite apparatus for attaching it, can be obtained in addition. We understand that it will be shown at the Provincial Exhibition in London.

palatable to stock by being cut fine and steamed. It would be worth while to try the experiment and test the truth of the statement

GAME PRESERVING EXTRAORDINARY.—A noble lord last year gave his tenants orders not to plough within four feet of the hedges on their farms in Lincolnshire and Rutland, in order that the thistles and the weeds might grow as a further shelter for the birds and the hares. We hear that the desired effect, as regards the game, was secured to a prodigious extent; but we are not informed what the tenants experienced in their crops or their tempers. Canadian farmers may congratulate themselves the no one, who was not "madder than a March hare," could issue or obey such orders here.

The old "Temple Farm," near Yorktown, Virginia, rather of an historical character being that upon which Lord Cornwallis surrendered his forces and signed the articles of capitulation, has just been sold by public auction. It contains from 400 to 500 acres, and is said to be one of the best cultivated farms in that portion of the State. It brought \$8,005.

## Stock Department.

### Notes on Canadian Herds.

#### NO. IV.

Four miles north of Brampton, a station on the Grand Trunk Railway, and near the village of Edmonton, in the township of Chinguacousy, lies the farm of Mr. John Snell, a noted breeder of short-horn cattle. He farms 450 acres of a rather strong clay loam soil, of which about 150 acres are devoted to grain—the remainder to grass and roots. Mr. Snell is an old resident, having cleared up the land himself many years ago, and brought up a large family of children. The eldest son, John, is now the principal manager of the farm. In 1852 Mr. Snell commenced his now large and well-known herd by the purchase of the cow Red Rose, by Young Briton, from imported Lady Jane. In 1856 he gave the high price of \$1,300 for the cow Fairy and her daughter Fancy, at the first sale held by F. W. Stone, Esq., Moreton Lodge. Belted Will 4th (12464), Prince of the West [588], and Cobden [136], were the bulls used until 1861, when Mr. Snell brought out Baron Solway [45] from the herd of Mr. Syme, of Redkirk, Scotland. This bull, though not handsome, became the sire of a great many fine animals, and his stock have proved among the best that have been bred in this country. In 1866 Duke of Bourbon [184], red, a Kentucky bull bred by Geo. M. Bedford, Paris, Ky., and got by Clifton Duke, 3760, out of Queen Mary 4th, was added to the herd. He died in 1868. In 1867 Loudon Duke, red and white, another importation from Kentucky, was brought in. This is now the stock bull used in the herd, and we were much pleased with his appearance at the time of our visit. He is by Duke of Marlborough, 3866, out of Mayflower 3rd, and partakes largely of the Red Rose blood. Of the cows we saw, Alma, roan, by Baron Solway from Mayflower; Clara Barton, roan, by Baron Solway from Regina; and Rosamond, red and white, by Duke of Bourbon from Moss Rose, were being put in condition to be shown at the forthcoming Provincial Show, as were also some younger heifers, bulls, and calves.

Mr. Snell keeps his stock on grass only in summer, and in rather thin, but good breeding condition.

Of Baron Solway's get we saw Grace Darling, from Fancy, a very light roan, six years old, with a roan bull calf, Dar-

ling Duke of Solway, to Duke of Bourbon. She is thin, but a good breeder and milker. Alexandra, red, from Regina, five years, with red bull calf Albert Edward, to Duke of Bourbon. Music, red and white, from Lady Barrington 11th, with red and white heifer calf Melody, by Loudon Duke; she is a nice-looking cow. Mary Grey, six years, rich roan, from Bessie Bell, with roan bull calf, Loudon Duke of Solway, to Loudon Duke. This is a fine cow. Nina, five years, roan, from Lady Barrington 11th, with red bull calf, Bourbon Duke of Solway, to Duke of Bourbon. Tillie Courtney, 4 years, red and white, from Daisy, with red heifer calf Minnie Herman, to Duke of Bourbon. Welcome, four years, roan, from Regina, with roan heifer calf Lavonia, by Duke of Bourbon. Heifer Belle Boyd, from Zora 7th, now nearly two years old. They are the best among the herd, and are all fine animals.

Red-bud, four years, red, by Havlock, 2950, from Carolina, is an importation from Kentucky, bred by H. W. Rice, of Bourbon Co.; has a heifer calf Nannie Rice, to Duke of Bourbon. 6th Duchess of Goodness, five years, red, by Lord Derby, 3086, from Goodness 2nd, a long low-bodied cow with red and white heifer calf, Lady Harrington, to Duke of Solway, is another Kentucky importation, as is Queen Mary 5th, roan, by Grand Duke, 2933, from Queen Mary, with roan heifer calf, Betty Bedford, by Duke of Bourbon; and Zora 7th, five years, red, by Meade Massie, 5951, from Zora 5th, with red heifer calf Merilla, by Loudon Duke. Lorena, red and white, four years, by Gen. McClellan, 5666, from Cora, is from Kentucky. Regina, ten years, is by Prince of the West, from Lady Jane, and though getting old, has bred many fine calves. She now has a red and white heifer calf, Daisy Barton, to Duke of Bourbon. Emma, six years, red, by Cheltenham, 655, from Conquest, with red heifer calf Ella, to Loudon Duke. Blanche, red and white, by Prince of the West, from Miss Maude, are descendants of some early Canadian importation from England. She has a red and white bull calf, Telegram, to Duke of Bourbon. Fairy, eight years old, red and white, by the same sire from Fancy, has a red and white heifer calf, Fairy Gem, to Duke of Bourbon. Rosebud, three years, red, is by Butterfly 2nd from Dairymaid, a purchase from J. Kirby, of Esquesing; she has a red and white heifer calf, Rosalie, to Duke of Solway. Gentle Annie is a nice red heifer, from Music by Duke of Bourbon. 2nd Duchess of Sol-

way, red, a two year old heifer from Alexandra, by Duke of Bourbon. The Kentucky animals are mostly from the Airdrie and Bourbon families.

Altogether, there are forty-three head of pure-bred short-horns bred on the farm. No grades are bred, nor any other than short-horns kept, except two native cows to give milk to the house, the thoroughbreds being allowed to suckle their own calves.

We noticed several fine Berkshire swine, and 250 head of Leicester and Cotswold sheep, among which we saw a most magnificent Cotswold ram, five years old, imported from England in 1867 at a cost of \$350. The ram was bred by Mr. Herbert, of Gloucestershire, and would be hard to beat anywhere.

Mr. Snell has bred more short-horns than any man in Canada except Mr. Stone, has taken many prizes, and has done much to advance the taste for breeding good stock in our country; and as he sells his stock young, and at reasonable prices, a very large number of his animals are now in the hands of farmers throughout the land. He intends to have a sale of fifteen cows and heifers, eight bulls, and about one hundred sheep, principally young rams, the week after the Provincial Fair, of which due notice will be given in our advertising columns.

Four miles north of Ounton, in Huron Co. lies a fine farm of three hundred acres of a rich loamy soil, belonging to Humphrey Snell, Esq., a gentleman who has always taken a lively interest in agriculture, and set an example of good farming to the county. His principal fame as a breeder of stock lies in Leicester and Cotswold sheep; but he has formed the nucleus of a herd of Shorthorns, in the purchase of Strawberry, a very nice red and white cow from Red Rose by Cobden [136]; from her he has bred Theresa, a roan cow by Baron Solway, and this year, a red and white bull calf, Rodney, by Claude [1001]. From Theresa he has a very nice roan heifer, Gilliflower, got by Duke of Bourbon [184]. He recently purchased a red bull, Dixie Duke, of Kentucky blood, got by Duke of Bourbon from Lorena.

#### Fattening Swine.

It is a matter of considerable importance to the farmer to know in what way he should feed his fattening hogs so as to obtain the greatest amount of valuable pork for the least expenditure in the matter of food.

When we use the term valuable, we mean the pork that will be in all respects fit for the curer, and therefore bring the highest price in the market; for it would be no diffi-

cult matter to make exceedingly fat pork at very little cost, by feeding on beechnuts, slaughter-house refuse, or other matters that would be good enough for the pig, but bad for the person who had to eat him, after he is made into pork.

Canadian farmers rely much upon peas, of which they raise considerable quantities, to fatten up their spare hogs into pork, and very good they are for the purpose, perhaps the best of any single article that can be named to make really good pork. But as peas are highly nitrogenous (flesh-forming), containing gluten, while Indian corn or barley are more carbonaceous (fat and heat forming), containing starch and sugar, a mixture of peas with either barley or corn, both ground together into meal, will be found to fatten the animals quicker and at less expense than where only one of the articles had been used. It will be seen that peas are the most desirable for the hog when it is first put up to fatten, as on them it will gain rapidly in weight, by filling up flesh on its bones, especially the hams, but once the hog has become well-filled and solid, the fattening process would be greatly expedited by using corn or barley meal.

Peas contain 264 parts in 1,000 of gluten, and 496 in 1,000 of starch, gum and sugar. Corn, 123 in 1,000 of gluten, 716 in 1,000 of starch and sugar. Barley, 64 in 1,000 of gluten, 684 in 1,000 of starch, &c.

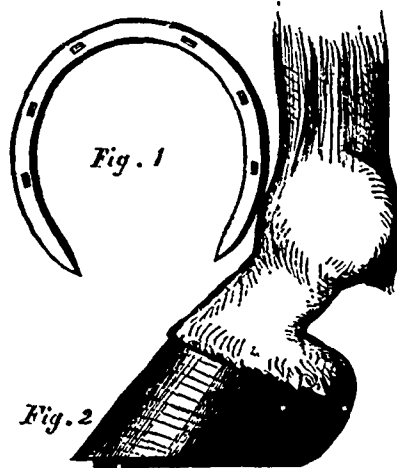
It will scarcely be credited how much is gained by cooking the food of fattening hogs; and if that cannot well be done, the food may be greatly improved by being soaked in milk or water, whether it be first ground or used whole. By so doing, if the soaking process continues long enough, the food will become fermented, and then the animals will eat more of it, and fatten more rapidly than on the raw article. English farmers not only feed their hogs a variety of food, but have it cooked, or soaked till fermented, and finish up by giving raw meal for the last few days to harden up the fat. A writer in the *Country Gentleman* states that he tried the experiment of feeding on raw whole corn and on corn ground and boiled, and as the result of his experiment, he found that every pound of pork made with the raw food cost 22 cents, while every pound made by feeding cooked meal cost but 1½ cents. At the present prices of pork, and with the facilities our large curing establishments have for carrying on their business, there is no necessity for the farmer to delay fattening up his hogs till the cold weather sets in: and when it is considered how much food is necessarily wasted to generate and maintain the animal heat in cold weather, it becomes apparent that the earlier in the fall he can fatten up and market his hogs, the more profit he can make out of the operation, provided they have attained a sufficient growth to make good solid pork. Very large hogs are not so much in favour with the curers as for-

merly. They will give as much for medium sizes, ranging from 175 to 300 pounds each.

Another point should not be forgotten, and that is, that the hog can only be profitably fed up to a certain point—that is, it will only pay to continue the fattening process so long as the animal will eat enough to lay on flesh and fat rapidly. When that point is reached nothing is gained by going further, and the curer should have it then. If the farmer live near enough, he will find it pay better to sell his fat hogs alive to the curer, than kill them himself.

### The Charlier Horse Shoe.

This is a French invention that promises well, though its merits have yet in a great measure to be proved by a longer time test than it has yet attained. M. Charlier's idea is that nature intended the horse to go bare-foot, but that on soft ground the hoofs would grow out of shape, while on a hard surface the crust of the hoof is worn away faster than it can be reproduced. To guard against the latter evil most particularly, while at the same time the sole of the frog remains in its natural condition, is the aim of the invention.



We give a cut of the shoe, and of the horse's foot, showing how the hoof is to be prepared for the reception of the shoe.

At first sight it has a fragile appearance, from its extreme narrowness as compared with common shoes, but it is strong enough, being thicker than the usual shoe. Its greatest peculiarity consists in the manner in which it is applied. Instead of being nailed on to the foot like a racing plate, it is as it were substituted for the ground surface of the crust, which is pared away, leaving a groove for the reception of the shoe. Fig. 2 represents the horse's foot prepared for the shoe *en profile*. The groove should be of the same width as the wall of the hoof, or a little less if the shoe is to be applied hot; no smith with common care can make a mistake here. The shoe must be very accurately fitted to this groove (and here is an advantage, the groove cannot be well fitted to the shoe).

the groove then being deepened to an extent that brings the shoe nearly, not quite, flush with the sole of the foot. Nothing further is required beyond nailing on the shoe, the last nails being two inches, or nearly so, from the heels. For hunters six nails are preferable; five may suffice for farm work, and certainly for travelling on the road. The shoeing of weak-footed horses in this style demands a little, not much, more care than when a strong foot is the subject, also the exercise of a little common sense. A thin-soled horse, with a deficiency of horn, obviously cannot stand the paring of so deep a groove as a strong-footed one. To obtain the desired effect, the shoe must here be made thinner, so that a more shallow groove should suffice. To put a thick shoe to a shallow groove would most likely lame the horse; certainly with a weak foot it would have that effect. The shoe, when on, allows the frog to touch the ground, in fact, leaves the foot in as nearly as possible a natural condition. Frog, bars, heels and crust, all take their share of the work, while the extreme lightness of the shoe has the best effect in decreasing the labour of the tendons. The sole is not to be allowed quite to touch the ground when this is hard and level. It does not do so in the unshod colt's foot, which is the model to go by.

The shoe is to extend back just to the edge of the heel, and "over-reaching" or "cutting" is said to be rendered impossible.

We are doubtful if this kind of shoe would answer here in the cold season. On our exceedingly hard, slippery, winter roads, the want of caulks would perhaps prove an objection, but there would probably be no balling of snow in the foot. For summer use such a shoe would be light, cheap, and durable, as well as giving ease and comfort to the horse.

### New Importations of Thoroughbred Stock.

We learn from *Bell's Weekly Messenger* that Mr. Thornton had shipped for Canada, for Mr. H. Cochrane, who seems determined to collect a fine herd in a short time, six shorthorns of great excellence, from the stocks of Mr. Torr, Mr. Barnes of Westland, Mr. Hugh Aylmer of West Dereham Abbey, and Mr. Lynn of Stroxtton. The six—one of them a yearling bull—averaged 114, 128, 6d. Aylesby Manor supplies two yearling heifers and the bull; Bright Lady, Weal Bliss, and General Napier. Bright Lady is the daughter of Lord Blithe and Bright Countess, from the Anna family, and is perhaps the best of the lot. She has a splendid head, peculiarly strong wide loins, and grandly arched ribs. Weal Bliss descends from the Waterloo family, the Waterloo pedigree being surmounted by four fine crosses of Warlabby bulls—Crown Prince, British Prince, Booth Royal, and Lord Blithe. The young bull (of the Glitter tribe) has the super-addition of

five Booth sires; Vanguard, Crown Prince. Dr. McHale, Booth Royal and Lord Blithe. The heifer bred by Mr. Barnes is Isabella Sovereign, by Royal Sovereign (22802), from Isabella by British Prince, and is in calf to Mr. Booth's King Richard. Mr. Aylmer's Forest Queen, a very good in-calf red yearling, descends from Sir Charles Tempest's Frill or White Rosette branch of shorthorns, and is by Prince Christian (22581). Queen of Diamonds, the second prize heifer at the Manchester Royal, in calf to fourth Duke of Cambridge, and in beautiful show-condition, will represent the Stroxtton herd in foreign parts to every possible advantage. She is a very neat and sweet heifer, well bred, and has had a superior "education."

In addition to the shorthorns, two prize Ayrshire heifers, a noted Suffolk stallion, Duke, a thorough bred colt, and a number of Cotswold sheep, and Suffolk pigs are comprised in the importations.

### Buying Stock to Fatten.

A subscriber asks, "With beef at \$6 and pork at \$5.50 per 100 lbs., how much are good store animals worth per pound, live weight, and by what rule can I judge of their value in buying them to feed?"

Ans.—The profit in fattening animals lies mainly in the increase of weight given by the extra feeding, much of which is put on in the shape of fat, and the value of the manure made is estimated to fully cover the cost of attendance. Of course, the larger the number of animals that can be fed at once, the less proportionate labour is required to attend to feeding them. Suppose beef or pork is worth a certain price per pound, the store animals, if not old and in very poor condition, are worth nearly the same price, live weight, allowing one-third off the weight for offal, that is, the loss between live and dressed weight. It is usual for drovers to pay from half to two-thirds the price of pork at the place of shipment, for live hogs, taking them at gross weight. Of course, the farther the animals are from the great centre of consumption or the packers, the lower proportionately will be the price they are worth. Hogs fatten so rapidly that they require less food than other stock to render them fit for the butcher. The younger they are, and the better bred, providing they are old enough to be fit to make into pork, the more they would be worth. Supposing we take a well-bred hog of 150 pounds, live weight, and pork is worth six dollars per hundred pounds, the animal is worth five dollars to put up to fatten, and at the end of two months' feeding, if well done, with cooked food, should be worth from \$12 to \$15 to sell as pork.

With regard to beef animals, owing to greater slowness in fattening, and larger consumption of food, they are less profitable, except where great facilities exist for feeding them, and where the manure they make can be turned to good account. In purchasing cattle, we should judge that much will depend on the age, the breed, and their condition. A cow of 800 pounds live weight would probably give that weight of dressed beef, after being well fed for three months, a steer or heifer rather more. The gain would be proportionately greater in a large animal than a small one.

We know of no rule to judge of the value of store animals so good as putting them in the scales, regard being had to the condition they are in; but for fat cattle there are several rules in use in Britain to ascertain the weight by measurement, but as they are all calculated in stones, none of them would be of any practical value here. However, in a fat animal there is less loss of weight from offal than in a lean one, and a well-fatted ox will not lose over 28 to 30 per cent. in offal when dressed. And in fat hogs there is still less loss, as every part of the carcase, except the intestines, are bought by the curer. The value of the hide must be taken into consideration with cattle, and usually amounts to five per cent. of the value of the animal. We have seen it stated that a pound of flesh can be put upon an animal in good condition by feeding either of the following substances singly:—100 lbs. turnips, 50 lbs. potatoes, 7 lbs. barley meal, 28 lbs. hay, 3 lbs. peas, 9 lbs. oatmeal. This seems to us altogether too high an amount of food for the value of the meat made, and if true, would prove unprofitable in practice; but we think there is some mistake about the statement.

The theoretical value of the several substances adapted to feeding stock may be ascertained from the following table: 00 lbs. of good well-cured meadow hay are equal to 410 lbs. green clover, 374 wheat straw, 443 rye straw, 195 oat straw, 153 pea straw, 400 dried cornstalks, 201 potatoes, 220 sugar beet, 276 carrots, 308 rutabaga, 504 white turnips, 45 wheat, 45 peas, 54 barley, 57 Indian corn, 105 wheat bran, 69 oil cake.

### Chester White Swine.

F. X. Lambert asks our opinion about the Chester white variety of hogs, and if they are preferable to all others in our climate.

They are a large, rather coarse breed, and require much more time and feed to bring to maturity and make them into pork than any

other breed we know of, except land-sharks. They are no favorites, even in Cheshire, according to Youatt, and a pure specimen is rarely to be met with. They are greatly fancied by some of the Pennsylvania Dutch farmers, mainly on account of attaining very great weights, but their pork is not worth so much as that of the Essex, Suffolk, or Berkshire, and what is more, they are not so hardy, and require more food to make a pound of pork on them than either of the other breeds we have mentioned. Some were shown at the Provincial Fair at Hamilton last year, but did not commend themselves to good judges of swine.

We think our correspondent would find the Berkshire more profitable, or if he desires a small, but early matured and easily kept hog, he could have nothing better than the Essex or Suffolk. For a very large breed, the Yorkshire is the best he could obtain in this country, though it is not so early fit to fatten as any of the others we have mentioned.

THE PICKERELL STOCK SALE.—An extensive sale of pure-bred stock by Mr. Pickerell, of Illinois, was held on the 4th August. The cows which brought the highest prices were Lady Sheffielder, 2nd, \$505; Nellie Batchelder, \$490; Maggie Pierce, \$410; Ollilia, \$400. The rest ranged from \$180 to \$350 each. Of the bulls sold, the chief was Sweetstakes 6230, whose portrait we gave in the CANADA FARMER, and who has hitherto been at the head of Mr. Pickerell's herd; he was sold for \$710. Hannibal 6838, bred by George Bedford, sold for \$300. Mr. Pickerell, it seems, has retained the imported bull "Baron Booth of Lancaster." The Sonthdowns sold at a range from \$8.50 to \$21 each. The swine were Berkshires, and sold at an average of \$26 for the boar pigs, the choice ones being as high as \$50. The sows sold as high as \$90. Mr. Pickerell is breeding the pure Berkshire, and is importing a boar from England for the purpose of keeping up this breed in all its excellence.

TO PREVENT HORSES BEING CHAFED BY HARNESS.—Great care should be taken during the warm weather of summer to prevent horses being chafed by the harness. There are several ways to do this. First keep your horse in good healthy condition, clean skin, with plenty of flesh between it and the bone. Second, keep your harness soft and pliable. And third, use him moderately, and give the skin a good cleaning after using him, every time. Much also depends on having the harness to fit properly. See that the collar is neither too large nor too small, and that the hames are of the right length and shape, giving an even pressure on the collar. Keep the face of the collar clean and free from inequalities.

It is a very unsightly picture to see a horse with sore shoulders, and other parts of the hide worn off by the harness. The owner or driver of such a team ought to be ashamed himself.—*Am. Stock Journal.*

## Veterinary Department.

### Rupture of the Stomach and Bowels in Horses.

This very serious occurrence is by no means uncommon amongst horses, and as a matter of course causes death in a very short time. The stomach of the horse is a very small organ in proportion to his size and strength, and in general the process of digestion goes on quickly. Where the stomach becomes weakened from long fasting, and is unable to digest a hearty meal, a quantity of gas is frequently evolved, which distends the stomach and bowels to such an extent as to produce a rupture of the walls of these viscera, allowing their contents to pass into the abdominal cavity, producing fearful and severe symptoms, and death in from two to eight hours. The stomach of the horse is liable to become inordinately distended at any time, but during the autumn and fall months it appears to be more common than at any other period of the year, especially amongst farmers' horses; it is then frequently brought on by feeding on new-cut hay, or wet clover; and new oats, when given in large quantities, have a great tendency to cause extreme distension of the stomach and bowels. The same thing is also produced by feeding on Indian corn; in fact any description of food to which the stomach is unaccustomed, when given in large quantities, and more especially after a long fast, or severe exertion, is apt to cause such a suspension or derangement of the process of digestion as to lead to this fearful result.

Rupture of the stomach or bowels, as can be easily understood, is somewhat difficult to recognise. The symptoms in the early stage are similar to those of colic. The horse is uneasy, he keeps moving about, and every now and then casting a glance to his sides; he paws the ground with his fore feet, he throws himself to the ground, sometimes violently, and rolls over on his back, and attempts to balance himself in that position; the pulse is quickened, but not to such an extent as in inflammation of the bowels; he strains to pass feces, and the severe pain produces a copious perspiration, the breathing is also accelerated, and the abdomen is distended, in some cases enormously so. These symptoms will continue and increase in severity. There are also eructations of gas from the stomach, and the horse will arch his neck, and make attempts to vomit: he will also sit upon his haunches for a short time. After the more violent paroxysms, an hour or two preceding death, the pulse will become so weak as to be almost imperceptible at the jaw; the ears are deathly cold, and likewise the limbs: the mucous membrane of the nose is pale and blanched, and the mouth becomes cold; the under lip is retracted, and the more violent symptoms pass into a mitigated form; he will walk

and stagger around, and perhaps, after a few convulsive struggles, expire. To prevent such an occurrence as rupture of the stomach, horses should be fed sparingly for some time when the food is changed, and especially so with new oats, corn, &c. Rupture of the stomach seldom occurs, for instance, in military horses, and their exemption from it is owing altogether to the care and regularity of their feeding. It is mistaken kindness to allow a horse to unnecessarily gorge his stomach with large quantities of oats, as is often done amongst farm horses, immediately before starting upon a long journey.

### Sterility.

In certain seasons and certain localities breeders are much troubled by their cows turning again from their bullings. Highly-bred, artificially-kept animals are most subject to such annoying irregularities. During a hot dry summer like that of last year such complaints are apt to increase. It will be well to discover, if possible, whether the fault is chiefly ascribable to the bull or the cow.

Bulls are apt to be inefficient owing to their being used when too young. Except to ascertain what he can do, no bull however, well grown, should do work until he is fifteen or eighteen months old. Until two years old his stud work should only be light and occasional. Calves got by weakly juvenile bulls are often themselves weakly, and are usually more difficult to rear than those produced by the same animals when they have become more vigorous and mature. Bulls when suffering from cold, weakness, or overwork, are uncertain in their service; and calves, when begotten by sires in a delicate or weakly state, usually inherit the sickly state of system, even although such delicacy of the parent may only have been temporary. Many good bulls are at fault from want of exercise. In a small court, or, still worse, if secured to a stake, they often stand with little intermission for months. If good thrivers, they are almost certain to lay on flesh and fat, and in this state they are not, of course, to be depended on for stud purposes. All bulls should be loose, in a large pen or small paddock. In the highly-bred American Shorthorn or Hereford herds the patriarch of the tribe is generally allowed a paddock of about an acre in extent. A bull should only be tied up occasionally to quiet him; or as the cattle men sometimes term it, to "quank" him. Every bull over two years old, unless he is in a place of such size that he can himself take abundance of exercise, should be led out regularly every day for about an hour; should be made to do ploughing or other work, as is still exacted from both bulls and oxen, over the Cotswold hills, and throughout many parts of the continent, or be placed regularly for an hour or two every day in some horse-mill or such roundabout

contrivance. With one or other of such arrangements, proper healthy exercise will be ensured. The bull's labour may be utilized by cutting chaff, grinding corn, or pulping roots. Switching the bull along the belly with nettles, which has been advised, administering cantharides or other stimulants, are popularly believed to increase the virile power; but all such unnatural expedients are of little avail in securing a good get of calves. Bulls of full growth, in sound health, and intended for service, should have good food, but in somewhat sparing amount; they require nutritive aliment to support strength and muscle; mouldy hay, refuse fodder, coarse straw—so often the staple food of bulls—may satisfy hunger, make an animal pot-bellied, but certainly do not add to his vigour. Vetches, too many roots, and all bulky victuals are injurious. But attention to exercise, we repeat, is as essential as attention to feeding.

