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THE
Canadian Agriculturist
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SPRING WORK.

The farmer now finds himself pressed on all sides with numerous operations, that have to be either commenced or completed. The present season cannot be pronounced an early one, but the ground, where properly attended to as regards ploughing, draining, &c., is in a good state for the reception of the seed. Not a moment should be lost in pushing on work, and giving as good a finish to the various and important Spring operations as time and circumstances will admit; ever bearing in mind that the results of the harvest, in a great degree, depend on the manner in which field labour, at this season, is brought to a termination. Deep and clean culture, so as to secure a fine and pure seed bed, with a suitable dressing of manure, when necessary, constitute the basis of success in farming.

Although no precise time within the range of a few days can be stated for sowing grain, roots, &c., since so much must always depend on the character of the season, and the physical condition of the soil, it may be laid down as a generally correct rule that it is best that this important operation should be performed as early as practicable. In this climate Spring is of short duration, and the farmer should not have matters so farwarded as to be able to commit the seed to the ground as soon as it is sufficiently warm and dry. To attempt the contrary—that is, to sow when the soil is cold and wet, particularly early in the season—will

be sure to end in disappointment and failure. Indeed, there is always a large extent of land put under crop, which, from practical inattention to these matters, is rendered comparatively unproductive.

It may, therefore, be regarded as a sound, general rule to sow early; bearing, of course, in mind the several physical conditions of the soil and temperature before mentioned. Early sown grain will generally prove of the best quality, being both heavier, and having a larger proportion of nutrient ingredients. Recently, however, farmers have adopted the practice of sowing the *Fife* variety of wheat very late, in order to avoid the fearful ravages of the midge; an artifice that has been attended with considerable success. This variety of wheat is well known to be particularly hardy, but little liable to rust, and well suited for late seeding. We have known large crops of this variety sown as late as the middle of May, or several days afterwards; in that case, the ripening process of the plants being late, they escape the ravages of the midge.

The preparation of land for root crops should now, if not already done, be completed. The sowing of carrots and parsnips should be finished without delay, and mangel wurzel will immediately follow. The Swedish turnip can be sown from the middle to the end of the month, or even later; much depending on the character of the season, and the condition of the land. The extent of root culture in Canada is annually increasing, and the most approved

practices better understood. Potatoes still continue a very uncertain crop; and to increase largely their culture would, under existing circumstances, be inadvisable. Early planting, with healthy seed, of new varieties, and from different soils, on ground that is dry and moderately light, and not too richly manured, will have the best chance of producing a good, sound crop. A dressing of quick lime has, in many instances, been found highly advantageous. Yet, it must be acknowledged that, with all the precaution which ingenuity and experience can employ, the potato disease will often more or less manifest itself; and in the present state of our knowledge the most that we can do is to adopt such mitigating measures as may be practicable. The *Kohl Rabi*, or turnip cabbage, deserves a much fuller trial in this country than it has hitherto received. It is hardy and nutritious, excellently suited to milch cows, sheep, and stock in general. It should be sown as early as possible, and treated in a similar way to turnips. As a general rule, roots of all kinds should be sown or planted in drills at sufficient distances to allow of the free use of the horse hoe. The precise distance must depend on the kind of crop and the state of the ground; but it may be stated generally that drills should be from 30 inches to 3 feet apart, and the plants in the rows at sufficient distance apart to allow of free access of light and air, with ample space for mature growth.

Several enquiries have of late been made respecting the growth of tobacco, a useful paper on which will be found in another column of this journal. We would recommend parties engaged in this undertaking not to attempt too much, but to make a fair experiment on a small scale, doing full justice to every department, from the sowing of the seed to the gathering of the crop. Before this number gets into the hands of our readers, the seed should be sown in a hot bed, or at least, on a dry rich border, sheltered from the north and west. It is of great importance to get strong, healthy plants for early setting out, which in this northern section may be done the latter end of May, or beginning of June, according to the season. The seed is slow in germinating, taking often a month or more to come up, unless there is considerable bottom heat.

Land intended for tobacco should be naturally

rich, or made so by artificial means. The soil should be deeply cultivated, and the manure thoroughly incorporated with it. It is preferable to apply bulky manures, such as farm-yard dung, in the fall, and work it in by a deep ploughing, taking care to keep the ground as dry as possible by under or surface drains, as by such means the important operations of spring will be greatly facilitated.