A short drop of calves is as often the fault of the cow as the bull. Thousands of calves are lost owing to abortion or premature birth. Often the embryo is got rid of without the owner or his servants knowing anything about it, and so early as the third, sixth, or ninth week after service. This is especially apt to occur where cows are much disturbed by flies or dogs, are overfed, or kept on unsound marshy land. So notorious are some pastures for the production of this mishap, that no in-calf cow remains safely in calf if grazed there for six or eight weeks. But dairymen are also liable to disappointment from their cows altogether failing to become pregnant. Sometimes this results from injury or disease of the generative organs, as from overbulling; from laceration of the parts, owing to the forcible extraction of a large or awkwardly-presenting calf; or from the retention of a dead, deformed, or mummified calf. Occasionally the cow is weakly, consumptive, or dysenteric, and, on such account, fails to conceive. A cow, whilst suckling a calf, rarely takes the bull, but usually comes in season a week or ten days after the calf is separated from her. Cows, although sometimes served six or eight weeks after calving, seldom stand to such service. Short-horn cows rarely prove pregnant from service effected at the first period of a strum after calving. We always advise that the cow be missed the first time, and attended to at the second period of a strum. No cow should ever be put to the bull whilst she is in an excited or over-heated state. If she has been driven far she should remain in a barn-yard or house for an hour or two before the bull has access to her: whilst for a day after she is better to be kept quiet and separated from her fellows, whom she is apt to annoy, and by whom she is herself annoyed. Such precautions are especially requisite amongst high-bred shorthorns and other cows which have been pampered in their youth, and are thus particularly apt to turn out shy breeders.

When a valuable cow persistently turns repeatedly from her service, the best plan is

to allow at least one period to pass without letting the bull near her. Keep her meanwhile in moderate condition, avoid especially her being too fat. When the ovaries and other parts concerned in generation are overlaid with fat, conception is impossible. Allow her to be in yard or field where she shall have plenty of exercise. When the opportunity occurs, put her to a bull in full virile vigour, about two years old, and immediately dash a couple of pails of cold water over her quarters. This device, acting as it does on the nervous system, has been tried apparently with some success both with mares and cows. Bleeding the female immediately after service is also advocated, but its advantages are problematical.

When these measures are still unsuccessful, the cow had better have an entire change of surroundings. If she has been living on succulent food in the fields, put her into a strawyard, and feed her chiefly on dry victuals; if previously on dry food, and in confinement, turn her out to grass. As with the sterile bulls, barren cows, which it is desired to breed from, should have plenty of exercise. In fat animals, and those that have been pampered and made up for exhibition, an hour's walking exercise every day is especially serviceable. Before the railway times, the doubtful lots at some of the crack sales, after some years' idleness, bred at once; for having tediously trudged many miles to their new homes. Change of scene, and circumstances, have sometimes at once wiped away the reproach of a valuable cow. On the salt marshes, and fanned by the invigorating sea breezes, many Shorthorn cows, supposed to be hopelessly barren, have again proved fertile. When a cow turns repeatedly from one bull, another should be substituted; for in this, as in other matters, cows show their likes and dislikes, and, as is observed amongst mares, will sometimes breed only with particular sires.—*North British Agriculturist.*

### Stimulants in Milk Fever.

Recent discoveries in the old country seem to point out a new use for alcohol, which in the human subject is so often used mischievously, and even fatally.

There are few farmers who have not, at some time or other, lost their best cows by "milk fever" or "dropping" after calving. The symptoms are but too well known.—the cessation of taking nourishment, the failure of milk, the rapid loss of strength, the fallow weakness, and the apparent pain and suffering, the dull glazing of the eye, and notably the throwing of the head over to the side, as if to point out to her anxious master that the suffering lay in the centre of the ribs and body, and the final sinking and death, are all too well known to cow-keepers. We have always attributed this to "fever," although certainly all the concomitants of fever are usually missing, but "milk

fever" it has been called, and "milk fever" it has been always believed to be, and for such it has been treated. A gentleman in England, a doctor having a good knowledge of medical matters, and being free from the trammels of custom, had a most valuable and favourite cow taken down in this way; he applied the usual treatment, and with the usual effect; the poor animal sank lower and lower, until the veterinary attendants assured the proprietor that the case was hopeless, and the animal must die. She was as far gone as she could be and still have life in her. The owner of the cow then determined to try a novel system; he sent for a bottle of strong brandy, and gave the animal a pint of it, mixed with enough of gruel to prevent the liquor injuring the coats of the stomach. It did not seem to do much good, but it did no harm; and as the cow did not die at the time expected, the owner repeated the dose, only increasing it; the animal still kept alive, and in a few hours (having in the mean time consumed two bottles of brandy), she seemed a little better; the treatment was therefore continued,—a fresh dose given every three or four hours, and in the course of two or three days the cow recovered; came to her full appetite, and to her full milk, and was apparently none the worse for her illness. The cure made a great noise in the neighbourhood; it was reported in the agricultural papers; it called forth replies from a veterinary firm, warning the people not to trust too much to single experiments, and stating that where the symptoms had seemed to require it, the veterinary surgeon had always used stimulants. This brought out the originator of the brandy system again. He stated that he had since seen several other cases equally bad with his own; that ordinary treatment had failed; but that even when all but at the point of death, the alcoholic treatment had succeeded, and that in every case where it had been tried. Another neophyte in the new doctrine tried other stimulants, such as strong ammonia, and spirit combined with linseed oil—in even the most desperate cases succeeding to a marvel. So the matter now rests. No doubt the regular practitioners will experiment with the new doctrine, and if it should appear to continue to be successful, a legitimate use will be found for large quantities of spirit, which has been hitherto unthought of.

The last thing heard of, is the same application in Pleuro Pneumonia, hitherto so dreadfully fatal. A valuable herd of cattle was attacked by the awful complaint, more than half were lost, and the rest evidently infected, but by the alcoholic treatment they were saved, and actually recovered their former health and condition.

This is a most interesting field for enquiry. Few of our Canadian readers have any idea of the loss of cattle in Great Britain from "Pleuro Pneumonia." One writer states, that so large a number die annually in the United

Kingdom from this cause alone, that it has been more fatal than the Cattle Plague.

The writer well recollects, when a boy on the paternal farm, that a local celebrity who acted all through that region as a cow and horse doctor, and who was generally successful, (or at all events so generally successful that he was considered all but infallible)—that this man, in dealing with cows and cattle, always administered his drugs in large doses of the strongest ale which could be obtained. He said that a cow, of all things wanted support. The ale was always combined with ginger, and other aromatics, and as much as a gallon given at a dose. *Strength* and *mildness* were insisted on in the liquor. We never appreciated this part of the treatment, but always considered that the ale was called for as much by the Doctor as the patient; it now appears, however, that the ale did as much, if not more, good than the drugs.

VECTIS.

### Removal of a Cancerous Tumour from the Eye of a Horse.

Mr. E. W. Thomas, of Arran, in the county of Bruce, a graduate of the Ontario Veterinary College, sends us the following account of a delicate and difficult operation, which he successfully performed for the removal of a malignant tumour from the eye of a horse, and by which he certainly saved, not only the sight, but the life of a noble animal. We have pleasure in publishing the details, as one evidence among many of the good the Ontario Veterinary College is doing in the Province. Mr. Thomas's account is as follows:—

On the 21st of June last, Mr. Gilbert Gray, of the township of Derby, county of Grey, brought a three year old colt to my stables, with a tumour on the right eye. I recommended an operation as the only chance of removing it. Mr. Gray at once consented, but did not think that it could be removed without destroying the sight. I must admit that I did not like to face the operation, not on account of being afraid to use the knife, as I have performed ten operations successfully, since I graduated at the Ontario Veterinary School; but this case seemed to present some peculiar difficulties. However, our professional duty demands that we do not shrink from the most difficult case, consequently I decided to operate on the following morning. After casting the animal, I made a careful examination, and found the tumour covered by the conjunctiva (the outer membrane of the eye). I made an incision through the conjunctiva. Very slight adhesion had taken place between it and the tumour, consequently the superior part at once became exposed. The tumour was attached to the inferior border of the cornea (the clear circle in front), to the sclerotic (the hard, white) coat, to the oblique, depressor, and retractor muscles, and the apex of the

cartilaginous structure of the *membrana nictitans* threw out a prolongation into it. (This membrane, of which only a rudiment is found in the inner corner of the human eye, is more fully developed in many animals, and is most notable in birds, where it exists as a very thin, delicate membrane, which can be rapidly drawn across the front of the eye, at the will of the animal, and serves to keep the surface clear and moist). I took care to remove every particle of the tumour. The last cut was on the retractor muscle, far out of the reach of the scalpel. I therefore used the probe-pointed scissors, and succeeded in removing it without injury to the sight or muscles, except a few fibres of the retractor. There was very little hæmorrhage. The tumour weighed one ounce and two drachms. The animal was up in half an hour. The eye was open, and appeared as well as the other, as was remarked by several farmers who assisted. I administered a laxative ball, sponged the eye with cold water, covered it with a wet cloth, placed the animal in a dark stable, and ordered continuous application of cold water. The case continued duly to progress most satisfactorily and favourably, and in a week after the operation the owner took the horse away from my care. I have since heard that he is quite well.

E. W. THOMAS, V.S.,  
Graduate Ontario Veterinary College.

### Passing Blood in the Milk.

To the Editor.

SIR,—One of my cows has for the last four weeks passed blood, every time she is milked, through one of her hind teats. I have made enquiries from a great many farmers around here, as to the reasons, and none are able to account for it. Could you enlighten me on the subject, and what is the cure? The cow otherwise is in good health and eats well. An answer in your next issue will very much oblige.

D. W. STEARMAN.

Chatsworth P. O.

ANS.—The passing of blood in the milk is either the result of inflammatory action within part of the gland, or comes from some irritant within the teat. We would recommend the quarter to be bathed twice a day with cold water, and afterwards well hand rubbed, and give two scruples of the iodide of potassium daily until twelve doses are given.

RESTORING HAIR.—“A subscriber from Gal asks:—Can you tell me how to make the hair grow on the place where the splint was after being blistered with strong iodine blister?”

ANS.—If the leg has been so severely blistered as to destroy the hair bulbs, a permanent blemish will remain, and no application can have any good effect in causing the growth of hair. If the bulbs are not injured the hair will grow again.

## The Dairy.

### Treatment of Cows after Abortion.

The following practical remarks on this important subject are made by Mr. Willard, in a recent issue of the *Western Rural*. In republishing them here, we would caution our readers not to accept too positively the opinion which Mr. Willard, with his usual philosophical caution, announces in reference to the liability of cows that have once aborted to suffer again from the same accident. According to the experience of Dairymen in Herkimer County, and some other localities, it is believed that the occurrence is not likely to happen a second time in the same animal. This is contrary to the usually received opinion; and the statement must certainly be restricted to those cases of abortion that arise from local and epizootic disease, and must not be extended to ordinary or accidental abortion, which according to our own experience, and as Mr. Willard admits, is extremely liable to be repeated, and even to become a habit. Bearing this distinction in mind, Canadian farmers may safely adopt the general recommendations contained in the following extract:—

“When cows abort in the Spring, and not far from their regular time of ‘coming in,’ they may often be milked up, and with good care and feed, may yield nearly as much milk as they would had they not been affected with the trouble. There is a great difference, it is true, with different cows in this respect, as many soon run dry or yield but little. It is well, however, to make the attempt to ‘milk them up,’ and to feed liberally with bran, shorts, or meal in order to keep them in good condition and get them in a good milky habit.”

“When abortion occurs in the Winter—December or January—they scarcely ever amount to anything for milk for the coming season. The time is so long before they get to grass, and cold weather is so unfavourable, that it is found quite difficult to keep them in milk even in cases where they have carried their young nearly to the usual time. When warm and comfortable stables are provided, and plenty of roots with early cut hay are fed in connection with meal, a cow may occasionally be got in milk. But in the majority of cows the experience of farmers here is that it does not pay to milk them. The usual course is to turn the stock as soon as it can be conveniently done, and fill up the herd in the Spring with healthy animals.

“As a rule abortive stock are not easily got into flesh, and in many cases they fall off in condition; hence as a rule it is found better to turn off the animals for what they will bring than to attempt to fatten them; for in the latter case the cost of feed would completely eat up the value of the stock, and in most cases bring the farmer into debt besides. At the West, where grain and feed of all kinds

are cheaper than with us, it is possible the animals could be fattened at a profit. The question often occurs with farmers here who have taken pains to obtain a very extra herd, whether it is best to turn off diseased animals at once and start again with an entire new herd, or to keep the stock over.

“The impression prevails among veterinarians that cows that have once aborted are more liable to abort again than those which have not been troubled with the habit. If it were an established fact that cows that had once aborted would abort the second and third years, and so on for a series of years, the case would be a very plain one, for it would be better to get rid of such a cow at once, than to run the chance of milking her up after the loss of her calf. This question was discussed at our Farmers’ Club some years back, when a large number of dairymen having affected herds were present: and it was decided as the result of a very wide-spread experience, going over several years, that cows that had once aborted were not so liable to be troubled with the habit again as the other cows of the herd. Some of the dairymen present went so far as to say that they would prefer to purchase stock that had once aborted if good milkers, and sufficient time had elapsed for recovery, etc. The rule which was laid down at this meeting was, that when extra cows aborting could be milked up so as to give say half a mess, it was advisable to retain them. And this is the practice now adopted in this section.

“In my own herd I have several animals that have aborted once, and in my own experience I have never had a cow that lost more than one calf with this disease. It will be proper to say, however, that this is rather an exceptional case, as in other herds cows have been known sometimes to abort three years in succession. But as a general thing, I believe it is conceded that cows once aborting on account of this disease are not so liable to be troubled again as the other members of the herd. There seems to be a difference with stock affected with the disease and cows aborting on account of some accident, since with the latter there is more liability of establishing the habit.

“These facts in the experience of Herkimer Co. farmers may be of some service to Western dairymen whose herds are afflicted with the disease, as they may help to make up the opinion as to the best course to be adopted with the diseased stock.

“We are not surprised to learn that this mysterious habit in cows has shown itself at the West, for we have long held the opinion that the habit would reach every section of the dairy region, or at least those sections where cows are largely kept.

“X. A. WILLARD.”

A prize, valued at \$500, is offered by the managers of the St. Louis Fair, for the best milch cow, to be tested on the grounds for three days during the Fair week.

### Keeping Milch Cows over Winter.

A Beginner asks if it would pay to keep milch cows on a farm well adapted only to pasture, and depend in a great measure for their winter feed upon purchased hay, straw, and bran; and would 1½ lbs. hay, 1½ lbs. straw, and 2 lbs. bran cut fine and mixed with warm water, and fed three times a day, be sufficient to keep a cow, not giving milk, in good condition, and be relished throughout the winter? This would be allowing a cow a consumption equal to 11½ lbs. of good hay per day. An animal, to keep in good stock condition, but no more, usually requires to consume an amount of food equal to one thirty-third part of its live weight per day of good meadow hay, so that the above quantity of mixture would just keep an animal of nearly four hundred pounds live weight, which would be a pretty small cow. Few good cows would go to less than double that weight, and many would go far beyond it. So we fancy it would require an addition of at least double the quantity of hay, and treble the quantity of straw, to keep up the condition in winter time. If the animals were kept in warm stables and allowed plenty of straw to fill the stomach, and about a peck of sliced turnips, carrots, or beets per day were given in addition to the amount of hay and bran proposed by our correspondent, we imagine they would do very well. In answer to another enquiry, we give a table of the relative value of different foods for stock, which "A beginner" will doubtless find useful in making up his calculations, and he will see from it that there is considerable difference in the feeding values of the various kinds of straw.

We hope he will experiment and let us know the results, for there is nothing so satisfactory as being able to tell from actual practice what is the best and cheapest plan to be pursued. The value of the manure made must not be left out of the calculation, and we are quite sure that, properly managed, the manure from store-fed cows will fully compensate for their winter keep, and a little extra cost in feed, to have them in first-rate condition by spring, will well repay their owner. We fed ours liberally with early cut hay all last winter, and estimated that the difference in the price they brought in the spring when in first-rate condition, over what they would have brought if sold in the fall, fully paid for the hay consumed, leaving the milk, butter, and manure made for profit.

### Cheese Manufacture in the United States and Canada.

The *Utica Herald*, of the 6th instant, has a two column article on the cheese crop, as made up from returns from the factories in New York State, Ohio, Vermont, Massachusetts, Illinois, Wisconsin, and Michigan. Two hundred and twenty-four factories were

heard from, whose product put up to the last instant, is set down at 179,024 boxes, of an average weight of 64 31-100 lbs. Of this amount 82,210 boxes have been sold, leaving on hand 96,814 boxes. The daily make of the 224 factories is 3,758, of an average 16½ for each. The *Herald* estimates that in the United States and Canada there are 1,000 factories, whose product is 117,250 boxes a week, though this yield will probably fall off some 1,500 or 2,000 boxes weekly as the season advances. In relation to the stock on hand, the *Herald* says:—It will be seen by the figures that we present, that the stock on hand is considerably larger than what has been sold. There is probably as much May cheese back as has been sold of June cheese, so that we may safely estimate the entire June make as waiting for a market. There are now not far from 430,000 boxes on the ranges, as the average number each of the 224 factories, from which we have returns, have on hand is a fraction over 432, which for 1,000 factories, would give 432,000. Whether there are more than were on hand last year at this time, we are unable to say. The make has unquestionably been larger but the sales have been larger also, as factory-men have sold as fast as possible in anticipation of a general decline in prices. Last year they were holding back for a rise. There was a large stock of old cheese on hand last year, and very little this, but consumption, owing to high prices, has been very much less, at home and abroad, than it was then. As prices come down we may reasonably look for an increased consumption and a better home demand.

In making estimates of the amount of cheese in the country, it must be borne in mind that our figures do not include any of the farm dairies, the stock of which must be added to the total factory stock on hand. Another item it is well to consider. Our estimates are for the whole country and Canada; but most of the Western cheese finds a Southern and home market. One large Ohio firm writes us that about half their cheese and this year has gone South and West; the balance has come East. This is the first season, we believe, that Western cheese has an Eastern market to any considerable extent.

**COW LEAKING HER MILK.**—A subscriber asks what will prevent a cow from leaking her milk. We have seen it prevented by placing an India-rubber ring around the teat after milking. Another remedy common with some dairymen is to milk such cows three times a day, until the muscles of the teats gain sufficient strength to hold the milk from morning until evening. Another very successful and simple way is to apply a small quantity of collodion to the end of the teat immediately after milking. This forms at once a thin, tough membrane or skin, which will prevent leakage, and is easily removed before milking. It may be had at the druggist's.—*Ex.*

## Poultry Yard.

### Raising Turkeys.

Many have alleged that the turkey sits thirty-one days. This is an error. The chicks break the shell from the twenty-sixth to the twenty-ninth day, scarcely ever later. The day but one before the hatching is expected, the hen should be plentifully fed, the nest cleaned of any dung or feathers during her absence, and an ample supply of food and water placed where she can reach it, as she must not again be disturbed till the chicks are out. In dry weather, if the nest be in a dry place, the eggs will have been daily sprinkled. With these precautions, there will rarely fail to be a good hatch.

The egg-shells may be cleared away after hatching has proceeded some hours, but the chicks should never be taken away from the hen, and never be forced to eat. The latter practice is very general, as turkey chicks are very stupid, and do not seem to know how to peck. But a much better plan is to put two ordinary hen's eggs under the turkey, five or six days after she begins to sit, which will then hatch about the same time as her own, and the little chickens will teach the young turkeys, quite soon enough, what they should do. Water or milk may be given, however, by dipping the tips of the finger or a camel-hair pencil in the fluid, and applying it to the end of their beaks.

The usual feeding is oatmeal and bread-crumbs, mixed with boiled nettles. Such food is not good, as turkey chickens for a few weeks have a great tendency to diarrhoea, which the oatmeal rather increases, and the result is a weakening of the system, and frequently many deaths. The very best feeding at first—say for a week—is hard-boiled eggs, chopped small, mixed with nothing but minced dandelion. With regard to the choice of this herb, Mr. Trotter—who was the first to study turkey treatment rationally—and after him many others, have observed that, when at liberty, the young birds invariably choose the dandelion before all other green food, and it probably serves to keep the bowels in proper order. When dandelions cannot be obtained—and it is well worth while to grow them where turkeys are reared—boiled nettles chopped fine are perhaps the best substitute.

At the end of a week or ten days some bread-crumbs and barley-meal may gradually be added to the egg, which may be by degrees lessened, until quite discontinued at the end of three weeks. About this time, a portion of boiled potato forms an excellent addition to the food, and by degrees some small grain may be added—in fact, assimilating the diet very much to that of other poultry. Curds also are excellent as a portion of the dietary, but must be squeezed very dry before they are given. They are easiest pro-



pared by adding a pinch of alum to a quart of milk slightly warmed.

By this feeding, the little chicks will get well through their first great danger—the tendency to diarrhoea already alluded to, and the cost of the egg will be repaid by the extra number reared.

The second peril to be guarded against is cold and damp; a wetting is absolutely fatal. The chicks should be kept entirely under the shed, on a board floor kept scrupulously clean, and nicely sanded, except during settled, sunny weather, when they may be allowed a little liberty on the grass, after the dew is quite dry; but in cold or windy weather, however fine, they must be kept in the shed, and well screened from the wind. If there be a one-story building, their best place will be on the top floor, the bottom being devoted to the sitting hens, and other adult stock. Their water, also, must be so supplied that they cannot wet themselves, by any possibility; and these precautions must be continued till they are nine or ten weeks old, when they will begin to "put on the red," as it is called, or to develop the singular red excrescences on the neck, so characteristic of the turkey breed. This process will last some little time, and when completed, the birds will be pretty fully fledged. They are now hardy, but must not be too suddenly exposed to rain or cold winds. Take some reasonable care of them for a while longer, and very soon they will have become the hardiest birds in the poultry-yard, braving with impunity the fiercest storms, and even preferring, if permitted, to roost on high trees, through the depth of winter. In fact, turkeys will rarely roost in a fowl-house, and a very high, open shed should therefore be provided—the higher the better—the perches being placed as high as possible. They might be left to their natural inclination with perfect safety, so far as their general health is concerned; but in very severe weather, their feet, if roosting on exposed trees, are apt to become frost-bitten.—*Practical Poultry Keeper.*

### How to Fatten Chickens.

We make the following extracts from an article on this subject in the *London Cottage Gardener*:

"It is hopeless to attempt to fatten them while they are at liberty. They must be put in a proper coop; and this, like most other poultry appurtenances, need not be expensive. To fatten twelve fowls, a coop may be three feet long, eighteen inches high and eighteen inches deep, made entirely of bars. No par solid—neither top sides nor bottom. Discretion must be used according to the sizes of the chickens put up. They do not want room: indeed the closer they are, the better—provided they can all stand up at the same time. Care must be taken to put up such as have been accustomed to be together. They will fight. If one is quarrel-

some, it is better to remove it at once; as like other bad examples, it soon finds imitators. A diseased chicken should not be put up.

The food should be ground oats; and may either be put up in a trough, or on a flat board running along the front of the coop. It may be mixed with water or milk; the latter is the better. It should be well soaked, forming a pulp as loose as can be, provided it does not run off the board. They must be well fed three or four times per day—the first time as soon after daybreak as may be possible or convenient, and then at intervals of four hours. Each meal should be as much and no more than they can eat up clean. When they have done feeding, the board should be wiped and some gravel may be spread. It causes them to feed and thrive.

After a fortnight of this treatment you will have good fat fowls. If, however, there are but five or six to be fattened, they must not have as much room as though there were twelve. Nothing is easier than to allot them the proper space; as it is only necessary to have two or three pieces of wood to pass between the bars and form a partition. This may also serve when fowls are up at different degrees of fatness. This requires attention, or fowls will not keep fat and healthy.

As soon as the fowl is sufficiently fattened it must be killed; otherwise it will still get fat, but will lose flesh. If fowls are intended for the market, of course they are, or may be, all fattened at once; but if for home consumption, it is better to put them up at such intervals as will suit the time when they will be required on the table.

When the time arrives for killing, whether they are meant for market or otherwise, they should be fasted without food or water for twelve or fifteen hours. This enables them to be kept for some time after being killed, even in hot weather."

**CHOICE POULTRY.**—Those who are wishing to procure well-bred fowls will see by Mr. Acres' advertisement in the present issue, that he has for sale a number of Houdans, Orve Coeurs, Light Brahmans and Grey Dorkings.

**CROSS BETWEEN BRAHMA AND GAME FOWL.**—A writer recommends a cross between Game Fowl and Brahmans. Referring to his own experience with the breed, he says:—

I succeeded admirably. The chickens hatched in March were as heavy the first of July as the pure Brahmans were in August. They were round and plump, while the Brahmans were long and lank. The cross has proved to be valuable, vigorous, healthy and good natured; the hens are excellent layers, equal to any; good sitters and mothers—better sitters than the Brahmans, on account of being less clumsy, but not quite so persistent: I don't think they would sit in a refrigerator—I believe a Brahma would. The hens are generally of a dark colored plumage, on the body, with white pencilled neck feathers: occasionally they are white with black neck feathers; but the black predominates.

## Entomology.

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

### The Grain Aphid.

Mr. Thomas Fraser, of Galt, informed us last week, that some small insect was infesting his oats in vast numbers, and asked for information respecting it; we wrote to him at once for specimens, without seeing which, it is hardly possible for us to say anything definite about an insect, and received a supply yesterday, (July 27). It turns out to be the Grain Aphid, or Plant-louse, (*Aphis avenae*, Fab.).

Like many of our worst insect enemies this species has been introduced into America from Europe, where it has been known for ages. Very little notice of it was taken on this side the Atlantic till the year 1861, when it appeared in enormous numbers on grain crops of all kinds, both throughout Canada and the neighbouring States. Much alarm was excited by it, and the press teemed with notices of its ravages and numbers, and of remedies for its destruction. The next year it appeared again, but with much diminished ranks, and without creating the same alarm or excitement; since then, though observed here and there every year, it has remained in unnoticed obscurity, so far as the public in general are concerned. As it is the nature of this insect, like other species of plant-lice, to appear suddenly in countless myriads in places where its existence even was quite unsuspected, and as we may at any time have a renewal of the visitation of 1861, a brief account of its natural history will, probably, not be without interest and value.

Plant-lice are, or at any rate ought to be, perfectly familiar objects to every one who cultivates a foot of land, or even grows a single house-plant in a pot, for they are to be found at one time or another on. We think we can safely say, every kind of ordinary plant that exists. The good wife who tends with anxious care her geranium or fuchsia in the cottage window, knows full well how mysteriously the little green pests come back on her plants, in spite of frequent washings with soap-suds, or smokings with the old man's pipe; the gardener knows how the same minute creatures suck the juices of the majority of his vegetables and plants; and

the farmers ought to, and perhaps do, know something about their appearance on the field crops. But perhaps few can tell how it is that they are so numerous, and appear in such thousands on a plant that a few days before seemed perfectly free from their attack. The reason is that they are so enormously productive. From a single female plant-louse, of an ordinary species, may be produced in seven generations the tremendous number of 720 millions of descendants, each one of whom possesses a similar fecundity. In the case of the grain-louse, specimens of which are before us, Dr. Fitch has proved by experiment that "a single one produces four young daily, and these become equally prolific when they are three days

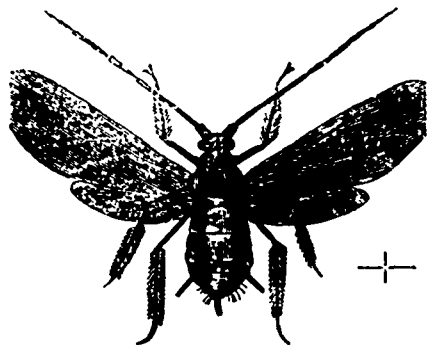


FIG. 1.

old; thus her descendants in twenty days will number upwards of two millions, and will increase at the rate of a million daily!" No wonder, then, that they appear as if by magic where unnoticed before.

The Grain Aphid, unlike most species of plant-lice which confine their attacks each one to a single species of plant, and cannot live upon any other, feeds with equal readiness upon all kinds of grain, such as oats, wheat, barley, and rye. Individually it is very minute and insignificant, but becomes formidable from its numbers. It varies in colour, some specimens being green, especially those that first appear on the leaves, others yellow, and others of different shades up to brownish red. The accompanying woodcuts exhibit specimens enormously magnified; the first a winged female, the other a wingless female; the males are very



FIG. 2.

rarely found, and only appear in the autumn. The structure of these minute creatures is so plainly shown in the illustrations, that we

need not occupy our space with a particular account of it. They live in clusters on the leaves at first, and afterwards on the stems of the flowers and heads of grain; their food consists of the sap of the plant, which they draw out by means of a sucker on the under side of the head. They thus take away from the grain the elaborated sap which was intended to build it up, and so cause it to be more or less shrunk, and deficient in size and weight. When they occur in excessive numbers, they of course diminish the yield of grain, but they are by no means so very injurious as their appearance would lead one to expect.

With regard to remedies, the best are provided by the good Providence of the Creator, and consist of small parasitic insects, which



FIG. 3.



FIG. 4.

prey upon the plant-lice. The most common of these are the ladybirds, both in their larval and beetle states, (figs. 3 and 4); the



FIG. 6.



FIG. 5.

lace-winged or golden-eyed flies, (fig. 5, the eggs; fig. 6, the larva; fig. 7, the perfect insect); the Syrphus flies in their larval state, (fig. 8); and a number of very minute



FIG. 7.



FIG. 8.

ichneumons that live inside the plant-lice and speedily cause their death. The combined attacks of all these useful insects keep the plant-lice in check, and prevent their increasing to the enormous extent that they otherwise speedily would.

It would be useless to recommend any artificial remedies, such as dusting with lime or sulphur, as their application to a large field of grain would be almost impracticable, and even if feasible, the cost in time and labour would hardly be counterbalanced by the reduced inroads of these tiny depredators. All we can say, then, is, let the husbandman encourage, as far as he can, the friendly insects that we have figured above, and then place his trust in a beneficent Providence for the preservation of his crop.

**Specimens Named.**

From W. B. & Co., Mimico, Ont., we have received a miscellaneous collection of specimens, with a request that we should notice and identify them in this department of our publication.

The large moth "found on the kitchen-floor," and the other like it, "found under a weed in a strawberry-bed," are specimens of the Potato Sphinx, the perfect form of a very large caterpillar, with a stiff tail, that feeds upon the leaves of the potato and tomato vines, and about which we hear such direful tales of poisoning and death. Our correspondent will find an account of it, with illustrations of the moth, chrysalis and caterpillar, in the CANADA FARMER for December 2, 1867, page 365. We would willingly, though it is contrary to our usual practice, return the live specimen of the moth, but it had become so damaged during its travels that it was utterly useless as a specimen. It does not do to keep live butterflies or moths shut up in a small box, as in impatience at their confinement they knock their wings all to pieces, and denude themselves of the scales which constitute their chief beauty. Almost all other kinds of insects may be kept for a time alive without injury. The best way to kill moths or butterflies that it is desired to preserve as specimens is to enclose them in a wide-necked bottle or tight box, in which is placed a piece of sponge freshly moistened with chloroform, the fumes of which will cause them to collapse almost instantaneously.

2. "The two flies with such disproportionately large wings, and which were both taken in the kitchen," are specimens of the Freckled Lace-wing Fly (*Polystachotes punctatus*, Fab.), a sluggish Neuropterous (nerve-winged) insect, whose larvæ probably live in the water and prey upon other insects. It belongs to the same group of insects as the Golden-eyed and other Lace-winged Flies that we have often spoken of as being so useful in devouring immense numbers of plant-lice on hops, oats, and indeed everything else. In their winged state these insects are perfectly harmless, not being injurious to vegetation, or troublesome with bite or sting, and as their larvæ belong to a most useful family, they ought, we think, to be let alone and not destroyed. They are often common in July and August near water. One moonlight night at Cobourg, some few years ago, we saw the lower portion of some large buildings (Smith's block) almost blackened with innumerable specimens of this insect, that had probably come up from the lake or harbour. They are generally common on the wharves there in the summer time.

3. The remarkably pretty spider with opaque white body, ornamented with an oblique pale red stripe on each side, "found amongst the potatoes," we do not know the name of. As spiders are not true insects, we have never studied their structure or classifi-

cation, and therefore know very little about them. One thing, however, we do know, and that is that spiders are often very useful about a garden, as they destroy numbers of noxious insects, though, not being particular to a shade, they sometimes eat the useful ones too.

1. "The chrysalis under a currant-bush" is that of some butterfly; we cannot tell the particular species till it hatches out.

5 "The active, but indescribable something enclosed in a quill, and captured on the back of the hand," was so active that he had got out of the quill. We found an insect, however, in the wool in which the specimens were packed, that is probably the individual referred to. It is a small black four-winged fly, with a very peculiar abdomen that looks somewhat like a shining patent leather satchel, being very thin and flattened, and united to the back of the thorax by a short, stiff and slender stem. This insect probably belongs to the genus *Evania*, of the order Hymenoptera, the members of which are noted for feeding upon and destroying the bean-like egg capsules of cockroaches.

6. "The beautifully marked young snake taken from some clay"—not exactly an insect, by the way—is a specimen of the Ringed Snake (*Coluber punctatus*), a small, harmless species that lives chiefly on slugs, worms, and insects, and is often found under the bark of decaying logs.

7. "The common-looking beetle which, late in the evening, made a great noise, and a great effort to enter the house through a mosquito net," being attracted, no doubt, by a light, is a specimen of the common cockchafer or May-beetle (*Lachnosterna fusca*, Knoch). Its larva is the notorious White Grub which is excessively destructive to the roots of all kinds of vegetables, and has a particular weakness for strawberry plants. It should be "squelched" without mercy.

A correspondent from Mimico sends us two caterpillars taken from cultivated raspberry canes, which he wishes us to tell him about. The yellow one, thickly covered with tufts of bristly hairs, with a pale purplish stripe along the sides, is the larva of *Salurnia*, i.e., a lovely moth richly ornamented; one of its most distinguishing features being a large eyespot on each of its hind wings. The caterpillar, when fully grown, is about 2½ inches long; the specimen sent by our correspondent is about one-third grown. One peculiarity about this larva is, that when handled incautiously it stings by means of its bristly hairs, causing an irritation very similar in its extent and duration to the common stinging nettle. It is not a dainty feeder, but will eat almost anything; we have most commonly found it on willow, poplar, and cherry.

The other caterpillar, prettily colored and ornamented with tufts and pencils of hair, produces a very plain-looking brown moth, *Orgia leucostigma*, the female of which is not furnished with wings at all, but is an ugly sprawling creature, something like an overgrown spider. This larva is most commonly found on apple trees.

### The Raspberry Cane Girdler.

(To the Editor.)

Sir,—Herewith I send a small bug resembling somewhat the Squash Bug. I should be much obliged to you for some description of it in your columns. I found my small patch of raspberries of the ever-bearing kind injured in the tops of the young wood, where I expected my fall fruit. At first I supposed it was caused by carelessness in weeding, &c., but as it continued, I examined more closely, and found that, about four or five inches from the top, the shoots were circled with small punctures, so that a slight pressure with the finger would break it off. There are usually two of these circles found round it. I enclose the upper end of one cane, the top of which accidentally broke off at the upper circle, but the lower circle is left, and I hope you will be able to see it. I know not if this is an old evil. I never saw it before, yet I think the bug I send is the worker of the mischief, but cannot be certain, as it is the only one I could find, and he was nicely packed away under a leaf, the stem of which he had cut away, but which had not yet wilted.

FRED. GEO. NASH.

Chippawa, July 26, 1869.

NOTE BY ED.—Our correspondent's specimens reached us quite safely, being most ingeniously packed in a wooden block that would defy the hardest stamping of the most energetic postmaster. In 1866 we observed our raspberry bushes affected in the manner described above, and caught the culprit insect in the very act of girdling the shoots. We carefully watched and took notes of the whole process at the time, though we have never before prepared an account of it for publication.

Our notice was first attracted by the appearance of many of the young shoots, the tops of which were drooping and withered, and looked almost as if touched by frost. A closer inspection showed that at the base of the affected part two rows of punctures, half an inch apart, had been made completely round the canes, and that the supply of sap had thus been cut off from the tops, causing them to speedily wither away and break off. A little further investigation revealed the author of the mischief—a pretty long-horned beetle belonging to the borer tribe (*Cerambycidae*). The insect began by cutting with its jaws a series of small punctures side by side round the cane, six or seven inches from the top. As soon as the first row was completed, it turned round, and facing the other way, cut a second row at the distance of about half an inch from the first, measuring in all cases the exact length of its own body. These two girdles being completed, it deliberately set to work to make a small hole a little way above the lower girdle, and finally deposited a small yellow egg in it. The whole operation was sometimes the work of

an hour, or even more. From this egg there hatches out, after some days, a small yellow footless grub, which proceeds to burrow downwards, eating the pith of the cane, and in the end causing its death.



The beetle that does this mischievous work is called the Three-spotted Obeera (*O. tripunctata*, Fab.). It is about half an inch long, and a tenth of an inch wide—very slender in proportion to its length; its colour is entirely deep black, with the exception of the thorax above, and the front part of the breast beneath, which are rusty yellow; on the thorax there are three small elevated black dots arranged in a triangle, the antennae are nearly, if not quite, as long as the body. The beetles are usually found in July and the beginning of August; they attack all the varieties of raspberry, the black as well as the red and white, and come into gardens from the fields and clearings, where we have often taken specimens and observed their work. The injury they inflict is especially annoying from their ruining the canes which are expected to produce the next crop of fruit. To lessen their ravages we should recommend cutting off all infected wigs a few inches below the girdles and burning them, thus destroying the larvae; and also catching and killing as many of the parent beetles as possible.

The bug sent by our correspondent is not, as he will see from the foregoing description, the author of the injury to the canes, though it is a vegetable feeder, and consequently injurious. Like all other true bugs, it sucks the juices of the object upon which it feeds by means of a jointed beak or sucker proceeding from the under side of the head, and which, when not in use, is neatly stowed away in a groove beneath the body and between the legs. Like most of its order, it exhales a very disagreeable odour, which it often imparts to fruit, especially raspberries, as most of our readers have no doubt observed.

### Apple Tree Caterpillar.

To the Editor.

Sir,—I send you a specimen of a caterpillar, which I think is quite rare in this vicinity. I found a dozen or more marching down a limb of a Montreal Beauty Crab, and clearing the foliage during their progress. There are several kinds of caterpillars which similarly destroy the leaves of apple trees at this season—August. These seem more ugly than their brethren. They are not likely to become a serious evil, as they are easily found and destroyed.

I send you what I suppose to be the larva of a Lady Bug. It closely resembles the cut recently given in your journal.

E. R. M.

Halloway, Aug. 16, 1868.

**NOTE BY ED.**—E. R. M. is fortunate not to have met with this caterpillar before, as it is a great pest where it is common, stripping the leaves from cherry and plum as well as apple trees. We have also met with it occasionally on the American poplar (*Populus tremuloides*).

The parent of the worm *Nolodonta concinna* is a very common-looking light brown moth, with dark brown and greyish markings. She deposits her eggs in clusters on the under side of the leaves, where they soon hatch into small caterpillars. These at first, and while very small, eat only the under surface of the leaves, leaving the upper untouched, but their presence may be at once discovered by the discoloration of the leaf, which becomes brown. As they grow larger and stronger, they eat the leaves entire, clearing the branch in their course. When full grown they are about an inch and a quarter long, of a yellowish brown colour, with fine longitudinal blackish lines and small black spines, a bright red head, and a red hump on the top of the fourth ring or segment.

There is one peculiarity about this caterpillar which we have not observed in any other. When handled it discharges a clear liquid, having a strong acid smell and taste. This is probably given as a means of defence against birds, since their feeding in flocks and so openly would render them particularly liable to attacks from these active foes.

The larva of the Ladybird had changed to a chrysalis before it reached us. It is one of our common species.

### Cut-Worm on Corn.

To the Editor.

Sir,—The enclosed is the only specimen of the kind I have ever seen.

I found three or four Indian Corn leaves, 2½ inches broad, cut nearly off about 3½ feet from the ground (done by this specimen), and observing an injury to the tassel coming out of the stalk supporting the leaves which were cut, I opened the folding leaves enclosing the tassel and followed downward about eight inches, where the specimen was found. As this is a new pest (at least in this part of the country) or I may become troublesome, will you please to introduce him to your readers—with instructions how to treat him.

Very truly yours.

Oshawa.

A. FAREWELL.

**NOTE BY ED.**—The specimen referred to is a large whitish caterpillar, with dark brown spots, about an inch and a half long. From its appearance, and our correspondent's account of its habits, we consider it to be a cut-worm and the larva of some dull-coloured night-flying moth. It is quite new to us, and we shall not be able to determine its proper generic and specific names without rearing it to its perfect state, a matter of some difficulty with this class of insects. It bears a considerable resemblance to some cut-worms

that we have found very injurious to the roots of the hop. All these worms are night feeders, and conceal themselves in the daytime, either by burrowing in the earth, hiding under chips or stones, or among the leaves of their food-plant, as in the case before us. The only remedy we can suggest is to hunt them out and crush them under foot, whenever their ravages are observed.

### The Three-lined Potato-beetle.

To the Editor.

Sir,—About a week ago I found on my potatoes, or at least on one potato top, a little slug or slugs. I pinched off the leaves that had them on, put them into the fire, and was in hopes that I should see nothing more of the kind; but this evening I found quite a lot of them, and, ugh! such disgusting-looking things. They all seem to have a lump of excrement on their backs, and they strip the leaves as they go. They come from eggs, I believe, as I found eggs both with the first and second lots (I have laid aside some of the eggs on purpose to see). I put some ashes on them, and as soon as the ashes touched them, they threw a kind of a dirty green liquid out of their mouths.

JOHN HOLLOWAY,

Scarboro, Ont.

**NOTE BY ED.**—Our correspondent has given a correct description of the disgusting larva of the Three-lined Potato-beetle (*Lema trilineata*, Oliv.), which is becoming a great nuisance in many parts of Canada. The annexed wood-cut represents the parent beetle magnified. It is of a deep yellow colour, like beeswax, with three black stripes on the wing covers. It lays its eggs



in clusters of half-a-dozen, on the under side of the leaves, and from these the larvæ soon hatch out. When full-fed, these slug-like grubs go into the earth, and from their cocoons the first brood come out as winged beetles in about a fortnight after their disappearance, while the second brood, which appear on the vines in August, remain all winter in the chrysalis state under ground.

The most successful remedies appear to be dusting the larvæ with ashes or lime, and catching and killing the beetles.

**BUPRESTIS BORER.**—The large metallic-looking beetle, coppery underneath, received in good order from Mr. H. J. Beam, Black Creek, Welland Co., is a specimen of a Pine Borer (*Chalcephora Virginica*, Drury), whose larva bores into pine, and is often very destructive, making long tunnels through what would otherwise be good clear lumber, and reducing its market value. The grub is rather long and white, with a broad flattened head, and hard dark-coloured jaws. It belongs to the same family of beetles as the Flat-head, or *Buprestis* Borer of the apple tree.

**CORN WORM.**—Mr. Farewell, of Oshawa, sends us the following additional communication respecting the corn worm previously noticed:—"Last week, one hundred miles west of Omaha, I saw several specimens of the corn worm, the same kind you received from me some weeks since. These worms are of several years' standing in Nebraska, but are not regarded as being destructive to corn, although in one piece I found a considerable number of them. They burrow in the top of the ear, producing more or less injury, and sometimes cut through the husk, making their exit in this way instead of returning the way they entered."

**MOSQUITOES.**—The eggs of the mosquito are laid in a bowl-shaped mass upon the surface of stagnant water by the mother fly. After hatching out they finally become the "wiggletails," or wriggling worms that may be seen in the summer in any barrel of water that is exposed to the atmosphere for any length of time. Finally, the "wiggletails" come to the surface, and the full-fledged mosquito bursts out of them, at first with very short limp wings, which in a short time grow both in length and in stiffness. The sexes then couple, and the above process is repeated again and again, probably several times in the course of one season. It is a curious fact that the male mosquito, which may be known by its feathered antennæ, is physically incapable of sucking blood. The mosquito is not an unmitigated pest. Although in the winged state the female sucks our blood and disturbs our rest, in the larva state the insect is decidedly beneficial by purifying stagnant water, that would otherwise breed malarial diseases. Linnæus long ago showed that if you place two barrels of stagnant and impure water side by side, neither of them containing any "wiggletails," or other living animals, and cover one of them over with gauze, leaving the other one uncovered, so that it will soon become full of "wiggletails," hatched out from the eggs deposited by the female mosquito, then the covered barrel will in a few weeks become very offensive, and the uncovered barrel will emit no impure and unsavoury vapours.—*American Entomologist*.

**ENORMOUS SWARMS OF LADYBIRDS.**—The English papers contain accounts of an unprecedented visitation of Ladybirds in various parts of the country, especially in the south-eastern counties. The London *Field* speaks of swarms of these insects almost unparalleled in number and duration. The species most prevalent was the common seven spotted variety, *Coccinella Septem-punctata*, and their numbers defied all efforts either to count or compute them. The air was in some places, it is said, literally darkened with them, and shrubs and trees were covered by the unwonted incursion of these friendly *Aphis* eaters. An unusual quantity of Hop and other *Aphides* are reported as abounding at the same time.

## Correspondence.

### Crops in Vespra.

To the Editor.

SIR.—As far as wheat is concerned, I am sorry to say that your remarks concerning the crop prospects of the country are not applicable to this and some of the neighbouring townships, where, I was going to say, we have the prospect—but in fact we have the reality—of the worst crop of wheat that has been raised here for years. It promised a fair yield until late in July, when it was struck with the rust and ruined. There are plenty of fields which will not pay for harvesting and threshing. Fortunately some fields have escaped, and will yield well; but they are few and far between, and what is singular, they are in the flattest parts of the township, in parts which in ordinary seasons, if there be any rust flying, are sure to catch it. Then again, the highest parts of the township, where rust is seldom seen, are the worst damaged by it this year. Can you explain this phenomenon to us?

The early sown spring wheat is full of midge, and will be little good. I think our farmers will learn a lesson from this year's experience, not to trust too much to one kind of grain, particularly fall wheat, for if they do, they are sure to get bitten sooner or later. The failure will be very severely felt, as a large breadth of land is under that crop, in fact, some farms are nearly all under wheat, to the exclusion of all other grain. Barley, peas and oats never promised a better yield. The hay crop just got in is over an average, but somewhat damaged by the wet weather. To all appearance, potatoes and turnips will be an extraordinary crop.

I read in one of your issues, not long since, of a gentleman of some place in the Dominion exulting over digging forty pounds of Early Rose potatoes, the produce of seventeen ounces of seed. He may hide his face. Mr. Martin Johnson, of this township, procured one pound of that variety of potatoes from Mr. Simmers' seed store, last spring, cut it into about fifty sets, planted them on the 3rd day of May, and on or about the 3rd of the present month dug up one-eighth part of them to plant for a second crop, and the produce was eighteen pounds and eight ounces, or at the rate of one hundred and forty-eight pounds for the one pound planted. If any one can beat this let him speak. I am doubtful whether friend Johnson can raise a second crop of potatoes in the same year in these northern latitudes. If he can, it will be something wonderful to us, and we shall have to believe the Early Rose potato all it is lauded to be. I will let you know the result of his experiment.

FARMER.

Vespra, August 18, 1869.

### Artesian Wells.

To the Editor.

SIR.—Allow me to ask you to give me through your journal some information about the artesian wells so much talked about. We are here very badly off for water, and I think that if I could have one of these artificial springs on my farm it would be adding fifty per cent. to its value. I want to know how these wells are worked, and if there are any companies, to your knowledge, that undertake such work, and at the same time the probable cost. My farm, like most of the others here, is a kind of black ground mixed with clay, about one foot deep. Underneath is a bed of pure clay about 30 to 40 feet deep. Here we reach the solid rock. We can get plenty of water with the common wells, but that is bad, and animals do not like it.

A. L. BEAUDET, M.D.

Ste. Martha Co., Vaudreuil,  
Province of Quebec.

ANS.—Our correspondent will not need to be informed of the principle of these wells, which require certain geological conditions to render them practicable. There must be below the surface a stratum of water whose source is elevated. When this under current is tapped from above, the water will rise as a spring through the bore, to a height corresponding with the elevation of its source. They are often uncertain, and usually expensive contrivances. No doubt there are plenty of parties about Petrolia, or the oil regions, who would undertake to bore one. But we would advise the construction of large rain-water cisterns, provided with filters, and the water will be found most wholesome and palatable. We have used such ourselves, both for domestic purposes and for stock. If all the roofs about a dwelling and farm steading are utilized, it is astonishing what an amount of water may be collected and stored. With proper purifying filters, the water in such reservoirs will remain pure for a very long time.

### Tree Planting.

(To the Editor.)

SIR.—The citizens of Toronto are justly proud of their many elegant streets, and of the beautiful shade-trees which give them such a sylvan appearance; but it occurs to the present writer that an additional beauty might be given by a greater variety in the trees that adorn these streets. Graceful as are the horse-chestnuts and maples, of which they principally consist, are they not of too dwarfed a habit for street growth, obstructing as they do the free circulation of air, darkening too much the houses near the street and entirely obscuring the street lamps at night? The noble American elm, and the linden, with which the streets of many American cities are planted, are free from these objections. They grow up with a clear trunk for thirty or forty feet, and then branch out with a broad

umbrageous top, over-arching the street, and frequently interlacing with the branches of the opposite trees, thus making a leafy canopy like the nave of a vast cathedral, through which hardly a glint of sunlight can pass. We may mention, as examples, the "Long Walk" on Boston Common, the streets of Cambridge, and the College grounds of Harvard, those of Yale, and the streets of New Haven, Portland, and many other places. The beautiful avenues which lead to the Queen's Park in this city are indeed noble drives, but how inconceivably nobler would the vista be, if, instead of the low growing trees of which they are formed, they were composed of the majestic elms which grow so numerously in the open fields around the city! Some of the broad streets, notably Brock street, and others at the west end, now unsightly wastes, would, if planted thus, make as noble avenues as any on the continent, or as the celebrated Prater and the Under den Linden of Vienna, or the many other famous Boulevards of Europe. The expense of planting would be but trifling, while the ultimate advantage would be incalculable.

ARBORARIUS.

### Gorse.

To the Editor.