Transplanting should be performed, if possible, in moist weather, the young plants well watered before they are taken up, and as much earth kept attached to their roots as may be practicable. Regard for these rules will in many cases ensure the plants from dying, and obviate the necessity of subsequent artificial watering unless the weather continue particularly dry. The distance of the plants from each other is a matter that must be regulated by the strength of the land, character of the season, climate, &c. The rows may be from $2\frac{1}{2}$ to 3 feet apart, and the plants at a somewhat less distance asunder. In the course of two or three weeks the plants will commence growing vigorously, and the most vigilant attention must be given to the keeping down of weeds, which will be sure to make their appearance. This can be done by horse and hand hoeing;—an operation that must be repeated as occasion may require. By keeping the ground well pulverized during the season of growth, weeds are effectually prevented, and the progress of the crop accelerated particularly in periods of drought. The tobacco worms will, after a while, make their appearance, and must be carefully watched and picked off by hand, or otherwise the crop will be greatly injured, if not wholly destroyed. When the plants get into blossom they must be topped, leaving about two thirds of the stems, each of which will have attached to it about six leaves. In a short time the plants will produce suckers, which often grow with great rapidity, and if not removed as they appear, the crop will be injured. The cutting and harvesting of tobacco require much care, or the quality will be seriously affected. It may be fairly doubted whether we can raise in Canada an article of the best quality, that can compete in ordinary circumstances with the productions of a southern climate. Under the present high prices, occasioned mainly by the unhappy civil war in the United States, ordinary smoking tobacco

could be raised here with a profit, if managed with sufficient skill and judgment: but, regarding the Province generally, it can never occupy a prominent place among our farm crops.

Sorghum, or Chinese sugar cane, will no doubt be more extensively tried this season than heretofore, and we would recommend, as in the case of tobacco, that it should be proceeded with cautiously. We must not trust implicitly all the high flown statements that have been made respecting this plant; but sufficient facts have been adduced to induce and justify our farmers to give the matter a fair trial. That the sorghum can be raised here advantageously as provender for cattle, either in a fresh or dried state, and also for molasses, scarcely admits of doubt; but whether the juice produced so far north can be profitably converted into good granulated sugar, has yet to be determined. We shall be glad to be informed of the results that may be obtained in relation both to sorghum and tobacco.

Flax is demanding a larger share of attention this season, and its culture will doubtless be considerably increased. So much has of late been said and written on this subject that but little, anything, remains to be added. This, like the two preceding crops, must be regarded to some extent, in Canada, as *experimental*, and therefore requires the exercise of both caution and judgment. The wisest way is not to attempt too much; an acre or two cultivated well will afford more profit and a far better test than a dozen acres indifferently managed. But flax growing in Canada can never be made of much account till each township procures the necessary appliances for rotting and scutching the raw, and a way opened up to a reliable market. The severe privations which live stock are now enduring in some sections of the country, ending in some cases in starvation and death, in consequence of the failure of hay and other crops last season, should induce farmers to devote more attention to the raising of roots, which, in periods of scarcity like the present, will enable them to sustain their animals in a healthy condition till their pastures are sufficiently advanced to receive them. If Swedish turnips were more generally raised in the back townships, (and they are admirably adapted to new land) and such other provisions made as are practicable, we should soon hear of cattle actually dying of hunger.

It is to be hoped, therefore, that our farmers will make every exertion this spring to provide an ample supply of cattle food for next winter.

SHEEP WASHING.

There is a good deal of discussion going on in the American agricultural journals at present, on the question, whether to wash sheep or not before shearing them. Some of the writers contend that the wool buyers do not make a sufficient distinction in the price between washed and unwashed wool, and that therefore the farmer who washes his sheep, has all his trouble and inconvenience for nothing, and gets actually less, owing to the loss of weight, for his wool than if he sold it in the natural state.

This may be the case, to some extent, in the States, but we are not aware that the same can be said in this country. We confess ourselves in favour of the practice of washing where the conveniences are at hand for doing it efficiently. The water should be warm and clean; the sheep should be carefully handled, and not kept in the water too long, but long enough to remove the dirt from the fleece. A very short time is sufficient to accomplish this with dexterous management.

The farmer, then, when he sells his wool, should take good care that the buyer makes the proper allowance in the price between the value of the clean and the dirty article. In the case of wool exported to England, especially, where good descriptions of Leicester and other long wools are much in demand, it is highly important that the fleeces should be in clean and good condition, for the sake of the reputation of our produce abroad.