SIR.—My neighbour, Mr. Joseph Moore, has a *whin bush* in blossom in his garden; he wished me to write you regarding it, and to let you know, as he thinks there is not (perhaps) such another in the Province. He brought the seed from Ireland, when he visited his native country eight years ago. Therefore the bush is seven years old; it grows in a box about eighteen inches square, and twelve inches deep; he puts it in the cellar every fall in November and takes it out to his garden in April, therefore the bush has no light for five months, and it seems to be healthy. It is about five feet high, and the stalk is strong, being two and a half inches in circumference at the base. I should be glad of any information, especially on the following points. Is not the whin a native of Europe and not of America? Would it have any chance of living here in winter in the open air? Are you aware of any one who has whins growing, and are they raised in any part of America? I have not seen a whin bush in blossom since I came to Canada from Scotland, twenty-four years ago.

H. McPHAIL.

Cartwright, June, 1869

NOTE BY ED.—The Gorse (*Ulex Europæus*), sometimes also called Whin, or Furze, is a native of Europe, and has not, so far as we are aware, been acclimated on this continent. The sandy and gravelly soils of England seem to be its favourite localities. There are two species and several varieties in that country. It is used, where it is abundant, for rough fodder, and also for fuel. We have lately seen several plants in this country; but none of them have been exposed, we believe, during the winter. It is not likely that they would endure the severity of the season in Canada without protection and shelter.

**Dr. Bell.***To the Editor.*

Sir,—The late Dr. Bell used to reside here in old times, when he was tutor in the family of the late Hon. Adam Fergusson, and when the family visited us in summer for a few months. He was then the Rev. Mr. Bell, and was well known in this place. He had a very pretty little model of his reaper with him, which he left in Fergus when he returned to Scotland before he got his parish. The model, however, disappeared some time after, and no one could tell how.

Mr. Bell's first open trial took place, according to London's Encyclopædia of Agriculture, in 1828, but I am pretty sure the first private trial was in 1825 or 1826. The machine Mr. Carter refers to was most likely, as your correspondent from Cobourg suggests, that of the late Mr. Smith of Deauston, which, according to Mr. London, was tried in 1815. Mr. Smith's invention, although very ingenious, has, I believe, been dropped, and unquestionably Mr. Bell's, with improvements, is the successful reaping machine of the day.

Fergus, August, 1869.

F.

**"Thoroughbred."***To the Editor.*

Sir,—Will you be good enough to inform me what is meant by the term "Thoroughbred Shorthorns?" I ask so as to satisfy the curiosity of myself and friends in this neighbourhood, who are thinking of making some entries for the City of Ottawa Agricultural Exhibition. One of our number has a bull entered in the Canadian Herd Book, but some of his progenitors are marked with an asterisk \*, showing shortness of pedigree.

Is this bull eligible for entry in the Provincial Exhibition of Ontario? If so, he must be eligible for the City of Ottawa Exhibition, as I understand their rules, as regards pedigrees, are framed from the Provincial. By noticing this question in your next issue, you will much oblige.

ST. LAWRENCE.

Prescott, Aug. 27, 1869.

NOTE BY ED.—The answer to the first enquiry will be found in the Canadian Herd Book, which defines such an animal to be one whose pedigree shows not less than four crosses with Herd Book bulls. This is the rule adopted in the English Herd book, and has been followed in our own. The occurrence of the asterisk, as we understand it, indicates not so much any want of purity of blood, as some deficiency in the documents respecting pedigree. It is presumed that there is satisfactory evidence of purity of descent, if any bull is admitted into the Herd Book. Consequently, we do not think that the mere fact of there being a starred bull in the pedigree of any Shorthorn, should exclude him from competition in the Shorthorn class at any agricultural exhibition. We understand that this is the principle on which the managers of the Provincial Exhibition will act.

**A Small Cheese Factory.**

A Constant Reader asks :

"Supposing a person kept twenty milch cows in the Eastern Townships, would it pay to establish a small private cheese factory for them? What would be the cost of one large enough? How many hands would it be necessary to employ, and what would be the best breed of cows to keep?"

Ans.—It would undoubtedly pay, especially in the neighbourhood of so good a market as Montreal. The cost for one to use the milk of twenty to thirty cows need not exceed five hundred dollars, including buildings. One good boy to attend to the cows, feed and water them, help to milk, and two dairymaids to make and cure the cheese, would be sufficient. The best breed of cows for that section would be the grade Durhams crossed with Ayrshire. If Stilton and such of the extra fancy grades of cheese were made, and the work well done, there could not be enough made to supply half the demand for them at Montreal and Ottawa.

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

**The Canada Farmer.**

TORONTO, CANADA, SEPT. 15, 1869.

**Notes on the Weather**

The past month of August, though not quite so wet as July, has been unusually so for the season, and the coldest August we have had for twenty-nine years, with one exception, that of 1866, which was three degrees colder. The crops are not turning out as well as was anticipated, and in the northern counties especially, are very late in ripening. At this date, Sept. 1st, but few fields of spring wheat have been cut in Huron County, and further northwards. The first autumn frost occurred on the night of 31st August, during the prevalence of a cold northwest wind.

The highest mean temperature of the month at Toronto was 63° .6, being 2° .5 below the average of twenty-nine years, and 3° .6 colder than last year. The highest temperature was 89° on the 20th, the lowest 43° .5 on the 6th.

There have been seven clear days, six entirely clouded, and eighteen partially so. Rain fell on eleven days to the amount of 4.273 inches, of which 1.150 inches fell on the 21st. There have been five thun-

der storms during the month, of which, two were pretty heavy and severe.

The prevailing winds have been westerly, with a northerly inclination.

Taking the summer as a whole, it has been one of the coldest and wettest that has been experienced in Canada during the last twenty-nine years. The mean temperature of the season has been 62° , or 6° below that of last year, and 2° .8 below the mean of the series; the total quantity of rain during the three months has been 13,256 inches, while the quantity during the same period last year was only 11,289 inches, and the average since 1840 has been 9.062 inches.

But little really warm weather has occurred, and the nights have been almost invariably cold, so that no sooner does the sun shine out than evaporation goes on so rapidly as to prevent any accumulation of heat, either in the soil or the atmosphere. This coldness has moderated the tendency to rust in the spring crops, wheat especially, and also checked the increase of insect enemies, so that though the midge is seen in nearly every wheat field in the back townships, it does not seem to have done any considerable damage.

**Agricultural Exhibitions.**

During this and next month the various Agricultural Societies will hold their annual shows. First, we have the Provincial at London next week (21st to 25th Sept.), which is every year attracting greater crowds, and will this year be graced with the presence of our noble Queen Victoria's third son, Prince Arthur, as well as that of the Governor General of our Confederated Provinces. No farmer can visit it and see the magnificent specimens of our herds and flocks, the vast array of the productions of the soil, and the ingenuity of our mechanics in constructing labor-saving implements to meet his various wants and those of his family, without returning a wiser and better man. Let the farmers not forget that much is being done to elevate their calling to the rank of a profession, and that it is their part to give all the encouragement they can to our agricultural societies, not only by their presence along with their wives and families at the show, but also by contributing specimens of their skill in turning to the best account the productive powers of nature. Let none be deterred by the trifling expense or the trouble involved. It is a mistaken economy that will induce the farmer to withhold his countenance and aid from a well-conducted agricultural society or exhibition worthy of the name.

### Canada and the Western States.

Some time ago we published a letter from Mr. Crane, a Canadian who had resided long enough in Illinois to become well acquainted with the country, and who wrote a very fair statement of the comparative advantages of Canada and the Western States, showing that, all things considered, there was nothing in the adjacent republic to tempt farmers from the soil and government of this country. This letter has elicited a reply from another Canadian, who thinks Mr. Crane has scarcely presented a just comparison. This writer acknowledges that he has only been in Illinois four months. He writes from Towanda, a place we know well, and near which we resided for more than six years. He thinks that Mr. Crane has laid too much stress on the expense of lumber, and says that in the matter of fencing, at least, the outlay can be avoided by planting hedges of Osage orange, which "in three years would turn any stock." Now, if the writer had corrected the impressions derived from four months' hearsay by a few years' observation, he would have known that it requires at least six years to make anything of an efficient Osage hedge. He would also have learnt that in many parts of the State this, though perhaps the best plant yet discovered for the purpose, is more or less winter killed, and that the question of a thoroughly suitable and efficient hedge plant for the Western States is yet matter of discussion and experiment, and far from being settled. Moreover, even granting that the Osage hedge would in time answer the purpose, a temporary board fence is needed in the mean while, and cannot be put up without a large outlay of money, with the commonest lumber at twenty-four dollars a thousand.

The writer further thinks that the price of farm products in the States is set down at too low a figure, and quotes in evidence the present price of corn. But he must remember that the present has been a very exceptional season—that the corn crop has been almost a failure, and that nearly every year there is a period when the old stock is low, and the new crop has not come into market, when the price of corn will be above the average. In our own experience, we can testify to the extreme fluctuation in the market value of this, the staple crop of the West. We have raised a hundred bushels of shelled corn to the acre, and sold the whole, after vainly waiting a year for better prices, at ten cents a bushel; and we have known the price as high as one dollar per bushel.

With regard to the cereals, there can be no question that the climate and soil of Canada are better adapted to the growth of the small grain crops. In wheat, especially, we have the advantage. Winter wheat is extremely uncertain all over Illinois. Oats are their best crop in this class, but the market price is usually low, as there is comparatively little local consumption where corn forms the principal food of all kinds of stock.

In regard to the cost of living, we do not think that Mr. Crane has at all overstated the matter. The high price of all kinds of imported goods and manufactured materials, and the enormous taxation, direct and indirect, have rendered the United States a dearer place to live in than perhaps any other in the world. An income that would ensure comfort in London or Paris would scarcely keep out want in Chicago; while living in the country, if somewhat less expensive, still bears the same proportion in the respective localities.

Most urgently would we caution all those who are dissatisfied with the state of things in Canada against being tempted, by the glowing accounts of Western prosperity and high wages, to forego the substantial advantages which they may surely attain by industry and thrift at home. There are persons who will not succeed anywhere, but where a man has the qualities that are necessary to achieve success, we believe he cannot find a finer sphere for honest exertion, or a better prospect of establishing a happy home, than in this "woolen country" of ours, whose vast resources are only beginning to be appreciated.

### The Barley Crop of 1869.

The high price of barley last fall and winter induced those who could procure seed, even at a high figure, to go into planting this crop pretty extensively this spring. The anticipation of very high prices this year will perhaps not be realized, owing to the large breadth sown. The yield appears to be good, in fact extra good in many places, so far as one can judge from seeing the fields that were being harvested; but the colour and quality will not be equal to those of last year's crop. The prevalence of wet has given the grain a somewhat streaked appearance and dark colour, and at the same time has affected the fructification to the extent of rendering the heads in some instances full of small and imperfect grains.

The crop in Europe is below an average, while in the Western States, although the

commercial reports in political papers speak of a great crop, there is really but very little grown, so far as can be ascertained through our agricultural exchanges. Anticipating that our farmers, having a large crop, will desire to sell as early as possible, speculators from the other side of the line have already made their appearance, and are endeavouring to make contracts for September and October delivery at the lowest possible price they can induce acceptance of by paying in advance.

We notice that quotations of the price of barley are being carefully kept out of the commercial reports of many U. S. papers. Two cargoes of Canadian barley have been sold, to be delivered at Albany in October, on private terms, which leaked out to be \$1 65 per bushel. The market will open low here. One of the largest U. S. brewers, whom we met the other day, said that they would endeavour to get all they could at fair prices before the crop got into speculators' hands; but he thought 85c. to \$1, gold, was as high as they could afford to pay here. This would be a fair price to the farmer, one at which he could afford to sell his crop, and get a remuneration for his labour, but less will hardly pay so as to induce general cultivation of the crop.

We are told that the very exceptionally high price of barley in the States last spring, besides inducing importations of that grain from Europe, has also stimulated the brewers to use various substitutes for malt that, though not making an article of beer that could fairly be called by that name, still made what could be sold under it, the best of which they find to be "French Grape Sugar."

California is expected to supply a good quantity of very superior barley this year, but the cost of getting it either over the Pacific Railroad, or round by Cape Horn, will be a very heavy item of expense. The consumption of malt is, however, increasing to a greater extent than the production of barley, so that in any case a good fair price will have to be given before the crop is all sold.

**EXTENSIVE SALE OF PURE BRED STOCK**—An important sale of stock is advertised by Mr. John Snell, to take place on his farm at Edmonton on the 29th of this month. The excellence of Mr. Snell's stock is too well known to need any fresh recommendation, and the lot about to be offered for sale consists of very choice animals, including short-horn cattle, Leicester, Cotswold, and South-down sheep, and imported Berk-hire hogs. For particulars, we refer our readers to the advertisement, and the catalogues which will be furnished by Mr. Snell on application.

### Pocket-handkerchief Shows.

Such ought to be the title of the exhibitions got up by some of our agricultural societies. Let a stranger who is well posted in agricultural matters visit one of them from year to year, and he will look in vain for any evidence of improvement. He will perhaps see a nicely-decorated hall, hung round with neatly embroidered pocket-handkerchiefs, quilts that are marvels of sewing-machine work, knick-knacks of every kind, enough to stock a respectable embroidery store; a very few bags of seed grain, a table of fruit, without any labels attached by which the onlooker can learn what varieties prove the most successful in the section; a few rolls of butter, in which the taste of salt largely predominates, and perhaps a good show of monstrosities in the vegetable line. If he ask where is the stock and the agricultural part of the show, he will be shown a few scattered lots of cattle, sheep and horses, a pen or two of pigs and poultry, and two or three ploughs and other implements, none of them, perhaps, any better than what can be seen every day on the most ordinary farms of the country. The same mediocrity and want of competition is seen from year to year. Notwithstanding the statements made by interested parties about the society being a successful and well sustained one, it seems to do no real good, but to expend all its energies and money, not in encouraging improvements in agriculture, and raising the standard of the stock or crops in the section, but in getting up a big holiday, and drawing the money from the pockets of the general public in order to again return it, in the shape of infinitesimal prizes for everything that can possibly be thought of as being produced in the section.

The section embraced within the limits of the Society may contain the best of farmers and the best of stock, yet they are only conspicuous at the shows by their absence; and if asked why they do not take an interest in the matter, they will make some excuse or other; perhaps one will say he did not like some one who happens to have been made a director, or did not like the way the prizes were awarded last year. This is all wrong. If the really good and enterprising farmers in the community wish to see agriculture progress, they must sink all differences, and show that they really desire improvements, by attending the meeting, helping to get good men in as directors, and that done, subscribe their money liberally to help the good work. Otherwise, they

must expect to be left out in the cold, and that the work of conducting the Society will fall into the hands of village politicians and tavern keepers, whose only ambition will be to get up a crowd at the fair, and handle as much of the Government grant as they can in a small way.

In contrast to this, we may note that some societies have devoted a good part of their funds to purchasing new and improved varieties of seed grain for distribution amongst their members. Some have devoted the whole of their funds to the purchase of choice specimens of thoroughbred male animals, with which to improve the stock of their section. Others give liberally towards a conclusive trial of the qualities of the various patterns of reapers or mowers, while others excite emulation in well-doing by giving liberal prizes for the best field of each variety of root crops grown in their section.

In order to give more encouragement to legitimate agriculture, it would perhaps be well if the Commissioner of Agriculture would let it be understood that the Government grant, of whatever amount it may be, must be devoted to giving prizes for thoroughbred stock, grain, and agricultural implements. The pocket-handkerchief part of the shows may well be left out or left to take care of itself, and no fear but it will hold its own in any place where there are but few progressive farmers or implement makers.

The present age is utilitarian and in no calling is there so wide a field for the march of improvement as in agriculture; but it will never flourish as it should do, unless some public spirit is shown by the leading men in each section to foster it in a legitimate way. It would be better, and conduce more to the advancement of their interests, if a more liberal spirit were shown by the rising generation of farmers. It would be nothing to a well-to-do progressive farmer to give \$5, or even \$10, per year, as his subscription to an agricultural society; and to see that his money is not thrown away, let him attend the January meetings, and if he does not want himself to be a director, take a lively interest in seeing that good and reliable men of the progressive stamp are elected. A society of fifty members, each paying \$5, and each determined to advance only the interests of the profession, would be decidedly better than one of 250 members, each paying but \$1, and aiming only to get as much of their money back as possible in a small way, by electing directors who would go in for many small prizes in every possible way

they could manage. Let secretaries and directors work as they will, it will be found that so long as admission can be had to the exhibitions for a trifling sum, the general public will do no more than pay at the gates; and those who are induced to subscribe a dollar on the understanding that they are to get their dollar back in some small way or other, are not the men who desire to encourage agriculture.

### Preservation of trees in India.

In the very able statement made lately by the Under-Secretary for India, Mr. Grant Duff, when discussing the financial condition of the "Great Vassal Empire in Asia," he incidentally referred to a question of the very first importance to many other countries as well as India—to our own among the rest. The matter to which we allude is the preservation and reproduction of forest trees. There is nothing in which men of various countries have more shown their improvidence and shortsightedness than in the destruction of these woods. "Forests," as Mr. Grant Duff puts it, "are always looked upon as inexhaustible till they begin to be exhausted." In countries where the climate is generally mild, this has been specially the case, and accordingly it is in these, through the recklessness with which the forests have been destroyed, that the scarcity of fuel is felt most. This is the case all along the Mediterranean coasts. Mild as the climate is in these countries the people need fire, and as they are entirely dependent upon their forests for this, they find the recklessness of the past now taking the shape of famine prices for fire-wood. It is notorious that this want in Algeria has been one of the chief hindrances to French settlement in that country. Not only so; the very multiplication of railroads, canals, and so forth, while cheapening fuel in the meantime, has done and is doing more than anything else to exhaust the supply by laying a wider range than ever under contribution.

But the question of fuel, in connection with the destruction of the forests, is by no means the most important one. Wide districts, of what were once the most glorious portions of our world, are now mere barren wildernesses from nothing but the destruction of the trees; while other districts in various quarters of the world are hastening to the same condition from the same cause. As the trees are cut off, the amount of moisture is lessened; and by and by when all are destroyed, the springs disappear and vegetation and fertility is at an end.



Notoriously this is the case in many parts of Europe, and equally is it the case in some districts of India where the destruction of the teak forests has brought round a condition of absolute barrenness. Much is now being done in our Asiatic possessions to counteract the improvident waste so long going on. The planting and preservation of trees are promoted. Great works for irrigating districts are carried on, and the desolation threatened it is hoped, will by wise and timely precaution be averted.

We in Canada think our great work, now and for a long time to come, is simply the destruction of the forests. We may wake up and find ourselves miserably deceived. The present forests must no doubt come down; but it is not too soon to be thinking of planting others. Little strips of plantations would both beautify and improve many a farm, and the disappearance of springs which were once perennial, and the failing for a considerable part of the year of wells that were formerly never known to give out, may tell us that the process which has wrought so disastrously elsewhere has begun even here. We may think our Canadian forests inexhaustible. Let us not so deceive ourselves. But even though they were, that would matter little to the districts denuded of timber, which, both in exposedness to the winter's blast and to the unshaded fierceness of the summer's sun, would soon become in fertility and comfort very different from what they are now. We often wonder how so many farmers leave the approaches to their houses so bare and shelterless, when even a few maples or other trees would do so much to beautify and shelter the whole place. The advice of the Scotch laird to his son may be adopted, even in this land of wood, and that with advantage: "Aye be fitin' in a tree, Jock; it'll be growin' when ye're sleepin'."

#### Ottawa Agricultural Exhibition.

Active preparations are being made amongst the County and Township Agricultural societies for the approaching Exhibitions. Some of the newly organized associations especially, are putting forth most praiseworthy efforts to secure a good show. Among others, we have received the prize list of the City of Ottawa Agricultural Society, who will hold their first exhibition during the three days from the 5th to the 7th of October, inclusive. The premiums are on a very liberal scale, amounting up to nearly \$2,500, and are judiciously apportioned. The show grounds, we understand, are ready, and the buildings are ample and commodious. The management seems to be in energetic hands, and we have no doubt that their liberality and enterprise will be crowned with success.

#### Royal Agricultural Society's Show.

Another annual meeting and exhibition of the Royal Society has been held in England, with the success and *clat* which usually distinguish these interesting occasions. The meeting was held at Manchester, in July, and is reported in the English journals as having eclipsed all its predecessors. The Prince of Wales, as President of the Society, visited the show yards and presided at the annual meeting. The Princess was also present, and both, no doubt, contributed largely, by the interest they manifested in the exhibition, to secure the unusually large attendance of visitors and the pecuniary success of the undertaking.

It would be quite impossible, in a cursory notice like this, to say much about the various objects worthy of note, in an exhibition of such magnificent proportions, bringing together as it does the highest triumphs of agricultural skill.

The horses, we are told, were good; but the show of short-horns, especially in the class of aged bulls, was perhaps the finest display in the live stock sections. In the class of younger bulls, Bolivar, the first prize yearling at Leicester last year, and whose portrait was then given in the CANADA FARMER, was again at the head, and is described as altogether the best bull on the ground. The show of sheep was principally distinguished by the excellence of the Leicesters and Southdowns. In pigs there was but a small show of large breeds, and a considerable and good display of the smaller breeds.

The show and trial of implements was, as usual, a prominent feature of the exhibition, and presented a marked improvement in some of the most important branches of farm machinery. Implements for steam cultivation, of course, occupied a prominent place, and Messrs. Howard Fowler and were closely pressed in competition by the Messrs. Fisker with a modified system of machinery, which is attracting considerable attention. The trial of implements extended over more than a week, and the judges have had no easy task, and have not escaped the usual censures of disappointed exhibitors; but altogether their awards seem to have given much general satisfaction. Messrs. Hornsby took the lead in mowers and reapers.

In regard to the number of visitors and the amount of receipts, the Royal Society's show at Manchester has far exceeded any previous exhibition. The number of visitors during the week, from July 19th to 25th inclusive, is estimated at about two hundred thousand, and the receipts during the same period amount up to seventeen thousand pounds sterling, or about \$85,000.

#### Canada Thistles.

During this summer we have visited many of the western counties, and gone many miles into the country at various points, and nothing has so much struck us as the enormous increase of that most pestiferous weed, the Canada Thistle. It covers whole fields, every country road is filled with it. Many crops of spring grain are so filled with it as to be almost indistinguishable. Even the best of farmers find it encroaching upon their land in spite of all efforts to keep it down. We have seen thousands of acres of it in full bloom, and asked some land owners why they did not try to keep it from spreading by cutting the plants down before they blossom; to which the answer was, it is too much trouble, and we have been kept so busy with the late and long delayed harvesting work. There is a law, we believe, that empowers the pathmasters to cause all thistles and other noxious weeds that grow on the roads to be cut down, and the expense assessed on those who, from their own neglect, allow them to grow in the road adjoining their lots. But the law is only nominal, and cannot be enforced to any advantage unless it is made obligatory on every pathmaster. The great evil of this matter of the spread of this most noxious weed, lies in the fact that there are so many careless, shiftless farmers who will not take the trouble to destroy the thistles, and from their farms it spreads all over the neighbouring ones, and the best cultivators find their good culture is but encouraging the inroads of the weed, as their well tilled clean fields offer such a nice seed-bed for the flying thistle seeds.

In this case the only cure of the evil that can be depended upon is perfect prevention of its spread, and that can only be done by the legislature giving us a law that will enable the better and more intelligent class of farmers to appoint some of their number to see that the thistles are cut down wherever found, as often as they may show their heads, and before they bloom; the expense of doing the work to be assessed upon the land where they are found growing. Such a law is now in operation in some parts of the States with good effect, and were something of the kind put in practice here, there would be more encouragement given to the better class of farmers to continue their efforts at improving our agriculture, and fewer of our farmers' sons would leave for the western prairies to escape the disagreeable necessity of continually contending against and working amongst that vilest of vile weeds, the Canada Thistle.

### Editorial Notes.

We notice that some editors of agricultural papers are advocating the use of steam for threshing machines instead of horse-power. This use of steam would undoubtedly be a great advantage, if it could be carried out in such a way as to preclude the risk of setting fire to the buildings in which the machine was at work, or to the straw stacks when the work was done in the open field. We fear that, however well this risk might be guarded against in planning the machine, many fires would occur in handling the furnace and the fuel. The great danger lies in the sparks emitted from burning wood, which would be apt to get blown into the straw or other inflammable material about a farm, and a fire once started in such a place could not be stopped. True, steam power is largely used for threshing, as well as cutting hay, straw, &c., in Britain, but it must be remembered that they use only coal, which involves little risk from sparks; besides, the hands employed are obliged to be careful, and do not get an unlimited supply of whiskey, as is too often the case here.

THE CANADIAN ENTOMOLOGIST.—This modest periodical has now completed its first half yearly volume, and is to be issued in future in an enlarged form, consisting of sixteen pages with a wrapper. We very cordially commend the publication to all who are interested in the important study of Entomology. It is edited by the Rev. C. J. S. Bethune and the readers of the CANADA FARMER will need no better recommendation. It is issued monthly, and the subscription price for the year is fifty cents. Communications should be addressed to the Editor, Credit, Ontario.

DEATH OF A VETERAN BRITISH AGRICULTURIST.—Mr. John Hudson, late of Castle Acre, the veteran Norfolk agriculturist, died on July 26, at the house of his son-in-law, Mr. Joseph Sewell, of Cirencester, Gloucestershire. He had long been known as one of the most successful practical farmers of the day—representing more strikingly, probably, than any of his contemporaries the good policy of the very highest farming, in the interest of the tenant as well as of the land owner and the labourer. Mr. Hudson was held in high esteem, not only in his native county, but throughout the English agricultural world. He served for many years on the Council of the Royal Agricultural Society, and, many years ago, when three or four distinguished men were asked to speak on the several branches of English agriculture on the occasion of Mr. Hoskyns' paper on Agricultural Progress, read before the late Prince Consort in the room of the Society of Arts, he was elected by the Society as its best living representative, to speak of the actual practice of the farmer in field, farmyard, and fold, and its wonderfully increased productiveness as the food manufacture of the country. Mr. Hudson was born in 1794. The announcement of his death will be received with great and general regret.

## Horticulture.

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

### A Paper on the Plum Tree;

READ BEFORE THE HAMILTON HORTICULTURAL CLUB, BY W. H. MILLS, ESQ.

Being fully aware that almost everything touching the subject of this paper has been very fully discussed in magazines, pomological gatherings, and by fruit growers, I do not presume to offer entirely new ideas, when speaking of its territorial range, cultivation, fruit, diseases, insect enemies, or the abuses to which it is sometimes subject. Whatever information has been gained on this subject comes partly from my own experience through practice, reading and observation, always tinged, as an unavoidable sequence, by the theory of others. Yet most assuredly our interest in fruit production would lose much of its charm, were we not to repeat from time to time our successes and disappointments. Let me express a hope that this record may assist to continue the interest.

Much of the practical detail connected with the culture of the plum will designedly be left to those valuable references, the books of Downing, Barry, Thomas and others, to the merits of which, indeed, I have nothing to add. Before entering upon the subject, I beg to call your attention to an apparently universal law, which seems to me to govern the vegetable kingdom; and to premise that much of the measure of success depends on a knowledge of the conditions of this law. Anything like chance or accident disappears when we clearly comprehend the fact that climatic and territorial influences build up and sustain all the peculiar Flora, and I may add Fauna, which appear only to be found within certain limits. As the conditions on which vegetable life depends may be reduced to their maximum and minimum force from the centre outwards, we shall find that the plum tree, like other things, must submit to these forces a helpless obedience. The fig and orange would make a hopeless rebellion against climatic influences in Canada, and so would our Northern fruits, as a rule, against those of the tropics. Except by the aid of artificial means, we should not succeed in taking them from their natural habitats, and then only by imitation; hence the important lesson, that if we wish to succeed, we must look well to conditions and study nature. This schooling will help us, in our planting, pruning and training, over the road to success.

#### ITS TERRITORIAL RANGE.

In taking a view of this part of our subject, I may say the plum tree will be found in a belt, more or less successfully grown,

between the limits of twenty-two and sixty-five degrees north latitude, although not appearing in a corresponding south latitude, so far as I am able to learn, which to me affords another evidence of the governing influences of meteorology. A glance at the map of the world will enable one to see that the great oceans of the southern half of our globe cover the greater portion of that part of the earth included in the temperate zone, and therefore would produce, on the southern limits of South America, Africa, and Australia, south of the tropic of Capricorn, conditions differing from those of the corresponding limits north, where the greater portion of our planet is land, instead of ocean. Here in the north, the configuration of the earth modifies the oceanic influences; there the reverse; and according to this theory both Flora and Fauna should differ in many and most essential degrees.

#### ITS CULTIVATION.

For the more particular details touching this part of the subject, I must refer you to the authors above named, and will confine myself to the not less important effects bearing upon it. As above remarked, the conditions to success being reduced to their minimum force from the centre of the most favourable conditions outwards, it will be found here, in the northern hemisphere, that the centre of this limit is the best fitted for its cultivation, that is, midway between twenty-two and sixty-five degrees. Now as hardihood enters largely into the condition of success with us in Ontario, we may find in our wild native plum, the *Prunus Americana*, an elementary base to work from in producing, through cultivation and hybridization, this requisite. The wonderful changes accomplished in this way are scarcely recognized in the generation which slowly wrought it; yet it is a significant and startling fact that all of our best fruits, among which we are proud to number the one under consideration, have thus risen phoenix-like through the fire of man's ingenuity, from their bitter and astringent prototypes. We may therefore hope with great certainty to have trees constitutionally hardy, bearing fruit abundantly, and if not as luscious as in more favoured localities, yet quite pleasant and profitable. The common garden plum (*Prunus domestica*) was introduced into Europe from Syria, and from thence followed the paths of civilization westward. Its first historical habitat is situate so near that Asiatic territory between the Tigris and the Euphrates rivers, where is supposed to have been the garden of Eden, in which every tree that is pleasant to the sight and good for food grew to gladden the sight of the mother of mankind, that we might be pardoned for supposing that the women of the ancient mysteries were skilled in the art of making marmalades and jellies. The territory over which the plum tree may be grown is immense, and the variety of fruit numerous, differing greatly in size, shape, qua-

lity and colour—bright yellow, green, almost white, blue, purple and red. In some portions of North America the climate appears singularly favourable for the production of new and good varieties. Downing describes no less than forty, seven of which are of first-rate quality, and have been recently introduced into England. Darwin says that varieties occasionally arise having an innate adaptation for certain soils, almost as strongly pronounced as with natural species growing on the most distant geological formations. Thus, in America the Imperial Gage, differently from almost all other kinds, is peculiarly fitted for dry light soils, where many sorts drop their fruit, whereas on rich heavy soils its fruit is often insipid. There is a species of sloe (*Prunus spinosa*), a thorny shrub growing wild in Europe, bearing a small black plum, austere in taste (differing from our *Prunus A. virginiana*) which is often used for giving colour and astringent flavour to wines. This was thought to be the parent of all our plums. But the parentage is now commonly accorded to *Prunus insititia*, or the Bullace, which is found wild in the Caucasus, and north-western India. It is becoming evident to fruit growers that many of our cultivated plum trees from various causes, are becoming constitutionally debilitated, and not reliable. Sooner or later we shall be compelled to fall back on our native varieties for further improvement. I would refer you to an article describing these by D. L. Adair, illustrated in the March number of the *Journal of Horticulture* for 1869. Believing it to be the only reliable plan for future improvement, and in the hope of opening a similar road in Ontario, I have already set in motion a plan which will secure the best seed from the best native varieties. I do not propose in this paper to offer a list of named varieties, knowing that many of them, imported and natives, can only be considered suitable to certain localities, the desirableness of which must be arrived at by personal test. Any standard work on fruits, such as J. J. Thomas's on American fruits, will fully name varieties.

The soil considered to be the best fitted to its culture is a strong clayey loam. In light soils it grows less strong, and is more subject to the attacks of insects, yet there are varieties suited to every soil. The trees should be set one rod apart, when making an orchard. This will give one hundred and sixty trees to the acre. The ground must always be kept free from weeds, and the top soil slightly cultivated as not to injure the roots. An annual top dressing should be given of well rotted manures, and in no way dug into about the roots. This bringing of crude manures in immediate contact with the roots is one of the causes of constitutional derangement and disease. As to the amount to be applied, I should say that after the tree had come fully into bearing, but not before, there can be no harm in a generous application of lime, ashes, salt or bone dust, mixed

with well rotted stable manure, say two wheelbarrows to a tree at the annual fall dressing. It should be borne in mind that an overstimulated growth in its infancy will indeed enlarge its organic form, but at the same time will weaken its power to resist changes of temperature and moisture. The character of growth differs so much in varieties that it would not be safe to lay down any definite rule in pruning and training. This is one of the lessons to be learned by observing the growth of each variety, for what can be more opposite than that of the Greengage and Bradshaw? Yet there is one general rule to be observed in the expansion or contraction of the head of each tree. On looking at the current year's growth, you will see alternate buds on the in and out sides of each limb. If the head require expansion, cut close to the outside one; if contraction, to the inside bud, at the spring pruning, just as they are bursting into leaf. The wound will then readily heal over. The head should be started low down, not more than three feet from the ground. In this way the trunk will be secured from the intense rays of the sun, and so prevent induration of the bark. But should this from any cause occur, longitudinal cuts, without going so deep as to injure the wood, with a sharp knife, just through the bark, in several places, up and down the trunk and limbs, about the 1st of July, will be the means of forming a new and healthy bark. Another advantage in having the head of your trees low is the facility in gathering fruit and in destroying insects.

In securing trees from the nursery, you are not always sure of getting those which form a healthy union. The way to secure such is to plant your own pits from some known hardy and thrifty growing kinds, such as the Columbia. Plant them in the exact place you wish them always to stand, and graft to suit yourself, with such varieties as you esteem. Remove the earth to near the collar, cut off the head of your seedling in the spring, and graft at the ground in the second year after germination. You will in this way establish a better union between scion and stock than usually prevails in nursery practice. There is no mutilation of root required for its removal, nor would it be indiscriminately grafted on stock produced from mixed seed. I have a dozen varieties grafted and budded into one tree, and it is surprising to see the difficulty some of these have to live on an uncongenial stock. This, as well as high manuring, is another cause of constitutional debility. I am sorry to say that this condition has not commanded as much attention as the importance of the subject requires. It is one of the evils, however, incidental to the business of producing large quantities of trees. The old seedling apple orchards of the country, one hundred years of age, still stand in vigorous bearing as monuments of the past, and a living condemnation of unhealthy unions. Let us who are amateurs educate ourselves in this branch of

the business, and then we can help our friends, the large producers.

#### FRUIT.

Under this head let me remark that the many varieties now under cultivation differ so much in flavour, form, colour and size, that the range might appear sufficient to satisfy the most fastidious, were it not for the great novelty and known fact that new and rare specimens can readily be produced by a wise selection of seed, high cultivation, and hybridization, the limit to which still lies veiled in the impenetrable future, and must of necessity so continue as long as new combinations are possible. The fruit, to be at its greatest perfection, should remain on the tree until the slightest pull detaches it from the stem. It may then be eaten, canned, dried, or made into preserve. A highly profitable business could be carried on by taking the Pond's Seedling, Italian Prune, or Columbia, when fully ripe, removing their pits and dipping them into hot syrup, then drying in an oven heated to about one hundred and twenty degrees, after which they may be compressed into glass jars, and are then fit for shipment; thus got up they are extremely fine, made into puddings and used in confectionary. I annually prepare in this way sufficient for family use; they are indispensable from the many uses made of them. The fruit should be carefully picked on a dry day, without injury to the spurs, and carried to a cool fruit room, and there packed as peaches are for shipment in open crates. They bring usually from four to six dollars per bushel. I believe the time to be not far distant, when railway directors will find it to be to their advantage to have special cars for the carrying of fruits, under a more careful supervision than now prevails.

#### DISEASES.

I have already partly spoken of these, but in addition to over stimulation by manures improperly applied, and by uncongenial unions of scion and stock, I may add those produced by changes of temperature. I would give you a simple illustration; last fall my plum trees went into winter quarters with a healthy and sound appearance, and would no doubt so have continued, but for the mild weather in a part of January and February, which came on after the trees had a partial rest, stirred to vital motion the sap, and this condition was followed by cold, producing a contraction of the organizable matters thus set in motion, before opportunity was afforded for their chemical elaboration. Hence the spring found the tree with that matter in an abnormal and dead weight state; some died entirely, others were late in the season before the new force was able to push forth the appearance of new life. Rapid changes from freezing to thawing should be prevented, if possible, by some efficient means, such as covering with evergreen boughs, protection by hedges, trees, or hill sides. These sudden changes are the

cause of the death of more fruit trees than people generally suppose.

As to that dread scourge, Black-knot, volumes have been written, yet the public are as much in the dark as ever; all kinds of theories and sarnises have been made; our trees still die of that fatal cancer. I hesitate to add a new theory, yet I have thought that in plant life we shall no doubt find principles and agencies analogous to some of those laws which have been found to prevail in animal organization, under a greater scientific research than has been brought to bear on vegetable diagnosis. Among animals, starvation and gluttony, foul air and filth, will be followed by ill results as a violation of normal law; deficiency in sunlight and circulation of air in vegetation, a superabundance of moisture and sudden change of temperature, are conditions which have a direct effect on the tissues; these and like deviations derange the force of life, and place the thing subject thereto in an unhealthy condition, and in a position much less able to resist opposing forces. It is claimed that black-knot is contagious; I have no doubt of it, but only so to those organizations which have had a previous preparation for that particular inoculation of fungus spore for which the atmosphere forms so ready a means of transmission, and this at particular times is always ready to be multiplied under favourable conditions. It is now well established, that cholera is not only mitigated, but is entirely resisted by cleanliness and temperance, without the aid of special intervention. Therefore, let us study the conditions to health in our trees, and the days of black-knot will be numbered.

#### INSECT ENEMIES.

These, by a proper handling, ought not to do the amount of damage at present pretty universally complained of. A knowledge of insect life and habits, at the least of those injurious to fruit production, and of their parasites and enemies, should be taught as a school lesson, until we are able to discriminate and set the forces of nature to control each other for our good. Our unaided efforts will not suppress the aphids, borers, and curculios, the three enemies at present most injurious to the plum tree. An application of whale oil soap-suds by means of a syringe or hydro-pult, repeating it occasionally, will partially clean the foliage from aphids; but only on a limited scale can applications of this nature be made. Then there is the *Saperda* and *Dipresis* borers; both do duty and perpetuate in the plum tree, and they are not easily got rid of, and are much to be feared, because they do their work silently. The beetle lays its eggs in June and July on the bark of the trunk of our trees; then is the season for warfare, if at all. With a brush, paint the trunk of the trees with strong soft soap; this will destroy many of the young grubs, besides being of service to the tree. Did you ever see this larva? It looks for all the world like, and reminds one of, a polly-

wog, all head, and the balance caudal, (forgive the Hibernianism). Yet the parent of this happy little creature is rather pretty. Should any of the grubs get a lodgment under the bark, they are to be removed without delay with a sharp knife. They leave behind them in their track a pumice, which you should follow with your knife, and after destroying them, put a poultice of cow-dung over the wound in the tree. Never let a season go round without inspection for this pest; they are fully described in the annual report of the Fruit Growers proceedings of Ontario for 1868, through the report given by William Saunders Esq., of London. Of all the enemies to the plum, however, "Thou, Curculio, surely bear'st the bell among them all." So incorrigible is this pest, that many persons have given up the cultivation of this noble fruit. This should not be, when some perseverance for two seasons will so far decrease its numbers in your own grounds as to secure a sufficient crop of fruit annually. The remedy consists in jarring the trees early in the morning, having sheets spread under them to receive the beetles as they fall; they resemble dead bugs; destroy them at once; and every day gather all fallen plums and put them in boiling water, for they contain the worm of the future curculio. Some careless people allow all fallen plums to remain on the ground until the worm has crawled out and taken up its snug winter quarters in the earth, only to come out with increased numbers the season following; these persons are not equal to the situation; for depend upon it, no lazy fellow's application will ever suppress the curculio: and all nostrums are worse than useless, for they damage the trees without disturbing his sublime highness; the little Turk revels in villainous mixtures. You should commence this method of fight when the plums are of the size of small peas, and continue daily to the middle of July. There are few sections free from this pest. I am told the country about Goderich is free from its ravages; I hope the good people there may be able to keep it so.

In conclusion, I have now to remark that the various abuses to which the plum tree is too often subjected must receive but a short notice; the limits of this paper preclude me from entering on the subject as fully as it deserves. Most assuredly many of these abuses arise from an entire ignorance of the laws governing the conditions which produce the soundest and healthiest growth of limb and root, of leaf and branch. In one important particular the tree differs from the animal in not being able to move its position, to secure for itself immunity from danger, and good conditions in its struggle for life. In its uncultivated state, nature controls the forces or conditions with unerring ability for its perpetuation and hardihood. But under domestication, man does in his own way, to a certain extent, use these forces of nature after his own style. He can supply manures or withhold them; he can

bend in this or that way the growing plant; he may so adjust and combine conditions as to produce monstrosities in growth, or organic dwarfs, disease or health. It would be miraculous to find that nature, having a beneficial object in view, had ever applied whale oil soap or lime to the foliage of the plum tree, or rubbed the trunk with coal oil, or used tobacco juice to secure it from the curculio. It would be hard to find nature guilty of supplying crude application of manures, much less bringing it into direct contact by carefully spading it in about the roots. It would be still more difficult to show that she severed roots annually at all comparable with the plough.

If nature is ever to be pushed to the limit of its beauty, its goodness, its grandeur, and its bounty, it must be done in harmony with its laws, and through this means we shall read its love.

#### Fruit Tree Queries.

To the Editor.

SIR,—Can you or any of your correspondents inform me what sort of cherry and pear trees would thrive in the neighbourhood of Lennoxville, and stand the severe winters; also where to procure them, the soil best suited to them, and the treatment they should receive; also, the same of dwarf pears, apples, and cherries; also, would the English oak thrive here, and what trees would be the best to plant as a breakwind to an orchard?

A CONSTANT READER.

REPLY.—The hardest cherry in cultivation is the variety known as the *Kentish Cherry*. It is dark red when fully ripe, acid, high flavoured, and one of the very best for cooking or canning. It is possible that the *May Duke*, *Reine Hortense*, *Plumstone Morello*, and others of the Duke and Morello section would endure the winter, for our hardest cherry trees are to be found among these. The *Flemish Beauty* is a very hardy pear, and the *Tyson*, *Beurre d'Anjou*, *Buffam*, *White Doyenne*, and *Fulton* are considered quite hardy sorts.

Pear trees usually thrive best on a strong clay loam, cherry trees on a lighter loam. Dwarf apple, pear and cherry will thrive on the same soils that are best suited to the standards. The treatment required by them is good cultivation; to speak more minutely of planting, pruning, manuring, &c. &c., would require an extended essay. If our correspondent does not know what is meant by good cultivation, we must refer him to the standard works on the subject, Downing's, Thomas', Warder's, &c. These trees can be had of all our leading nurserymen. The English oak thrives well in the grounds of the writer at St. Catharines. The Norway Spruce forms the very best possible wind-break. If any of our readers residing in the colder part of the country have any experience that will aid in the solution of these inquiries, we should take much pleasure in publishing their communications.

Hort. Ed.

### Proper Time and Mode for Cutting Flowers

Never cut your flowers during intense sunshine, nor keep them exposed to the sun or wind: do not collect them in large bundles, nor tie them tightly together, as this hastens their decay. Do not pull them, but cut them cleanly off the plant with a sharp knife, not with a pair of scissors. When taken indoors, place them in the shade, and reduce them to the required length of stalk with a sharp knife, by which means the tubes, through which they draw up the waer, are left open, and the water is permitted to ascend freely, whereas if the stems are bruised or lacerated, these pores are closed up. Use pure water to set them in, or pure white sand in a state of saturation, sticking the ends of the stalks in it, but not in a crowded manner. If in water alone, it ought to be changed daily, and a thin slice should be cut off the ends of stalks at every change of water. Water about milk-warm, or containing a small quantity of camphor dissolved in spirits of wine, will often revive flowers that have begun to fade. Place a glass shade over them during the night, or indeed at all such times as they are not purposely exhibited.

Shade them from very bright sunshine, and when uncovered, set them where they may not be exposed to a draught of air. A cool temperature during summer is favourable for them, and the removal of the slightest symptoms of decay is necessary. When carried to a distance, carry them in a shallow, air-tight tin case, or cover them with diaper to exclude them from air and light. Charcoal saturated with water is also a good medium to stick them in, and the thinner the layer the better. — *Rural Nov. Yorker.*

### The Kittatinny Blackberry.

We give our readers an engraving of this variety of Blackberry, which seems to be growing in favour, and to be likely to supply a much felt want. Hitherto,



bush until it had lost all its lustre, when it was too soft to endure anything but the most gentle handling, and could barely be transported from the garden to the house. The Dorchester was not very productive, nor the fruit much above the

ordinary size, and though not as acid as the Lawton, was not very high flavored. The Kittatinny, judging from the short experience of two seasons, gives promise of being quite hardy in this climate, is a vigorous grower, most abundantly productive, and the fruit of very uniform large size, quite sweet and of high blackberry flavor. We think it quite worthy of trial in all parts of the country, and wish that those of our readers who have planted it would favour us with an account of its behaviour in their hands.

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 TWENTY CHOICE ROSES, that are free growers, free bloomers with bright colours, and showy. The following are a charming group: Plant them as I put them. 1, Gloire de Dijon; 2, Senateur Vaise; 3, Anna Alexieff; 4, Maurice Bernardin; 5, Duc de Cazes; 6, Charles LeFebvre; 7, Marguerite de St. Amand; 8, Madame Boutin; 9, Baronne Prevost; 10, Pierre Notting; 11, Madame Victor Verdier; 12, Madame Clemence Joyeux; 13, Achille Gonod, or Madame Boutin; 14, William Griffiths; 15, Marechal Vaillant; 16, Jules Margottin; 17, Souvenir de Dr. Ja-

min; 18, Baronne de Maynard; 19, Peinice Camille de Rohan; 20, Dr. John Hopper. Prune no rose at planting time. Cover the point of union with about two inches of soil. — W. F. Radclyffe, in *Journal of Horticulture*. Eng

the varieties that have been most widely disseminated have failed to give general satisfaction. The New Rochelle, or Lawton Blackberry, was not sufficiently hardy to endure our winters, and the fruit was very acid, unless allowed to remain on the

### Raspberries in 1869.

There has been a plentiful crop of raspberries this season. The winter was not sufficiently severe to injure the canes materially, and even the tenderest varieties were only partially killed back. The summer has been cool and wet, so that the fruit has filled out perfectly on most soils, and the berries have attained a good size, though perhaps somewhat impaired in flavour.

The Black Cap varieties are always hardy, and if growing in rich soil, never fail to yield a full crop.

Davison's Thornless and Mammoth Cluster are the two Black-caps most sought after at the present time, the Davison Thornless possessing the advantage of being free from thorns, and the Mammoth Cluster, ripening later, extends the season.

Of the Red varieties, we fruited this season the Clarke, Franconia, Hornet, Imperial, Naomi, Philadelphia, Arnold's Red, and Vice-President French. Of these the Hornet and Imperial suffered most from the winter, and the Philadelphia and Arnold's Red suffered the least; indeed not at all. The Hornet is the largest in size, and of good flavour, but suffered from the winter the most of any of the red sorts. The Clarke is a very pleasant flavoured fruit, and of good size. The Franconia lost its foliage very badly this season, and in consequence of this the berries were not as fine in size or flavour as they should have been. We are at a loss to account for the drying up of the foliage on the Franconia canes, but have been disposed to attribute it to lack of sufficient richness of soil. It is a very gross feeder, and seems to thrive best when the ground is covered two or three inches deep with well rotted manure. The Naomi suffered also somewhat in its foliage, but not as seriously as the Franconia. Arnold's Red was well filled with fruit, but the berries are small, and the flavour not high. Philadelphia was loaded with fruit, retained its foliage uninjured, and perfected its crop better than Franconia. The berry is not as large nor as firm as Franconia, but taking winter and summer together, is more hardy, and, for a near market, more profitable. Imperial bore a better crop than Hornet, and is nearly as large. Vice-President French is hardly as large as the Clarke, and to our taste no better in flavour.

Of the yellow varieties, we have not found any to equal Brinckle's Orange. It is of the very finest flavour, large size

and an abundant bearer, but in severe winters the canes are a good deal killed back. Yellow Canada, raised by Mr. Charles Arnold, is very early, and fruits again in the autumn, and the canes are perfectly hardy, but the fruit is much smaller and not so fine flavoured as Brinckle's Orange. Souchetti is about the size of Brinckle's Orange, but much more likely to be winter killed, and the flavour no better than that of Yellow Canada. A yellow raspberry that shall be as hardy and vigorous as Arnold's Yellow Canada, and yield as abundant a crop of fruit, as large, and as highly flavoured as Brinckle's Orange, is very much wanted. At present we have to sacrifice both size and flavour in too great a degree to obtain hardihood of plant.

### The Rose.

In no flower are usefulness and beauty more happily combined than in the Rose; so highly are its blossoms esteemed, that although those of some members of its family expand early in spring, and other sections never throughout the summer, and continue to do so until winter nips them, yet we are not satisfied, for no sooner do we perceive the approach of winter than our thoughts revert to our pot Roses, which having matured their growth, and been gradually prepared for the purpose, are now brought forward in successive relays, in order to afford a continuous supply of their charming flowers throughout the winter. And thus do we wreath the year round with a bright garland of the blossoms of our floral queen, most gladly yielding ourselves to the refining influences of her gentle sway, never swerving from our allegiance, never faltering in our loyalty, although at times rudely assailed by the rampant followers of the republican Mrs. Pollock, who, shaking their tricolor flags in our faces, seek to dazzle us with their brilliancy. Tricolors forsooth! let them try colours with the Rose, and their harsh leaves will quickly have to succumb to the delicacy and polish of a Rose petal.

Amongst the different sections of the Rose family, none are more justly esteemed than the Tea and Noisette Roses, which are invaluable on account of their coming into bloom early in spring, and also succeeding the latest autumnal blooms of the perpetuals; and when planted in sufficient numbers, they will always ensure a supply of flowers until severe frost sets in. The weaker kinds, such as Gloire de France, Elise Sauvage, and Devoniensis, are admirably adapted for filling up any vacant spaces between fruit trees on walls, and the more rampant kinds are quite worthy of the greater space which their vigorous growth demands. Nothing suits Cloth of Gold so well as a large gable or two over which it may ramble unchecked by the prun-

ing knife. Solferino, too, and Gloire de Dijon are lovely ramblers, which if pruned much make a strong growth, but do not bloom so freely as they would if their growth were only slightly shortened. Lamarque is not so rampant as some, but for purity and delicacy of colour it is unrivalled. In cutting some flowers for bouquets a few days ago, I accidentally happened to put a partly expanded blossom of Lamarque with two flowers of the old Crimson China: each Rose had its buds and foliage, and I thought nothing could be more lovely. The best kinds of Roses of this section that I have cultivated are those already named, together with Louise de Savoie, Celine Forestier, Marechal Niel, Safrano for its beautiful buds, Souvenir d'un Ami, and Miss Isabella Grey, a fickle maid in whom no dependence can be placed. Last summer the blossoms of this expanded freely, and were most beautiful, but this season, although producing a profusion of buds, not one good flower has expanded. The whole of those on one strong plant, about two hundred in number, are "green-eyed monsters."