DEATH OF SIR TATTON SYKES.

We learn from recent English papers the decease of this venerable Baronet and distinguished agriculturist, which event occurred at his country residence, Sledmere Castle, near Malton, Yorkshire. Sir Tatton had reached the ripe age of 81, and, till a period comparatively recent, evinced his usual absorbing interest in rural affairs, and participated in the sports of the field; for which, and the successful breeding of race horses, the Hon. Baronet had long enjoyed a world-renowned reputation.

Many of our readers will remember the pure blood stallion imported from Sir Tatton's stud, and called by his name, now some dozen or fifteen years ago. The *Mark Lane Express* truly remarks:—

As a perfect example of the "old English gentleman," Sir Tatton was known and esteemed throughout the country. Sir Tatton was born 1772 and married in 1822 the second daughter of Sir William Foulis, and in the following year succeeded to the title and estates on the death of his brother Sir Mark Sykes. Sir Tatton was the fourth baronet, and is succeeded by his eldest son, Tatton (now in Egypt), born in 1826. The deceased baronet, from childhood, took the greatest delight in the rearing of sheep and horses, and to the last enjoyed the highest celebrity for his flock and stud. His breeding stud was believed to be the largest in England, numbering upwards of 20 horses and mares of all ages. As an owner of race horses he dates back to 183, when he won with Telemaclus at Middleham; and up to the age of 6 he continued to keep horses in training for the sole pleasure of riding them himself, Malton being his favourite place for displaying his well-known colours—orange and purple. His last time of riding a winner, his own property, was for the Welham Cup, on Langton Wold, in 1822, on "All heart and no peel," a name most applicable to the owner as well as the horse. His feats on horseback were almost fabulous; he invariably rode from Sledmere to London and back, whenever he had occasion to visit the metropolis, his rule being to ride to London and return as far as Barnet the same night. It is related of him that when a young man he started off to ride a race for a friend, and started home again immediately after weighing, the distance being very nearly 400 miles. Sir Tatton was never so proud in his life as when he led Sir Tatton Sykes, with Bill Scott on his back, back to the ring after the St. Ledger victory of 1846; this scene was the subject of Herring's picture, painted for the Messrs. Baily. Sir Tatton rode from Sledmere to Hampton-court to look at the stud of King William IV, and there was so pleased with an Arabian mare, that on the day of the sale he repeated the ride and bought the mare. As a master of foxhounds, Sir Tatton vied in popularity with any gentleman in England. He kept hounds solely at his own expense, until he had passed his 77th year, and on y resigne t e pack into the hands of Lord M dleton on the determination of his son not to accept it. Sir Tatton still mounted in "pink" till about two years ago. Sir Tatton, his man Snarry, and his horse were all characters; the servant has been there 52 years, and Sir Tatton used o delight in saying that himself and his horse were 115 years old. Sir Tatton was ever an early riser, often mounting before the sun had risen. He never omitted attending the cattle fairs, and was the first man there at the Malton C oboe of last year. It was not an unusual thing, when there was no hunting or other

engagements to call him away, to find Sir Tatton relieving a labourer, at a stone heap or slashing a fence, while the labourer was sent to the cattle to enjoy a flagon of ale. As a landlord, a master, and a friend, Sir Tatton was much beloved, and to him may justly be applied those words of commendation: "He never lost a friend nor made an enemy."

CULTIVATION OF TOBACCO.

[We have received of late several requests for information relative to the cultivation of Tobacco. Whether it is desirable to admit this plant into Canadian husbandry will no doubt be regarded by some as doubtful, even supposing that our climate and soil are, in all essential respects, suitable. Tobacco culture has been attended by an exhaustion of the soil in some of the richest portions of Virginia, and neighboring States: but it is said that this evil is now obviated by a judicious rotation of crops, and that tobacco is not raised on the same land but at intervals of five or seven years. We doubt whether the better qualities of this plant can be raised so far north as Canada, so as to compete with the productions of more southerly latitudes. In the extreme western part of the Canadian peninsula tobacco raising has been practised, on a small scale, for many years; and we should be glad if those who have had experience in the matter would favor us with their views and results. In the meanwhile we insert the following paper, prepared expressly for the purpose of affording practical information, by Col. L. J. Bradford, President of the Kentucky State Agricultural Society, who has had ample experience on the various points on which he treats; and we are further assured by several persons from that State, that the information and directions are correct and reliable. Of course, allowance must be made for difference of latitude as to time of sowing, &c. Here, the seed may be sown on suitable ground as soon as possible in April—say not later than 1st of May, and the transplanting to take place early in June. The Connecticut seed is supposed to be the best for these northern districts. A large crop of tobacco is about a ton to the acre; an average crop about 1500 lbs. The price of a good article of leaf, at the manufacturers, in ordinary times, is about 6c. to 8c. per lb. At present we understand, a superior article is worth 20c.