Nothing can be more beautiful than a wall covered with a well arranged collection of Roses in full bloom; and although wall space is generally devoted to the choicest and more delicate Tea and Noisette varieties, yet the beauty of Roses of these classes is much enhanced if an occasional deep crimson such as Charles Lefebvre, Senateur Vaisse, or the more brilliant Souvenir de Charles Montault, or perhaps such sterling pink varieties as a Jules Margottin and a John Hopper be introduced. My own rule in planting is to have every third plant either a crimson or pink.—E. Luckhurst in the *Collage Gardener*.

### The American Pomological Meeting.

The *Gardeners' Monthly* for August says of this meeting, which is to be held in Philadelphia, on the 15th day of the present month, that it will be one of the most interesting on record, and in the attendance of members one of the fullest. From the South and West large collections of fruit have been promised. The Horticultural Society will hold one of its exhibitions at the same time, to which California will contribute one of the Darlington Pitcher Plants, which has already safely arrived. The Northern Central Railroad, from Baltimore, Md., to Elmira, N.Y., will return delegates free, as also the Philadelphia and Erie, Pennsylvania Central, and probably some others." The Fruit Growers' Association of Ontario has appointed Mr. Charles Arnold, of Paris, to be the delegate of that Association at the Pomological meeting. We have not learned whether the Board of Agriculture send a delegate, but hope it will not fail to do so. This meeting occurs only every second year, and is one of great importance to the fruit interests of Canada as well as of the United States.

### Cultivation of Filberts.

We desire to call attention to the cultivation of these valuable nuts, and to request any of our readers who have grown them in Ontario to favour us with their experience.

Most of the filbert trees we have seen growing in Canada would seem to have been raised from the nut, for though the trees had gained considerable size, they fruited very sparingly. The most fruitful trees we remember ever to have seen were growing on the grounds of Geo. Leslie, Esq., one of our oldest and most enterprising nurserymen, near Toronto. Perhaps Mr. Leslie will favor us with an article on the filbert in Canada.

The tree is most productive on a warm soil; if the soil be cool and too retentive of moisture, the tree grows too much wood and fails to send out the little short twigs which bear the nuts. It is probable that soil well suited to the raising of hops would be found suitable for the filbert is largely grown in the hop districts of Kent, England.

The nuts are borne on the shoots of the previous year, and in pruning care should be taken to cut these shoots back to spurs, leaving a few buds on each spur, all of which in favourable seasons will produce fruit.

There does not seem to be any reason why the filbert should not succeed with us, and if it will thrive and fruit well, no doubt it will be largely planted.

### The Hollyhock.

So great are the improvements that have been made in this flower, that it is now well worthy of a place in the shrubbery, where its tall spikes, wreathed with flowers of every hue, double as roses, contrast beautifully with the foliage, and impart a beauty to the trees and shrubs, that at the season when the hollyhock is in bloom, are for the most part without blossoms. Scattered here and there in small clumps, so placed that the base is hidden by the foliage of low shrubs or other plants, and the spikes half concealed, half revealed through the branches of the taller shrubs, or set off by a background of evergreens, the double hollyhock adds much to the beauty and attractiveness of the lawn.

The hollyhock is of easy culture, growing well on any loamy soil that is deep, well drained and well manured. Indeed, the secret of fine flowers is in perfect drainage, plenty of old, well rotted manure, and from three to four feet of ground room.

Choice varieties can be obtained of our florists and nurserymen, which will produce beautiful double flowers of any desired hue from white to black, except blue. They can be grown from seed, but even the very best of seed will produce

many worthless plants, so that the cheapest and most satisfactory way is to procure such as are known to be desirable. Nor is it necessary to pay such prices as now and choice varieties command in England and Scotland, where they sell at from two to four dollars a plant, a sum that will purchase a dozen plants from our own producers that will compare favourably with the costlier sorts.

The flower stems should be staked and kept well tied, lest high winds should prostrate them, and when their beauty is past, they should be cut down, and the roots removed to a cold frame before winter, where they can be protected by a light covering of leaves.

### Strawberries.

The accomplished editor of the *Gardener's Monthly* has been on a strawberry tour through Pennsylvania and Central Ohio to St. Louis, thence up the Missouri to Herman and Bluffton, returning by way of Chicago, Detroit, Windsor (Ont.), and Pittsburgh, Penn. He is satisfied that the hill system of culture will yield the best money returns. He found the hill plan, as a system, nowhere in use in perfection except at Mr. Knox's fruit farm near Pittsburgh. As to varieties, he saw nothing anywhere like the *Jucundas* at Knox's. There were thousands of berries in every direction, of which twenty-five would fill a quart, and for these he was getting a dollar a quart; and remarks that it is the system of culture, the system well understood, nearly as much as the variety, that produces such results, for he saw other varieties, such as *Fillmore* and *Agriculturist*, and some others that were very nearly as good. At Mr. Dougall's in Windsor, Ont., he saw *La Constante* in better perfection than he had ever seen them before, very little inferior in size to Knox's *Jucundas*. At Dundee he saw the *Mexican Everbearing*, and says it is clearly an Alpine variety of *Fragaria Vesca*, the fruit not being as large as the finest *Wilson*, but fully equal to much of the crop of *Wilson* sold in market, and that he would not hesitate to guarantee two hundred bushels to the acre during the whole season. He esteems it to be a new variety of Alpine strawberry of great value to horticulturists, one that can be made to bear five crops of fruit continually until fall.

On the other hand, the editor of the *Horticulturist*, in the July number, says of the *Mexican Everbearing Strawberry* that he regrets "to see the extent to which this humberg has caught hold of many of our Western journals and fruit growers. It possesses very little merit, is nothing more than the old *Red Alpine*, which has been known for over three hundred years, and appeared here several years ago under the name of the *Maximilian*." He closes his remarks con-

cerning it by giving a quotation from a correspondent who says he has grown it for two or three years, and considers it inferior to any other he has raised, that it is a very poor yielder, does not believe it would yield a quart to the square rod, that it is nothing but a humberg, the most inferior berry he ever saw.

Can these gentlemen possibly be speaking of the same strawberry?

### Raspberries.

Wm. Parry, of Cinnaminson, N. J., in an article to the *Gardener's Monthly* for August, says that he commenced cultivating Raspberries for market more than thirty years ago, and has grown in that time over fifty varieties, many of them imported from Europe, and others raised from their seeds. The prominent object with him has been to grow those which produced the most money with the least labour, and the result has always been in favour of those varieties which yield the largest quantity of fruit per acre. He lays down the rule, that to be successful we must depend upon native varieties; and states that the varieties which have been the most profitable on the light sandy soils of New Jersey, are the *Doolittle Black Cap*, and the *Philadelphia*, of which he has grown from twenty to thirty acres of each for several years past. He says that he planted six hundred *Davison's Thornless*, but found it ripened its fruit at the same time as the *Doolittle*, and did not yield as much per acre, and that although the quality of the fruit of the *Clarke* is all that could be desired, the quantity is not sufficient to make it pay as well as the *Doolittle* and the *Philadelphia* as a field crop.

### New Fruits.

The *Rubicon Apple*, originated in the State of Michigan, and said to be very hardy, a long keeper, keeping until July, a smooth scarlet-red apple, about the size of the *Baldwin*, but every way superior in quality.

The *Janesville Grape*, originated in Janesville, Wisconsin. It is claimed for this variety that the vine is healthy, and perfectly hardy, that the fruit ripens about the middle of August, bunches medium, berries large, black, flavour sprightly, fair quality but not first-rate; will make a first-rate red wine. Now in the hands of C. H. Greenman, Milton, Wisconsin.

The *Alton Nutmeg Melon*, said to be a very popular, new variety, recently distributed and much esteemed in Chicago. Seed originally obtained from a melon bought in Missouri, and grown by O. L. Barber, of Upper Alton, Illinois.

The *Turner Raspberry*, grown in Morgan County, Michigan, by Mr. Baldwin, raised by Professor Turner, who says it has stood the severest winters for the last twenty years; said to be of a beautiful crimson colour, and unsurpassed in size and flavour.

**Storing Celery.**

Many people complain of their celery—one of the most difficult garden crops to raise in perfection—that it does not keep well through the winter—sometimes it withers, but oftener it rots. It is asserted by some that it should be preserved in the rows where it grows, and that removal always more or less injures it. Where the plant is grown in soil of a dry nature, it may be kept well enough in the row, but we deny most emphatically that removal injures it in the slightest particular.

We pursue two modes, and find both to answer well. The first is to remove the celery to high and dry ground, dig a trench spade deep, stand up a row of plants, then three inches of soil, then another row, and so on until about half a dozen rows are finished, then commence another bed, and so on. The soil should be packed in firmly and banked up, so that the tops of the celery are just covered, then spank off roof fashion to turn the rain. Over this two wide boards, nailed together, should be placed, as a security against moisture. For remember, it is water, not frost, as some say, that rots celery. Frost adds to its tenderness.

Another plan is to sink barrels into the earth, so that the tops are two or three inches below the surface, then fill them compactly full of celery, without any soil, but with close or tight covers upon them, so as to exclude moisture, and then a couple of inches of soil. By this mode, somewhat more troublesome than the other, ours kept well for the last three or four years until all was consumed, which was late in the spring.—*German town Telegraph.*

**A Prolific Strawberry Bed.**

To the Editor.

SIR,—Before our short summer has entirely disappeared, kindly permit me to communicate to your readers an item which I think will be sufficiently interesting to repay perusal. I have in my fruit garden a miniature strawberry bed, measuring 21 by 21 feet, from which we have taken this season one hundred and twenty-seven quarts, or about four bushels of strawberries, of the variety known as the "Wilson Albany Seedlings," many of the strawberries measuring four inches in circumference.

I may also add that my garden is the one which was noticed last summer by the Canada Press, as having produced an extraordinary growth of grapes, two varieties of which, namely, the "Adirondac," and the "Hartford Prolific," ripened in the open air, the former on the 20th, and the latter on the 25th of August. These vines were imported by me from the fine nursery of Mr. J. W. Bailey, of Plattsburgh, N.Y., with whom the culture of the "Adirondac" is a specialty.

W. W. SMITH,

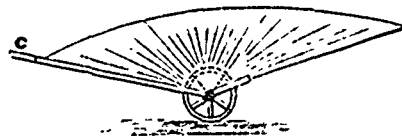
Philipsburgh, P.Q.

Aug. 21, 1869.

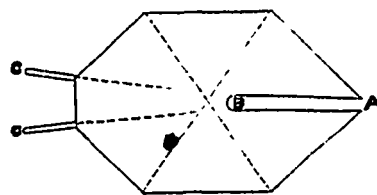
**Curculio-catcher.**

We give our plum cultivators a drawing of Dr. Hull's Wheelbarrow Curculio-catcher. It is very simple, and at the same time a very convenient and efficient contrivance for catching these troublesome destroyers of our plums. It is simply a cotton sheet stretched upon a frame, looking not unlike the wheelbarrows in use upon our public works, only much broader. The side and top views given below will convey a more accurate idea of the form of the catcher than any description.

SIDE VIEW. VERTICAL SECTION.



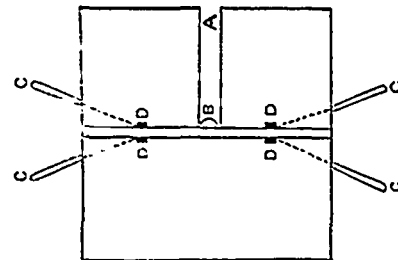
TOP VIEW.



C—Handles. A—Opening to receive the trunk of the tree. B—Buffer.

The method of using it is either to run full tilt against the tree, in which case it is necessary to have a buffer at B, or to run the catcher under the tree and then jar the tree by a sudden blow. In either case the curculios will drop from the tree and be received or caught upon the cotton sheet, and are then readily brushed together at the centre and gathered up and destroyed.

There is another form of the same thing shown in the following cut,



A—Opening to receive the trunk of the tree. B—Buffer. C—Handles. D—Hinges on which the wings turn.

The chief difference is that this is formed of two pieces fastened by hinges, D D, to a central bar, which form may be found convenient, inasmuch as it admits of the two parts being folded together.

There is an objection to running these catchers with sufficient force against the body of the tree to give the requisite jar, from the danger of bruising the trunk of the tree. If this plan is practised, it will be necessary to so protect the tree that it shall re-

ceive no injury from the blow. The best method is to saw off some one of the lower branches, leaving a stump a few inches in length, and with a wooden mallet strike a smart blow upon the end of the stump. This will produce the requisite jar and cause no injury to the tree. It will be seen that the curculio catcher is comparatively inexpensive, and yet a much more convenient method of spreading a sheet under the tree than any other that has been brought to public notice. And we can assure our readers that if they will only give this plan a trial they will find that it takes much less labour to secure a good crop of plums than Mr. Laziness would have them believe, and that the money spent in providing the catcher and paying for its thorough use will be returned many fold by the crop of fruit secured. In this way a crop of fruit will be secured against the curculio, while all other methods, such as showering the tree with lime water mixture, hanging old rags saturated with coal oil in the branches, or covering the ground under the tree with salt or gas-house lime, or any of the hundred and one nostrums we read of, are not half as effectual. Besides, this killing process sensibly diminishes the number of the enemy, so that after a few years the catching may be omitted, if desired, so as to give them time to recruit.

**Downing's Gooseberry.**

This variety was raised some years ago by Charles Downing, Esq., of Newburgh, N. Y., from whom we obtained a couple of plants in the Spring of 1860. Since then, the number of plants has been increased, and a row of them planted in sandy soil, where they have been growing for the past five years. During all this time they have showed but the slightest symptom of mildew on the foliage, and have borne large crops of perfect fruit. The fruit is of a greenish white colour, medium size, larger than the Houghton, and of good flavour, much better than the Houghton. There are many parts of the country where it is almost, if not quite, impossible to raise the English varieties of Gooseberry on account of the mildew, which attacks both foliage and fruit, covering the latter with a thick leathery coat, and making the fruit worthless. For such places we can safely recommend the Downing, until some enterprising hybridizer shall produce a better.

PRUNING SAW.—We have seen a very convenient little saw for cutting off limbs in the tops of trees. It is securely fastened to a long handle, so that the operator can stand on the ground, or if need be upon short steps. It is made by Mr. John McNeill, of Lobo, and costs about a dollar. Mr. McNeill ought to advertise it extensively, for it is really a useful article. He also makes a Fruit-picker for gathering single specimens, that may be sometimes convenient.



### The Novice's Kitchen Garden.

My ideas on the subject were vague. I knew what I wanted, but had not an accurate conception of how those wants were to be converted into realities. I must have a choice yet ample supply. Fresh asparagus is so delicate, fresh peas so tender, fresh lettuce so crisp, cauliflower so immaculate, cabbages so rich, beets so racy, and every other vegetable so much better when just pulled. There should be a plenteous variety, from the humble radish up to the aristocratic egg-plant, through all the range of carrots, turnips, celery, spinach, and cucumbers. The fruits, too, should not be forgotten—gooseberries, blackberries, raspberries, and especially strawberries; pears, plums and apples, currants, grapes and quinces; the numberless productions of the earth that wise men eat before breakfast or after dinner.

"Bridgeman's Assistant," with "Ten Acres Enough," were my constant companions. There were many surprising statements in "Bridgeman's Assistant." It would seem natural that seeds, especially of radishes, beets or carrots, should be planted at least a foot deep, so that the root might be long, but the author insisted that they should be covered with only two inches of earth. Unfortunately, however, as my investigations proceeded, some pleasing illusions were dissipated. One vegetable after another had to be given up, and when it was ascertained that strawberries would not bear the first season, and that asparagus might produce heads in the course of three years, I was in despair.

A long list of the best vegetables still attainable was selected, consisting of early Mohawk and Lima beans, blood turnip-rooted beets, long orange carrots, long green cucumbers, sweet corn, large drum-head lettuce, silver-skinned onions, Dutch parsnips and Daniel O'Rourke peas, and purchased at the seed store for the moderate sum of \$4 50.

After encountering sundry troubles and trials, the writer proceeds to take an inventory, and continues as follows:—

A careful examination of the garden gave the following result: Weeds profuse and luxuriant; vegetables scarce and sickly; peas about six inches high, well cropped, without flowers or pods; tomato plants small and well shaded by the surrounding weeds; egg plants entirely invisible, having probably gone back into the egg in disgust; bean-poles tall and vigorous, beans about one foot high.

My glorious anticipations had dwindled. Asparagus, cabbages, beets, straw-

berries, raspberries, pears and plums had been given up, and now the hope of peas, beans, tomatoes and egg plants was to be destroyed. That garden on which I counted so greatly, which was to have furnished not merely cheap food for my family, but subject for exultation over city friends, had proved a failure. Daniel O'Rourke peas were not to be; crisp lettuce could not be dressed in that style of art upon which I pride myself, and handed round to friends after the woodcock and claret, as so much superior to the stale, insipid stuff purchased in the market; egg-plants, richest of vegetables, were not to be pressed upon the surfeited guest as coming from my garden. Beans had proved a delusion and tomato vines a snare. All my study of horticultural works was to be thrown away.

It is true I had raised an egg-plant, but it was small—so small that I had thoughts of sending it to the agricultural fair as a rare production; it measured one inch and a half in circumference. I also raised one tomato, but a careless wretch trod on it and crushed it and my hopes together. There was a fine lot of wild radish, which my friends pronounced to be weeds, although I had hopes for a time that a few of them would become tame. I was disappointed, however; they covered the new beds, as fast as they were dug, with a luxuriant clothing of bright green, and their leaves were pretty and graceful, but their roots would never come to anything worth mentioning.—*Five Acres Too Much.*

### How the Tricolor Zonal Geraniums are Raised.

So many thousands of these variegated seedlings have been raised, and by so many different hands, on different soils, and under different circumstances, that there can now be no doubt that variegation (in Pelargoniums, at all events) may be, and is, reproduced from seed. There is no difficulty in performing the operation of cross-breeding; nothing can be easier. Every lady in the land may raise an improved Mrs. Pollock, or any quantity of them, with her own hand; it is simply necessary to remove the anthers from the flower chosen to bear the seed (before the pollen is displayed), and then, as soon as the little horns of the pistil curl backwards, to apply to them the pollen from the flower chosen as the male parent. It will have been noticed that Mr Grieve, in all the examples given (with one exception, and that his first attempt), chose a dark zoned variety for the seed-bearer, and fertilized it with the pollen from a variegated sort—Mrs. Pollock, for example. In the exceptional case, he had simply reversed this. There is no doubt at all that the first plan is the best. And by

“best” I mean that it will yield a far greater percentage of variegated seedlings, and of better quality. I think, also, I have a glimmering of the reason of this, thanks to the late Donald Beaton, whose loss in this particular field of research is almost irreparable; and perhaps I may be pardoned for straying so far from my text as to say, that though I never even saw him, I learned to love him by sitting humbly at his feet, and that I mourned his death as that of a dear friend. Well, Beaton proved over and over again, some thousands of times, that in the races of Pelargoniums from which the tricolors have been raised, the leaf is always like that of the pollen parent, and he gives the following example:—“Cross Tom Thumb with the pollen of a horse-shoe variety, and the seedlings will all have the horse-hoe leaf; cross the deepest marked horse-shoe variety with the pollen of Tom Thumb, and all the seedlings are plain leaved.” How is it, then, that Mr. Grieve was able to raise Cufford Beauty (a variegated seedling) from Flower of the Day by pollen from Cottage Maid, a green zonal?—that Mr. Aldred raised Sophie Dumaresque from Sunset by the pollen of the green zonal Excellent; and that many other cross breeders have been successful by the same process? In the limits of an essay it is impossible to do more than indicate possible answers; indeed, a perfect answer remains to be found. Again, I must call Beaton to my aid; he has proved that the pollen of the strongest plant (or coarsest, as some would say) takes the lead in influencing the progeny. If, for instance, the pollen of a weak growing variety be placed on four of the five divisions of the style, and pollen from a stronger-growing variety be placed on the fifth division, the seedlings will all have foliage like the stronger. Does not this show that, to insure a given result, something more is required than simply placing pollen upon the style? May not the disease (or affection) called “variegation” be able so far to overcome the power of the pollen from the coarser-growing zonal, as to transmit itself to the seedlings in certain cases, as, when the pollen-bearing plant is a weaker grower; or not in prime health, if a stronger grower; when the pollen itself is immature, or produced by the anthers of the short stamens—anything, in fact, which should just sufficiently restrain the power of the pollen? Whatever may be the cause, the fact remains: that the best plan is to let the green zonal be the seed bearer, and this is the plan adopted by cross breeders generally. Nor is this all: the pollen borne upon the two shortest stamens seems to have special power in increasing the tendency to variegation, but with one drawback, that it also dwarfs the seedlings.

To obtain the best possible results from crossing, attention should be given to the preparation of the parent plant. The necessity for this may be illustrated by the following example:—Beaton, for a particular purpose, wished to obtain seed from Scarlet Defiance; but year after year he failed, for seven consecutive years. At last he succeeded, by keeping the plant for the previous eighteen months as near starvation point as could be; it was planted in the poorest sandy soil, and no more water given to it than would lift the leaves after letting them flag. It was of a gigantic habit, and this suggested the proper course. It is not meant that others should go and do exactly the same, irrespective of circumstances. This is merely given as a proof that the

health and condition of the parents have a direct and important influence in crossing; and as a hint that those who would surpass others in respect to the quality of their seedlings, must depend upon extra care, thought, and judgment, and not upon blind chance. Nature will only yield to persistent wooing; and never unveils herself save to those who have deserved it by earnest loving devotion. *Evencos a nos—meris!*

The plant intended to be the seed-bearer should be two years old, and must not have suffered from free-flowering in the previous year; it should have made all its roots, and have its pot brimfull of them. Not more than one truss of bloom should be allowed on each strong branch: the two or three first and last blooms should be discarded: all the blooms to be crossed on one plant should be done as nearly as possible at the same time, and the plant should be carefully stopped from the first day of crossing. These are the directions given by Beaton—he calls them his "secrets," and we need wish for no better guide. Lastly, do not be in a hurry to throw away those plants which show no sign of variegation early in life, as eventually they may prove the best; for precocity in plants, as in a man, is too often the sure forerunner of an early death, or of a premature old age.—Mr. Smith, in *Gardener's Chronicle*.

#### A Simple Mode of Growing Mushrooms.

My experience as a Mushroom-cultivator extends over a period of twenty years. During this period I have grown them in many different ways, in many fashionable as well as unfashionable houses and sheds, and in the open air, during summer and winter, in different parts of the country, and for various purposes—for the supply of ducal tables, and for sale in Covent Garden Market—and I can truly say, without desiring to boast of my own success, that there is no vegetable so simple or easy of cultivation as the mushroom.

The method which I adopt generally for winter supply, and that which I have found the simplest, may be briefly stated thus. I procure two cartloads of good fresh stable manure, and shake out the longest of the straw. I am not, however, very particular about this. Then it is turned over in the open air once or twice to get rid of the rank steam. When this is gone the dung is taken into one of the sheds at the back of the houses, and about four barrowfuls of ordinary fresh soil mixed with it. The bed is then made up on the floor of the shed to a depth of about twelve inches, pressed rather firmly, and spawned when at a temperature of between 75° and 80°. A covering of about one inch of good strong loam in a rather rough state is then added, and beaten level with the spade. By using heavy loam as a covering, the Mushrooms produced are of a much more solid character than where light sifted soil is used; they are, consequently, more valuable, commanding a far higher price in the market. The whole is then covered up with at least nine inches of straw or long litter.

I never use any fire heat, as I consider that a piece of useless extravagance. Better mushrooms can be grown without fire heat than with it, and a continuous supply kept up throughout the coldest winters.

I have several beds in bearing now that have been made in the manner described. To-day (December 16th) I have picked a small pail full from a square foot. I could pick many such—in fact, the beds are a perfect sheet of white all over. Seeing that they are so easily cultivated, who would be, who need be, without their dish of mushrooms?—R. G. Stamford, in *Eng. Journal of Horticulture*.

#### Strawberries.

This season has been favourable to the development of large size and abundant quantity of berries, though somewhat at the expense of flavour. It has afforded another opportunity to test the relative merits of varieties, and to ascertain their value for the garden of the amateur or for field culture by the grower for market.

The AGRICULTURIST has shown itself to be a capricious variety, doing well on some soils, chiefly the strong soils, and requiring high culture. With good care, on a soil that suits it, the yield is very good, and the berries large.

BROOKLYN SCARLET, one of the "Tribune Prize" berries, does not prove itself to be worthy of cultivation on sandy soil, whatever it may do on other soils, there being nothing in the size, quality, or productiveness to make it worth while to retain it.

HONEY'S SEEDLING succeeds well in particular localities, and where it does well is a very handsome, large-sized and popular variety. Around Boston it is largely cultivated as a market fruit.

JUCUNDA does not sustain the high character as a market fruit given to it by Mr. Knox. It is much like the Triomphe de Gand, and, taking a series of years, we think it will prove to be more productive than Triomphe. A strong soil will suit it best.

NIGANOR is hardy and quite productive, but the fruit is only medium size, and hardly as firm as is desirable in a market fruit. It has not yet been sufficiently tested in all soils and climates, but seems to possess sufficient good qualities to make it worthy of further trial.

RUSSEL'S PROLIFIC requires high culture in hills, and to be planted near some other sort that is abundant in pollen, and flowering at the same time. When thus grown, the fruit is very large and well formed, and the crop very abundant, but the fruit is too soft to bear transportation.

TRIOMPHE DE GAND maintains its place in public estimation. It yields its best crops and finest berries in new soil, of a clayey loam character, and where the runners are well kept off.

TROLLOPE'S VICTORIA is a light colored and pleasant flavoured berry, but the plants are only moderately productive. It does best grown in hills, with good culture, and the runners kept off.

BISHOP'S CANADA SEEDLING has not been productive on our grounds this season. It is probable that it requires a strong soil and hill culture.

GOLDEN SEEDED is not sufficiently productive to make it valuable.

GOLDEN QUEEN is an imposition, being nothing different from Trollope's Victoria.

ROMEYN'S SEEDLING seems to be another effort to multiply varieties and impose upon the public, by giving a new name to Triomphe de Gand.

WILSON yet remains the most popular, the most prolific, the most hardy and the most profitable strawberry in all soils and all climates, that we have. Henry Ward Beecher has been trying to write it down in a sensation article for the "Ledger," but we believe the strawberry will prove too much for him—a Banquo's ghost that will not down even at his bidding, but with each returning summer will take its place at festive board, and shake its gory locks before his startled vision.

#### Splitting the Bark of Cherry Trees.

Can any of your readers explain in what way cherry trees are benefited by having one or more longitudinal incisions made with a knife once each year about June, from the forks to the ground, and also longitudinally down each limb from the upper part to the forks of the trunk? An old friend of mine advised me to do this, saying that unless it was done the trees could not grow, and would die, or not bear any fruit; would exude gum, and gradually get unhealthy. I followed the advice for these three years past, and certainly the trees are full, and would bear well, if the curculio did not destroy the fruit. But the most curious part of the operation is that in a week after the incision is made, if done in June, the outer, dead, horny rind will not meet again over the cut, nor will it do so if made in four places at different sides of a limb or the trunk. Sometimes the gaping aperture will be one-eighth of an inch from meeting, on four sides at once. It seems to me that the tree is bound up in a tough, hard, thin shell, and cannot so well force its expansion; but the moment an incision is made, relief is obtained similar to that experienced when ladies' tight lacing has suddenly been cut during fainting fits in church or elsewhere. The fact I have seen proved in cherry trees many times, but do not know why Nature has clothed them with such an unyielding skin as to require opening for natural growth and development. Attention is particularly directed to the time at which any incision in the bark can most safely be made, as some experiments made in March proved injurious; the cuts never healed properly, but continued to exude gum, and a growth of diseased woody matter on each side of the cut was the result, whereas incisions made in June were followed by rapid healing over of the part, caused, no doubt, by the exudation of sap, which at once forms healthy young bark. C.

### Fruit Growers' Association of Ontario.

The annual meeting of this Association will be held at the Court House, City of London, on Tuesday, the twenty-first day of September, 1869, at seven o'clock, P. M.

Reports will be received from the Directors and Treasurer, and officers will be elected for the ensuing year. The President will deliver his annual address.

The autumn meeting will be held in the Town Hall, Brantford, on Thursday the 7th day of October, 1869, commencing at eleven o'clock, A. M., and continuing through the day and evening. A fine display of fruit may be expected.

### Pruning Orchards in June.

Some months since, in an article in the CANADA FARMER, attention was called by the writer to the fact of its being injudicious to prune trees, either apple, cherry, or plum, in the winter or early spring months, and attention was particularly directed to the injurious effects arising therefrom; at the same time great stress was laid on the advisability of pruning, (whether heavy or light, large or small boughs) during the latter end of June, and especially to cut quite close to the stem or trunk with a smooth clean cut, and not pared in the least at the edges. This fact is quite supported in the evidence of some trees pruned by a neighbour in March, (simply because he had nothing else at that time to do) and trees pruned by the writer in June. In the latter case, although some boughs were quite large, there is now a round excrescence, or ring of green fresh bark, gradually closing all around the part where the limb was severed, and the very slight exuded moisture, caused by cutting close to the trunk, keeps the part very slightly moist, and consequently quite free from any sort of decay. Were it left to project, as some otherwise excellent treatises on pruning advise, the stumps would have become dead and dry, and full of cracks, with no prospect of healing over. My neighbour's trees are precisely in this condition, in many instances. I felt a certain interest for some years in these trees, as they were grown by me, and were under my care until they attained their present size, and prosperity; some slightly painful ideas are therefore caused by the error. Any one who loves trees, and has grown them, lived under and amongst them, seen his children grow up with them, and hates a brick and mortar edifice standing alone without a tree of any kind, may well be excused expressing deep feeling of regret at seeing the results of such slight mismanagement. Orchards are the beauty and value of our homesteads, and with careful treatment will last a whole generation in full vigour, and may be caused to reproduce a second growth of young wood, that will almost last the second generation. All that is wanted is care and attention, and no capital in the world is better expended than that laid out in a good orchard, and no care will be more wonderfully repaid, for the return is certain. C.

### The Apple Worm.—Dr. Trimble's Remedy.

We gave some notice a few weeks since of the successful application of the hay rope as a trap to catch the larvæ of the Apple-worm or Codling moth, as shown by specimens of the bark and trunk covered with the cocoons of the insects which had crowded beneath these hay ropes as a hiding place to effect their transformation. Having since had an opportunity of visiting Dr. Trimble's grounds at Newark, N.J., he pointed out a number of experiments in the course of trial in his own grounds and those of his neighbours; in these instances the ropes had been placed round the trunks about a week previously, and had already caught large numbers, some of which had changed to the pupa state, and others had just reached their hiding place, and were yet larvæ. The whole number of insects thus caught on one tree in a single season had in extreme cases amounted to about a thousand, proving conclusively the value of the remedy. In some cases the number of pears on young trees which were infested with the worm had been carefully counted when the ropes were applied. The same or very nearly the same number of insects had been subsequently caught in the trap set for them, affording satisfactory evidence that the remedy might be relied on for effecting their general destruction. Trees which formerly lost their fruit were now, under this treatment, bearing tolerably fair crops; a complete extermination could not, of course, be expected, while the neighbours entirely neglected the remedy.

These hay ropes should be long enough to pass two or three times about the trunk of the tree, and should be applied as early in the season as the young fruit is observed to be affected at the blossom or calyx end. Dr. Trimble applies two belts of the kind, one two or three feet high, and the other higher. Insects are found under both, and he thinks those under the higher belt descend the tree before the fruit drops, and those found under the lower, crawl up from the fallen fruit on the ground. As formerly stated, we have been less successful in several trials of this remedy, but we intend to repeat it under varying circumstances, and perhaps may learn the cause of the partial failure; as applied by Dr. Trimble, nothing appears simpler or easier, and to be attended with more uniformly favourable results.—*Country Gentleman.*

**A NEW TURFING PLANT.**—A new turfing plant, *Pyrethrum Tchatchecii*, has been introduced to public notice in France, as a very desirable plant for turfing lawns, &c., in poor, hungry soils where it is difficult to make grasses grow. The foliage is dark green, and much cut or lacinated. The plant is very dwarf and quite hardy, withstanding equally well the drought of summer and the hardest winters. The flowers are white, and resemble daisies.

### Catalogues Received.

Descriptive Catalogue of the Fruit Department of the Washington Street Nurseries.

Descriptive Catalogue of the Ornamental Department of the Washington Street Nurseries Graves, Selover, Willar, & Company, Geneva, New York.

These catalogues contain upwards of a hundred pages descriptive of the various fruits, flowers, evergreens, and ornamental deciduous trees and shrubs, roses, etc., cultivated and sold in this establishment. They are very neatly got up, and illustrated with coloured frontispiece, and various engravings of trees and flowers.

Descriptive Catalogue of fruit and ornamental trees, shrubs, roses, &c., &c., Syracuse Nurseries, Syracuse, New York. Smith, Clark & Powell, proprietors.

This catalogue contains the Fruit and Ornamental Departments in one, and makes a neat volume of about one hundred and fifty pages, handsomely illustrated with engravings and coloured frontispiece. There is also a copious index, which in a catalogue of this size is very convenient.

Special Trade List of the Syracuse Nurseries, for the autumn of 1869. Smith, Clark & Powell, proprietors, Syracuse, N. Y.

Wholesale Catalogue of the Mount Hope Nurseries, Rochester, N. Y., for autumn of 1869. Ellwanger & Barry, proprietors.

Wholesale Trade List of the Nurseries of Nicholas & Newson, Geneva, N. Y., for the fall of 1869.

Wholesale Catalogue and Trade List for the autumn of 1869, of the Niagara Nurseries, Lockport, N. Y., E. Moody & Sons, proprietors.

Wholesale Catalogue or Trade List of the Morris Nurseries, West Chester, Pennsylvania, for autumn of 1869. Otto & Achells, proprietors.

Descriptive Catalogue of Fruit and Ornamental Trees, cultivated and for sale by A. M. Smith & Co., at the New Dominion Nurseries, Grimsby, Ont. This catalogue gives concise descriptions of the fruits most generally grown in the Province, and has been prepared with reference to the wants of Canadian planters.

**CULTIVATION OF STRAWBERRIES IN EGYPT.**—It may be interesting to some of your readers to know that Strawberries succeed well at this place. I have grown them with great success for the last two years, and find that young plants produce the best crops and the finest fruit. I put out young plants in September and October, and have gathered ripe fruit since Christmas up to the present time from the open ground. The plants are now in a healthy and vigorous state, producing plenty of flowers and fruit of excellent quality. I have no doubt they will continue to produce fruit for the next two months, thus stretching over a period of seven months in full bearing. Is this not something extraordinary? (Yes.) The varieties are Ajax, British Queen, Keens' Seedling, La Constante, Omar Pasha, Admiral Dundas, and Sir C. Napier.—*James Hardie, Palace Gardens, Gizeerah, Cairo, Egypt, June 2.*

**ONION SEED.**—A correspondent wishes to know who can supply him with good yellow and red onion seed, the produce of 1869. Persons having such to dispose of should make it known by advertisement.

**MUSHROOM SPAWN.**—An enquirer is informed that he can obtain spawn for growing mushrooms from the seed stores in Toronto, and probably in other localities also. We have seen quantities of it exposed for sale in Mr. Fleming's window.

**WHITE MAGGOTS IN CABBAGE.**—John L. Lander, Pembroke, having tried quick lime without effect, asks what remedy he could adopt to kill what is commonly termed the white maggot, which devours the cabbage plants. Peter Henderson says that the free use of bone meal as a manure will save the cabbages from the white maggots.

**A FERTILIZER FOR STRAWBERRIES.**—An experiment made last year by myself may not come amiss as a hint to those who grow Strawberries. I procured a half hoghead, filled it with rain water, and put into it one-quarter pound of ammonia, and one-quarter pound of common nitre. When the Strawberry plants were blossoming out, I gave them a sprinkling of the solution at evening twice a week, until the fruit was nearly full size. The result was double the amount of fruit on those where the liquid was applied to what was obtained from those vines right along side of those where none of the liquid was applied. Let all give it a trial.—*Cor. Sud's Fruit Recorder.*

**SILK PLANT DISCOVERED IN PERU.**—The Department of State has received information from the U. S. Consul at Lambayeque, Peru, that an important discovery has recently been made in Peru of the silk plant. The shrub is three or four feet in height. The silk is enclosed in a pod, of which each plant gives a great number, and is declared to be superior in fineness and quality to the production of the silkworm. It is a wild perennial—the seed small and easily separated from the fibre. The stems of the plants produce a long and very brilliant fibre, superior in strength and beauty to the finest woven thread. Small quantities have been woven in the rude manner of the Indians, and the texture and brilliancy are said to be unsurpassed.—*Et,*

**USES OF VINE LEAVES.**—From experiments which I have made, I find that, on being dried, which should be done in the shade, and infused in a tea-pot, the leaves of the vine make an excellent substitute for tea. I have also found that, on being cut small, bruised and put into a vat or mashing tub, and boiling water poured on them in the same way as done with malt, the prunings of the vine produce liquor of a fine vinous quality, which, on being fermented, makes a very fine beverage, either strong or weak as you please; and, on being distilled, produces an excellent spirit of the nature of brandy. In the course of my experiments, I found that the fermented liquor from the prunings, particularly the tendrils, when allowed to pass the vinous, and to run into the acetous fermentation, makes uncommonly fine vinegar.—*Philosophical Magazine.*

## Apiary.

### Ontario Bee-keepers' Convention.

A Bee-keepers' Convention, as already announced, will be held in the city of London, Ontario, during the week of the Provincial Fair, on Tuesday, Wednesday and Thursday evenings, Sept. 21, 22 and 23; when the following questions, which have been submitted for discussion, will be considered:—

• Will it pay to feed bees in spring, with a view to early swarming? Proposed by S. H. Mitchell.

Can queens be successfully wintered at an expense to render it practicable? W. Paxton.

Is there any danger of Canada, or any district in Canada, being overstocked with bees? A. C. Attwood.

What is the best method of artificial swarming? A. M. Thomas and S. H. Mitchell.

With a spare fertile queen, can ordinary stocks be profitably divided as early as the month of May? Wm. Paxton.

Has foul-brood ever made its appearance in Canada? A. C. Attwood.

In swarming, why do bees cluster before leaving for the woods, and when do they choose the place for their future home? A. C. Attwood.

What is the best method for introducing queens? J. H. Thomas.

Can fertile queens be produced early in spring, with a view to early swarming? W. D. Bowerman.

Can artificial heat be used profitably for early hatching? W. Spence.

Do bees consume less, and come out best, wintered in a uniform cool, or in a warm temperature? L. Churchill.

At what time in the spring should stimulative feeding be commenced—and what quantity, and how often, should a stock be fed? J. H. Thomas.

What kind of plants will yield honey the best in excessively wet weather? S. H. Mitchell.

What is the best size for bee-hives in Canada? G. Richardson.

What is the best method of securing the most surplus honey after having doubled your swarms? H. M. Thomas.

Is the Centrifugal Comb Emptying Machine as useful as it has been represented? A. C. Attwood.

In what place will bees winter best? F. G. Ashbough.

The Sons of Temperance Hall, on Richmond Street, near the Tecumseh House, has been secured by Mr. A. C. Attwood, at which place the Convention will meet on Tuesday evening, at six o'clock; on Wednesday and Thursday evenings at half-past seven o'clock.

We hope there will be a general attendance of all interested in bee culture.

J. H. THOMAS, *Apiarian,*  
Brooklin, Ontario,

### Deserted Hive.

To the Editor.

Sir,—Can you explain the cause of the following singular occurrence in my apiary? I had an old hive of bees which threw off a first swarm on the eighteenth of June; the week following it threw a second swarm; and about ten days after, a third swarm, the largest of the three. All appeared to be working well. In the course of three or four weeks, I suspected something was wrong with the old hive. I lifted it, and found the bees all gone, and nothing but empty combs and a few drones; no signs of any millers in the hive.

J. N.

Fullarton, Aug. 21, 1869.

Ans.—The probable cause of the bees leaving the hive was the want of honey and brood.

What you supposed to be a natural third swarm, was doubtless the exit of your bees. When the young queen went to meet the drones to be fertilized, there being little or no honey, and but little, if any brood in the hive, all the bees went with her. Hence your third swarm was larger than either the first or second.

J. H. THOMAS.

### Bees Gumming Frames.

To the Editor.

Sir,—Having read a piece in your Journal on bees gumming frames to the hive, wherein "Novice" relates his experience with the Thomas' movable comb frames, an experience that falls to the lot of all who have hives with movable comb frames, "hung with wooden bearers," I am led to make a few observations from my own little experience. I have had more than one frame to break, in one of the Thomas hives, at one examination; but for all that, I consider that the Thomas hive comb frames are better arranged so as to prevent the bees from glueing the frames than any I have ever seen, with the exception of Langstroth's, and I have seen a good many different kinds of hives. However, Mr. Thomas says that, "to one who understands them, the gumming is not of the slightest account." I know that when a person becomes accustomed to a thing, however much an evil it may be, it makes him think the less of that evil, and this I think must be the case with Mr. Thomas; for certainly it is a fact, Mr. Thomas to the contrary notwithstanding, that the gumming of frames to the hives is a very great inconvenience, and an evil which all keepers of bees are anxious to get rid of. I know in my own experience,

I have removed comb frames in the Thomas' hive, where the screw driver he speaks of would not have mended the matter one whit.

He also says, "bees will gum the frames of any frame hive, and they cannot be prevented from doing so." I have much pleasure in informing Mr. Thomas that bees can be prevented from glueing the comb frames to the hive, and that there is a hive now in use, known as Miniely and Wallace's "Eclipse Bee Hive," the comb frames of which are so constructed and hung, that the bees cannot glue them to the hive; and should Mr. Thomas, "Novice," or any other apiarian doubt my assertion, they can have it proved to them by ocular demonstration, if they will only come to the neighbourhood in which I live, in the township of Warwick, and examine for themselves, and see that movable comb frames in the "Eclipse Hive" are no misnomer.

By inserting the above in your very valuable journal you will much oblige,

ALEX'R. H. WALLACE.

Wisbeach P. O., Ont.

NOTE.—If Mr. Wallace has a hive in which the bees will not glue the frames, I shall be pleased to see it, as I have never seen one. I presume he will place it on exhibition at the approaching Provincial Fair, for the inspection of bee-keepers.

I can but repeat what I have before said; glueing in the Thomas hive is of no account, and I would not give a straw to get rid of it; and to one who understands it, there is not the least occasion of breaking a frame, as I am prepared to demonstrate at any time. The bars of comb between the frames are ten-fold more of a detriment in removing frames than all the glue ever placed in a hive.

J. H. THOMAS.

### Swallows and Bees.

To the Editor.

Sir,—Will you please inform your readers whether swallows and martins kill bees. I felt convinced last summer that they did, and tried to shoot some to prove it, but they were too sharp for me. Now this evening I see them for the first time in hundreds round my hives. If they do destroy bees, surely we may shoot or kill them in any way we can.

JOHN A. GEMMILL.

Pakenham.

REPLY.—I have never known, in my experience, swallows or martins to destroy bees. They may do so, however, and it would be well to shoot one or two and ascertain.

Ducks will eat the drones, catching them as they come from the hive, but will not take the workers. It may be the same with swallows.

Will Mr. Gemmill report results?

J. H. THOMAS.

## Poetry.

### There is no Death.

There is no death! The stars go down  
To shine upon some fairer shore;  
And bright in heaven's jeweled crown  
They shine for evermore.

There is no death! The dust we tread  
Shall change beneath the summer showers.  
To golden grain or mellow fruit,  
Or rainbow-tinted flowers.

The granite rocks disorganize  
To feed the hungry moss that bears;  
The forest leaves drink daily life  
From out the viewless air.

There is no death! The leaves may fall,  
The flowers may fade and pass away—  
They only wait through wintry hours  
The coming of the May.

There is no death! An angel form  
Walks o'er the earth with silent tread;  
He bears our best loved things away,  
And then we call them "dead."

He leaves our hearts all desolate—  
He plucks our fairest, sweetest flowers.  
Transplanted into bliss, they now  
Adorn immortal bowers.

The bird-like voice, whose joyous tones  
Make glad this scene of sin and strife  
Sings now in everlasting song,  
Amid the tree of life.

And ever near us, though unseen,  
The dear, immortal spirits tread,  
For all the boundless universe  
Is life—there are no dead.

## Natural History.

### Rats and Mice.

*Le Naturaliste Canadien*, for July, contains the subjoined discussion on Rats and Mice, which we translate for the gratification of our readers.

"Our last number was at press when we read the following article in the *Sherbrooke Pioneer*.

"NO RATS—PLENTY OF MICE.—Many of our readers may perhaps not be aware that there are no rats in the Townships; but it is nevertheless a fact. There were some brought in bales of merchandise, but very fortunately they did not take root. Is this owing to the soil? That is a question for the savans to resolve. Perhaps the editor of the *Naturaliste Canadien* will be good enough to give us his opinion on the subject. In revenge, however, we have mice in abundance, and the snow last winter was very favourable to them. They have hibernated in thousands at the foot of trees, nourishing themselves with the bark and fruit. We understand their nests have been found at the roots of maple trees in immense numbers. The fields are covered with them. In travelling, they are seen in great numbers along the roads, and many houses are infested with them."

"This is the first time that we have heard that there were no rats in the Eastern Townships. The immunity, however, is not general; for at King, where we resided four years, rats were as abundant and as mischievous as in any other place in the county. But if the statement be true as regards Sherbrooke alone, it is still a surprising fact, and one which we are pleased to learn, above all, with a view of clearing up a point in natural history on which naturalists are not agreed. European naturalists pretend that we have given them the rat, while Americans maintain that the trouble some Rodent comes from Europe. The fact that there are no rats in Sherbrooke and the neighbouring townships, joined to the presence of this animal only in farm buildings and sewers of towns, will suffice, in our opinion, to prove that the rat is not a native of America.

"As to assigning a cause for the absence of this animal from the Townships, we can see none but this: the Eastern Townships are not within the routes of navigation, and as the rat is a poor walker, its migrations, when made upon the ground, seldom extend further than from one dwelling or barn to another, always at distances not very remote. Now, as the most part of the new settlements of the Townships are separated from the others by routes or forests of considerable length, these Rodents have not yet reached them. We have no doubt that if they transport a couple of rats to Sherbrooke, they will give immediate proof of their prodigious fecundity. But we are far from counselling the experiment, for we have not, generally, to complain of the scarcity of enemies, and the rat, in point of destructiveness, leaves far behind him both the mouse and the field-mouse.

"We would observe to the editor of the *Pioneer*, that the animal which he designates under the name of mouse, and which gnaws the bark of the maple, cannot be the true mouse (*Mus Muscularis*, Lin.); for this, which comes certainly from Europe, is found only in our dwellings. The animal to which he alludes is, without doubt, the field mouse (*Mus agrarius*, Pall.), which is indigenous, and which often causes considerable damage to fruit and other trees, by gnawing the bark during winter. We have another little Rodent, which inhabits our woods, and which is also found to attack the bark of trees. This is the Deer Mouse (*Meriones Canadensis*, Lesson), vulgarly called the Wood Mouse. It is easily distinguished from its congeners by having a tail at least twice the length of its body, terminating with a tuft of hair. We are led to believe, however, that the ravages attributed to mice in the Townships are rather due to the field mice than to the Meriones; for to our knowledge, many orchards have been horribly maltreated by the teeth of the former, while the latter are seldom remarkable for their depredations."

# Agricultural Intelligence.

## Fall Exhibitions for 1869.

CANADA.	
PROVINCIAL.....	London.....Sept. 20-23.
East Zorra.....	Lapins.....Sept. 17.
DUNDAS, County.....	Morrisburgh Sept. 21-22.
HURON, N. Riding.....	Clinton.....Sept. 23.
Blandford.....	Plattville... Sept. 23.
Rockwood Union.....	Rockwood... Sept. 20.
SOUTH ONTARIO.....	Whitby.....Sept. 29-30.
YORK, West R. (Union).....	Toronto.....Sept. 29-30.
EAST OXFORD.....	Townhall... Sept. 30.
HURON, S. Riding.....	Seaforth... Sept. 30-Oct 1
LAMARK, N. Riding.....	Almonte... Sept. 30-Oct. 1.
WATERLOO, N. Riding.....	Preston... Sept. 30 Oct 1
Richmond P. Q.....	Richmond... Sept. 30.
East Niagara.....	Kintore... Oct. 1
West Garafraxa.....	Douglas... Oct. 1.
North Norwich.....	Norwich... Oct. 1-2.
OXFORD, North R.....	Woolstock... Oct. 4-5.
BRANT, South R.....	Brantford... Oct. 5-6.
SIMCOE SOUTH.....	Bradford... Oct. 5-6.
PERTH, S. Riding.....	St. Mary's... Oct. 5-6.
WELLAND.....	Welland... Oct. 5-6.
Barton and Glanford.....	Glanford... Oct. 5.
Nottawasaga.....	Creemore... Oct. 5.
Trafalgar.....	Palermo... Oct. 5-6.
OTTAWA.....	Ottawa... Oct. 5-7.
RENFREW, South R.....	Oct. 6
MIDDLESEX WEST.....	Strathroy... Oct. 6.
Bothwell.....	Thamesville Oct. 6
Euphemis & Dawn.....	Thamesville... Oct. 6.
Stanley.....	Yarna... Oct. 6
OXFORD, S. Riding.....	Ingersoll... Oct. 6-7.
PERL.....	Brampton... Oct. 6-7.
YORK, East Riding.....	Markham... Oct. 6-7.
LENOX.....	Oct. 7.
PERTH, N. Riding.....	Stratford... Oct. 7-3.
WELLINGTON, South R.....	Guelph... Oct. 7.
Raleigh.....	Raleigh... Oct. 7.
Blenheim.....	Dundas... Oct. 8.
Esqueping.....	Oct. 8.
Orford.....	Duart... Oct. 8.
West Williams.....	Parkhill... Oct. 8.
Camden.....	Clark Mills... Oct. 9.
BRANT, N. Riding.....	Paris... Oct. 12-13.
NORFOLK, N. & S. Riding.....	Simcoe... Oct. 12.
PRINCE EDWARD.....	Pictou... Oct. 12-13
East Garafraxa.....	Marville... Oct. 12.
Howard.....	Russelltown... Oct. 12.
Hibbert.....	Staffa... Oct. 12.
WATERLOO, S. Riding.....	Waterloo... Oct. 12-13.
WENTWORTH and HAM-	
ILTON.....	Hamilton... Oct. 13-14.
Elma.....	Newry... Oct. 13.
Clarke.....	Orono... Oct. 13-14.
Caledon.....	Charleston... Oct. 13-14.
Aldbore.....	Rodney... Oct. 14.
Dereham.....	Tilsonburg... Oct. 14.
King.....	Schomberg... Oct. 15.
Erin.....	Erin... Oct. 19.
LINCOLN.....	St. Catharines... Oct. 19-20.
WELLINGTON, N. Riding.....	Bohsay... Oct. 19.
NORTHUMBERLAND.....	Cobourg... Oct. 19-20.

### UNITED STATES.

New England.....	Portland... Sept. 7-10.
Ohio.....	Toledo... Sept. 13-17.
New York.....	Elmira... Sept. 14-17.
Am. Pomological Society.....	Philadelphia... Sept. 15-18.
Michigan.....	Jackson... Sept. 21-24.
Illinois.....	Decatur... Sept. 27-Oct. 2.
St. Louis Association.....	St. Louis... Oct. 4-9.

The Manchester Courier states that pleuropneumonia is once more doing its fatal work in Cheshire. In the neighbourhood of Farn-don and Broxton its ravages have already been very great among the herds.

## The Harvest

The grain harvest, though unusually late, will in most parts of the country be gathered in before this number is issued. Considerable disappointment has been experienced in some sections in regard to wheat, which has been injured by rust, and has yielded when threshed far less than was anticipated. On the whole, however, there is a good crop. Barley, oats and peas have yielded abundantly, though harvested with difficulty and somewhat deteriorated in the process. Hay has largely exceeded the average, but owing to the exceptionally wet season, has suffered in the curing. The root crops generally give a bountiful promise, but potatoes are in many places very badly rotted. The lesson of every season, whether marked by drought or excessive moisture, has this year been emphatically repeated—namely, that to ensure good crops, it is absolutely necessary that more general attention be paid to under-drainage.

BRITISH CROPS.—We subjoin an extract from an article in the *Agricultural Gazette* of Aug. 7th, giving from a number of returns a comparative statement of the crops of 1868 and 1869:—"The following is the tabular account of the reports with which our correspondents have favoured us, and we place it alongside the corresponding figures for 1868, that the great contrast, especially in the wheat crop, may be seen:—

	1868.			1869.		
	Over Average.	Average.	Under Average.	Over Average.	Average.	Under Average.
Wheat	126	67	13	18	75	88
Barley	5	54	140	31	70	60
Oats	2	37	133	22	72	80
Beans	0	22	137	23	86	22
Peas	0	70	43	8	58	62

"As regards all succulent growth, we believe the country may be congratulated. There is a capital plant of both mangel wurzel and Swedes, and recent rains have saved much that seemed ready to die. There has been a great hay crop, and though pastures are somewhat bare just now, there is no such complaint as there was last year. The potato crop promises to be good and healthy.

The foot and mouth disease, or epizootic apthia, has broken out among the cattle in many parts of England.

The cultivation of beetroot promises to be very successful this season in Suffolk, England, and its utilization at Mr. Duncan's newly established sugar manufactory at Lavenham is also encouraging. Mr. Duncan has given five silver cups, valued at £10 10s. each, for the best grown.

# Household.

## Purifying Cistern Water.

Cistern water becomes foul and offensive, because it contains a large amount of organic matter derived from the roof of the houses, absorbed from the air, etc. This matter may be in the form of germs, or it may be in the process of growth or decay. It may be vegetable or animal, or both, the latter condition generally prevailing. This matter undergoes rapid growth and decay, and exceedingly rapid multiplication. When the temperature is warm, as in the summer, there are two ways to correct the evil: First, by entire separation of all organic matter from the water; second, by its complete destruction while in the water.

The first object cannot always be accomplished, as no simple filter would separate germs, and even if separated the water could not be kept for use unexposed to the air. An effectual method of purification is accomplished by chemical destruction. This may be completely, economically, and safely done by the permanganate of potassa, used in the proportion of about an ounce to fifty gallons of water. A destructive chemical change takes place, the organic matter is reduced, and the whole mass is precipitated as an inert and harmless sediment. The chemical reaction is marked by a purple coloring of the solution, and this color indicates the presence of organic matter. The permanganate should be added until this color disappears, when you may know that the organic matter is destroyed; for an infinitesimal quantity of the latter will be detected by the former. This preparation of potash may be obtained at any druggist's.—*Ex.*

## Seasonable Recipes.

### PICKLED CUCUMBERS.

Have a gallon of water in which a quart of salt has been dissolved; put in the cucumbers and let them stay in twelve or fifteen hours; then take them out, wash them in clean water and put them in a stone jar. Heat to boiling a gallon of good vinegar, and when it has cooled add a quarter of a pound of cloves, whole pepper and a little alum. Boil again, skin it well, and turn while hot on the cucumbers. They will be ready to use a week afterwards.

### FLAVOURING FOR CUSTARDS.

Peel oranges or lemons very thinly, and fill a bottle with the peel, in which pour brandy or good whiskey; after standing a while an extract is formed which gives a fine flavour to custards, etc.

### TOMATOES FOR WINTER USE.

Gather them when ripe but not over ripe; scald slightly and skin them, cut out the stem end with the core and any green around it—this is essential—put in a brass kettle

over the fire, adding salt enough to season to taste but no more, allow them just to come to a boil, and then while hot turn them into stone jars with small mouths, cork the jars up tightly and seal over the corks so that no air can get in. The jars must be quite full when the corks are put in. They can be used as fresh tomatoes for stews, etc., all winter. Keep in a cool cellar where they cannot freeze.

**TO STAIN FLOORS.**—To strong lye of wood ashes, add enough copperas for the required oak shade. Put this on with a mop, and varnish afterwards.

**SMOKING BAD FOR CHILDREN.**—Children should never be allowed to remain in a room where people are smoking. I have known many children ruined by breathing day after day the vile smoke of the father's cigar, and sometimes the mother's pipe. If a parent is so ignorant of the laws of life as to smoke where young children live, he is a barbarian, indeed.—*Herald of Health.*

**TO KEEP UP SASH WINDOWS.**—This is performed by means of cork, in the simplest manner and with scarcely any expense. Bore three or four holes in the sides of the sash, into which insert common bottle cork, projecting about the sixteenth part of an inch. These will press against the window frames along the usual groove, and by their elasticity support the sash at any height required.

**TO REMOVE MILDREW FROM CLOTHS.**—Mix soft soap with powdered starch, half as much salt, and the juice of a lemon, lay it on the part with a brush, then lay the article on the grass day and night till the stain comes out. Iron stains may be removed by the salt of lemons. Many stains may be removed by dipping the linen in sour buttermilk, and then drying it in the sun; wash it in cold water; repeat this three or four times. Stains caused by acids may be removed by tying some pearl-ash up in the stained part; scrape some soap in cold soft water, and boil the linen until the stain is gone.

**HOW HAIR IS INJURED.**—A writer says:—"Putting up the hair of children in curling papers breaks it and checks its growth, often pulls it out by the roots. Curling irons are fatal to the hair of both children and grown people. The heat saps up the juice out of the fibres as effectually as fire or frost saps the vitality of a green branch, leaving but a dry, withered skeleton. The practice which hair-dressers have of frizzing out the hair with a comb, to make the most of it, is one of the most cruel injuries that can be inflicted on the living hair. The comb cuts it in the act of frizzing it. You can test the truth of this by combing out the hair after it has been so dressed. The hair sometimes comes out by handfuls, and further, this process tangles up the hair, and a great deal of it is broken and pulled out in trying to comb it straight again."

## Miscellaneous.

### The Aurora Borealis—Its Prognostications.

The phenomena of the aurora borealis in this country have been often minutely described on the occurrence of unusually fine displays of it. But no one, so far as I am aware, has studied carefully its prognostications. Thoroughly inquired into, however, these may prove practically valuable, as the following illustration will serve to show. Every one knows that when the aurora first begins to exhibit in the autumn, it is regarded as a sign of broken weather following. But at that period of the year it supplies a prognostic of far greater precision and importance. I have repeatedly mentioned to my friends the observation I have invariably made, that the first great aurora after autumn is well advanced, and following a long tract of fine weather, is a sign of a great storm of rain and wind in the forenoon of the second day afterwards. I must have noticed this fact very early, because I applied it on the occasion of the first meeting of the British Association in Edinburgh, on 8th September, 1834. There had been a long tract of very fine weather—for a fortnight and more—when on Saturday evening, the 6th of the month, there appeared the widest, brightest, and most flashing aurora I have ever seen. Next day, the weather continuing remarkably fine, Professor Sedgewick described, at breakfast at Dr. Alison's, in glowing language, the magnificent exhibition which the philosophers of Edinburgh had provided for their southern visitors. Presenting, then, to him the dark side of the picture, I told him that the Association meeting was to be inaugurated with a great storm. He was surprised at this, and appealed to the continuing cloudless sunny sky against me; but I told him the particulars of the prognostication, and that the storm would not begin till the middle of the following day. Next morning the weather was equally splendid. But soon after eleven the eastern sky began to be overcast; an ominous low north-easterly black cloud rose by degrees; at twelve, as the offices of the Association opened, rain began to fall from that direction; and in a short time there commenced the most incessant and heavy fall of north-east rain I have ever witnessed, lasting without intermission till one o'clock on Wednesday, the 10th, when the fine weather was again restored to us and our visitors. I have often made the same prognostication since, and with invariable accuracy; and several friends to whom I have mentioned it have made the same observation—viz., that the first great aurora, occurring after a long tract of fine autumnal weather, foretells a storm commencing between 12 and 2 o'clock in the afternoon of the second day thereafter. I restrict the prognostication to these conditions. It is evident how valuable the knowledge of it may often be to agriculturists. Nevertheless, I never met with a farmer or farm-servant who knew it. On one occasion it was the means of saving the corn crop of a friend in Dumfriesshire, whose farm-steward was about to leave his corn half led on the day after a very great aurora, and, deceived by the beauty of the weather, was on the point of taking his labourers to other work not at all pressing. His master, trusting to my positive assurances, ordered him to haste in leading and thatching everything; and great was the steward's astonishment when a furious three days' storm set in on the forenoon of the second day.—*Prof. Christison.*

**CLEANING KID GLOVES.**—Have ready a little new milk in one saucer and a piece of brown soap in another, and a clean cloth or towel folded three or four times. On the cloth spread out the glove smooth and neat. Take a piece of flannel, dip in the milk, and then rub off a good quantity of soap on the wetted flannel, and commence to rub the glove towards the fingers, holding firmly with the left hand. Continue this process until the glove, if white, looks of a dingy yellow, though clean; if coloured, till it looks dark and spoiled. Let it dry, and the operator will soon be gratified to see that the old glove looks nearly new. It will be soft glossy, smooth and elastic.

## Markets.

### Toronto Markets.

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

#### FLOUR AND MEAL.

**Flour**—The market has been quiet, but steady. No. 1 Super is selling at \$5; Fancy would bring \$5 20, and Extra, \$5 25.  
**Oat Meal**—Market quiet, but no stock here.  
**Corn Meal**—But little in market—selling at 4 50.

#### GRAIN.

**Wheat**—The market has been quiet, but firm. There have been few lots offering, but a fair demand. Spring Wheat and Midge Proof is nominally worth \$1, and Fall \$1 12, which were the prices current during the whole of the past week. There has been almost nothing doing on the street market, and street prices are, therefore, almost nominal. Spring and Midge Proof are quoted on the street at from \$1 05 to \$1 07, and Fall at \$1 08.

**Oats**—The market has been steadily declining, as the new crop has been brought into market. To day 40c is the nominal price. A few loads sold at that price on the street market to day.

**Barley**—There has been almost nothing doing during the past week. The nominal price by the car load is 75c. That price was also paid for one or two loads which were offered during the week on the street market.

**Peas**—There has been nothing doing in car lots, stock here being exhausted. On the street market 65c would be paid.

#### HAY AND STRAW.

There is very little Hay or Straw coming in. Hay sold to-day at from \$5 to \$12, and Straw at from \$6 to \$8.

#### PROVISIONS.

**Pork**—Market unchanged; no old in stock. Now selling at from \$28 50 to \$29. Extra prime is worth from \$22 to \$23.

**Bacon**—Sales small. Held at 12 1/2c to 13c. Shoulders 11c to 11 1/2c.

**Lams**—Supplies large; selling at from 14 1/2c to 15c for canvases.

**Butter**—The demand continues active; selling at from 15 1/2c to 17c. A car load sold to day at 17c. Pound rolls on the market, 20c to 22c.

**Cheese**—Demand trifling. Only a retail trade doing. No shipping enquiry. Selling in small lots at from 12c to 12 1/2c.

**Eggs**—Market improving. Good packed lots would bring from 11c to 12c; from farmers' wagons 13c to 14c.

**Lard**—Demand very light; selling at from 16c to 17c.

#### THE CATTLE MARKET.

During the past week there has been an active local trade, but no export demand, owing to a decline in the Montreal and Quebec markets. Prices here have declined 1/2c per lb. on all grades, in sympathy with the markets east. A few sales have taken place to supply the local trade. We quote per 100 lbs, dressed weight: 1st class, \$6 to \$6 25; 2nd Do, \$5 to \$5 25; 3rd Do, \$4 to \$4 50.

**Sheep** have been very scarce during the week, the supply not being equal to the demand. Prices have advanced 50c per head for first class. We quote: 1st class, \$5 each; 2nd Do, \$3 to \$3 50; 3rd Do, \$2 to \$2 50.

**Lams** have been more plentiful, particularly the poorer qualities. Really first class lambs are scarce, and prices have advanced 25c. We quote: 1st class, \$3 each; 2nd Do, \$2 20 to \$2 35; 3rd Do, \$1 80 to \$2 10.

**Catses**—Very few offerings, and not much enquiry. Prices remain unchanged. We quote: 1st class, \$7; 2nd Do, \$4 to \$4 50; 3rd Do, \$2 to \$3.

#### PROVINCIAL MARKETS.

**Quebec, Sept. 7.**—Fall Wheat, per bush., 90c. to \$1; Spring Wheat per bush., \$1 to \$1 05. Oats per bush., 38c. to 40c. Barley per bush., 60c. to 65c. Peas per bush., 70c. to 75c. Wool, 30c. to 31c. Hay per ton, \$7 to \$9. Straw per load, \$3 to \$4. Eggs per dozen, 10c. to 12c. Butter per lb., 16c. to 17c. Hides, per 100 lbs, \$4 50 to \$5. Beef, do., \$7 to \$9. Pork, do., \$7 to \$9. Apples per bush., \$1 to \$1 12. Potatoes per bag, 50c. to 60c. Sheepskins, \$1 20c. to \$1 50.

**Galt, Sept. 7.**—Fall *Wheat*, per bush., \$1 05 to \$1 12. *Spring Wheat*, per bush., 80c. to 85c. *Barley*, per bush., 60c. to 70c. *Oats*, per bush., 60c. *Peas*, per bush., 65c. to 70c. *Potatoes*, per bush., 25c. to 40c.

**Hamilton, 7th.**—Fall *Wheat*, per bush., \$1 09 to \$1 11; *Spring*, \$1 03 to \$1 11; *Barley*, 60c. to 70c.; *Oats*, 45c.; *Peas*, 65c. to 75c.; *Corn*, 62c.; *Potatoes*, per bag, 38c. to 66c.

**Montreal Markets.**—*Flour*—Extra, \$5 00 to \$5 75; Fancy, \$4 40 to \$5 50; Superfine No 1 Canada wheat, \$5 10 to \$5 40; No 2 Western, \$4 80. *Bag Flour*, 100 lbs—\$2 45. *Wheat*, Canada Fall, \$1 15. *Oats*, per 32 lbs., 42c. to 43c. *Butter*, dairy, 17½c. to 18½c., store-packed, 17c. to 17½c. *Ashe*, *Pots*, \$5 00 to \$5 65; *pears*, \$5 65. *Pork*, Mess, \$28 50 to \$23 75.

**Goderich, Sept. 7.**—Fall *Wheat*, 80c. to 90c., *Spring Wheat*, 80c. to 90c. *Flour*, \$4 50 to \$5. *Oats*, 37½c. *Potatoes*, 35c. to 40c. *Butter*, 15c. to 16c. *Eggs*, 12½c. *Hay*, per ton, \$7 10 to \$9. *Hides* (green), \$1 to \$4 50.

**Advertisements.**

**BOOK AGENTS WANTED**—The Farmers' and Mechanics' Manual, Mysteries of Convents, Life of St. Paul, Life of Christ and his Apostles, and other works. Send for circular to P. R. RANDALL, Publisher, Port Hope, Ont. v1 9-2t.

**TILTON'S**  
JOURNAL OF HORTICULTURE,  
An Illustrated Magazine, devoted to the Cultivation of Fruit, Flowers and Vegetables. Subscription price, \$3.

**TWO PLANTS OF THE PRESIDENT WILDER STRAW-BERRY** given to each subscriber for 1870. Plants to be delivered in the Spring of 1870. Sample copies sent free, on receipt of stamp for postage.

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Canadian subscribers must remit 24 cents with subscription, for American Postage. 1-9-2t.

**CHOICE SEED POTATOES AT LOW RATES,**

FOR FALL DELIVERY TO 1st NOVEMBER.

**EARLY ROSE.**

"Justly celebrated for all the good qualities appertaining to a first-class early Potato."—*Shaw's Agricultural Journal*.

Per Peck, \$1. Per Bushel, \$3. Per Barrel, \$6.50.

**EARLY WHITE NESHANNOCK.**

As early as the Rose, in color pure white; grows of an even large size, unsurpassed in table quality. Per Bushel \$1. Per Barrel, \$2.50.

**EARLY GOODRICH.**

The best of the Goodrich seedlings, very productive, free from disease; good as an early, or moderately late Potato. Per Bushel, \$1.50. Per Barrel, \$3.

Three Barrels, one of each variety, \$11.

Remit P. O. Order or Registered Letter to address of O. T. SPRINGER,

Box 162, Hamilton, Ont.,

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**FOR SALE.**

THE SUBSCRIBER will offer for sale, at the London Exhibition, the large two-year old Devon Bull "PRINCE OF WALES." Took first prize at Hamilton Exhibition last year, with a number of County and Township first prizes. I shall offer a few very choice Cows and Heifers; also, a choice lot of Hampshire Down and Shropshire Down Sheep. H. H. SPENCER, Brooklin P. O., Ont. 1-9-1t.

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A FEW pairs of SELECTED BIRDS of the following varieties. *Houdan*, *Orvie Gaur*, *Light Brahma*, and *Grey Dorking*. Also, a few *First-Class Cockerels* of each variety. For further particulars apply to

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THE SUBSCRIBER HAS JUST RECEIVED, IN excellent condition, a large and well selected importation of hardy

**DUTCH FLOWER BULBS,**

FOR AUTUMN PLANTING, CONSISTING OF

- HYACINTHS, TULIPS,
- CROCUS, SNOWDROPS,
- POLYANTHUS, NARCISSUS,
- LILLIES, &c.,

Which he offers at as moderate prices as usual.

**DESCRIPTIVE CATALOGUES,**

Containing full directions for their cultivation, sent gratis to intending purchasers.

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**THE SYRACUSE NURSERIES**

OFFER FOR THE FALL SALE

**PEAR PLUM & CHERRY TREES,**

In large amount and of unrivalled quality. Also,

**PEAR SEEDLINGS,**

One year and two years transplanted. Extra fine.

We have besides a fine general assortment of NURSERY STOCK IN ALL THE DEPARTMENTS.

Many hardy varieties of Fruit Trees are grown with especial reference to the Northern trade.

The attention of Nurserymen, Planters and Dealers is solicited. All who buy in quantity will be supplied at low wholesale rates.

For further information apply to SMITH, CLARK & POWELL,

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**HAMILTON NURSERIES.**

- 3000 CHERRY TREES,
- 5000 PLUM TREES,
- 4000 DWARF PEARS,
- 4000 GRABS—12 SORTS,
- 1000 PEACH ON PLUM ROOTS,
- 1000 SILVER MAPLES, 5 to 8 FEET.

Also, Horse Chestnuts, Mountain Ash, Willows, Kentucky Coffee Trees, Tulip Trees, Mulberry Trees, European Sycamores, Poplars, English Filberts, &c., and a general assortment of Ornamental Shrubbery at moderate rates. Aug., 1869. [v1 8-2t.] W. HOLTON.

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This well-known establishment, founded 30 years ago by the present proprietors, and conducted ever since, and at the present time, under their personal supervision, now offers the largest and most complete stock in the country, embracing:

- STANDARD AND DWARF FRUIT TREES,
- GRAPES AND SMALL FRUITS,
- ORNAMENTAL TREES AND SHRUBS,
- NEW AND RARE FRUITS OF ALL SORTS,
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The collection in both departments, useful and ornamental, is the largest in the U. S. Extensive specimen grounds are maintained at great expense, to determine qualities and insure accuracy in propagation.

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**FLUID EXTRACT OF ANNATTO**

For colouring Cheese and Butter. The superiority of this truly excellent, pure and unadulterated ANNATTO, consists in its producing in Cheese and Butter that rich, permanent bright golden cowslip tint colour, so much desired by all Cheese and Butter Factors; and the great celebrity and increasing demand has induced Messrs. R. J. F. & Co. to protect the consumers from fraud, by stamping all their preparations with their Trade Mark—

**A STAG WITH OLIVE BRANCH.**

to counterfeited which is felony. In colouring Butter it will be found by far superior and much cheaper than any other article in use for that purpose, and their **CAKE ANNATTO** has stood unrivalled for the last 80 years.

Annatto Works, Somerset Place, Hoxton, London Established 1785.

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THE Subscribers will pay FIFTY CENTS per pound for **GOOD LIVE GEESE FEATHERS** delivered at their warerooms, Toronto.

1-9-2t\* JACQUES & HAY.

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

**"CONCENTRATED MANURES,"**

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

**LIFE-GIVING PROPERTIES**

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

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Need but a single trial to convince the most sceptical. Full Particulars with Circulars, &c., may be had on application to

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VATS, HEATERS, PRESS SCREWS, HOOPS, (RED CHERRY), CANS, &c., &c.

OF the latest improved styles, and of the best quality, sold cheaper than any house in the trade.

SMALL VATS, complete, suitable for thirty cows and under, sent to any address in Canada, free from post expenses, for thirty dollars. Sent for price list, address H. PEDLAR, Box 106, Ottawa. v1 8-1t.



SEPTEMBER 29TH, 1869.

GREAT SALE OF

SHORT-HORN CATTLE,

LEICESTER, COTSWOLD AND SOUTH DOWN

SHEEP,

AND IMPROVED BERKSHIRE HOGS.

A rare chance to procure first class Rams for the season and good animals to show at the local Fairs.

WILL SELL BY PUBLIC AUCTION, without the slightest reserve, at the people's own prices, at my farm, four miles from Brampton Station, on G. E. R., twenty miles west of Toronto,

ON WEDNESDAY, SEPTEMBER 29TH,

16 Head of pure bred Short-horn Cattle, comprising Cows, Heifers and young Bulls—a choice lot—the best I have ever offered. 100 (pure bred) Cotswold, Leicester and South Down Sheep, comprising about 30 first-class Rams, shearlings and Ram Lambs. The balance, breeding Ewes, shearing Ewes and Ewe Lambs. The largest and best lot of Sheep ever offered for sale in Canada. Also, about 20 young Berkshire Pigs, Boars and Sows.

The above stock is all young, healthy, and in good condition. Send for Catalogue with full pedigrees and particulars.

Teams will meet Trains at Brampton on the morning of Sale, to convey parties to the Farm.

Sale to commence at 12.30. Lunch at 12.

TERMS:—All sums under \$40, cash; over that amount six months' credit, on farm-hand approved notes, or discount at the rate of eight per cent. per annum allowed for cash.

JOHN SNELL, Edmonton, P. O.

W. W. ROE, Auctioneer, September 15th, 1869.

AUCTION SALE.

W. S. G. KNOWLES, AUCTIONEER, Guelph, has received instructions from Mr. Joseph Kirby,

TOWNSHIP OF ESQUESING,

To sell by Auction, at his residence,

THREE MILES FROM MILTON,

THURSDAY, 30TH SEPT. 1869,

Commencing at the hour of TWELVE O'CLOCK, NOON,

ABOUT 60 COTSWOLD,

LEICESTER AND LINCOLN SHEEP,

And about twelve head of Pure-bred Shorthorn Bull and Heifer Calves.

Pedigrees exhibited and terms made known at time of sale.

The Auctioneer directs special attention to the above Stock, being among the best in the Dominion.

Guelph, 9th September, 1869.

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TENTH ANNUAL SALE.

FREDERICK WM. STONE, Esq., will offer at Public Auction, on

THURSDAY, 30th SEPTEMBER, 1869,

AT MORETON LODGE, GUELPH, ONT.,

About 40 Cotswold Rams and 20 Cotswold Ewes, 10 Southdown Rams and

10 Southdown Ewes.

SALE TO COMMENCE AT 1 O'CLOCK.

Cotswolds bred by W. F. Stone won at the Provincial Exhibitions held at Kingston in 1867, and at Hamilton in 1868, eight first prizes out of twelve, and the Prince of Wales Prize. Southdowns bred by W. F. Stone at the above exhibitions won all the first Prizes.

VINEGAR. HOW MADE FROM CIDER, WINE, Molasses or Sorghum in 10 hours, without using drugs. For circulars, address F. J. SAGE, Vinegar Maker, Cromwell, Conn., U.S.

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MISSOURI LANDS are very fertile, and situated in the heart of the Union; they furnish an extraordinary opportunity to a pure cheap, healthy and productive farms. North Missouri contains about 25,000 square miles, or

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As desirable as any in the Mississippi Valley. Through the garden of Missouri the Hannibal and St. Joseph Railroad extends, and all its lands lie near its track and numerous depots. The climate, so temperate and healthful, and a variety of soil susceptible of producing almost every kind of vegetation, invite emigrants from the cold and bleak North to settle on our rich prairie.

CHEAPLY—Living full and valuable particulars, in English and German, are supplied gratis to all wishing to go themselves, or to facilitate to induce others to go also.

A SECTIONAL MAP, showing the exact location of all our Railroad Lands, is sold at the same price.

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OFFER FOR THE PRESENT SEASON A COMPLETE ASSORTMENT OF

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ROSES, EVERGREENS, SMALL FRUITS, NATIVE AND FOREIGN GRAPE VINES,

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GREEN HOUSE AND BEDDING PLANTS IN THEIR SEASON. NEW DESCRIPTIVE AND ILLUSTRATED CATALOGUE OF FRUIT AND ORNAMENTALS SENT ON RECEIPT OF TEN CENTS EACH.

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It is solicited correspondence and a personal examination of our Stock.

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