The expense of cultivation and preparation for market is very considerable—say 40 to 60 dollars per acre.—[Eds.]

The success of growing a crop of tobacco depends much upon early plantings. A matter of the first importance in its cultivation is to provide a sufficiency of young plants to set the crop, and in order to do this the planter must sow a bountiful supply of seed, as the young plants are subject to many casualties before a "good stand" is had. In this latitude, the time of seeding extends from the first of January to the first of April, and in ordinary seasons a bountiful supply can be obtained by sowing at any time during the periods alluded to. It is generally best, however, to sow as soon as the winter affords such a spell of weather as will allow a good preparation of the soil. New or forest land is preferable for plant-beds, and they are prepared by first burning the surface with brush or wood sufficiently to destroy the seed of any vegetation in the land, as grass or weeds. Beds prepared in the early part of the season require more burning than those at a later period. There is but little danger of burning too hard, however, at any time, as the plants generally succeed best upon the beds most thoroughly burned. After the beds are thus burnt and cooled off, they are dug up with a common sprouting hoe to a depth sufficient to afford the plant a loose soil in which to extend its roots. Care should be taken to leave the surface-soil as much on top, in the preparation of the bed, as possible, as the young plants will take a quicker and better growth. After the bed is well pulverized by hoeing and raking, the seed mixed with dry ashes are to be sowed as evenly as possible over the surface, at the rate of a common table spoonful to every 80 square yards (cubic measure), the bed lightly raked over or trod evenly with the feet and well covered with brush, on which there should be no leaves, and protected from the intrusion of stock. So soon as the young plants attain the size of a dollar the brush may be removed—if the weather is very dry the brush may be suffered to remain to advantage, and when removed taken off in the evening—with seasonable weather, the plants will soon be large enough for transplanting.

The land designed for the crop should be fertile—if not naturally so, should be made so by manuring. Any common manure will answer a valuable purpose, tobacco being a plant that delights in a rich soil. The land should be deeply and thoroughly ploughed, whenever practicable, in the fall or winter, and be subjected to the action of the frosts of winter. In this there is a twofold advantage: 1st, It destroys many insects that injure or destroy the young plant; 2d, It renders the land more friable and more easily cultivated. As the season approaches for planting out the weed (which is here from May to July), the land should be ploughed again and kept clean. It is then to be laid off with a plough three and a half feet one way and three

feet the other, and a small hill made in or on the check, as may be preferred, for the reception of the plant. The hill should be raised a little above the common level of the surface—the size of the hill being a matter of fancy with the planter, and not regarded as a matter of consequence in general. So soon as the plants have attained a sufficient size for transplanting, they may be drawn from the bed and planted out on the hills whenever there is moisture enough to prevent their dying. This is generally done after a shower; but, should the land be very wet, it is best to wait until it dries or settles some, as the plant will do best set when the land is not too wet. The plant, if it survives the transplanting, will soon commence growing, and requires no attention until the weeds and grass begin to make their appearance, and must be subdued by the plough and hoe. Should the earth become hard about the plant, the hill should be lightly scraped with a hoe. This will greatly promote the growth of the plant. When the plant becomes large enough, the bottom or plants leaves may be broken off. This is called pruning and the land may then be deeply and thoroughly ploughed, taking care not to injure the roots of the plant, and the plant hilled up by following with hoes, and throwing the loose soil around it. In land that has been kept clean, this may be the last ploughing; the weeds and bushes may be kept down with the hoe, should any appear.

Where the plant is large enough to top, the leaves nearest the ground are to be broken off and the bud taken out, leaving on the stalk the number designed for the plant. The number of leaves, as we remarked about the size of the hill, is much a matter of fancy; yet it has more to do in forming the future character of the tobacco than most planters seem apprised of. Experience has fully demonstrated that ten leaves are sufficient for a plant, and this is almost a universal practice among our best planters. The first plant, if the crop has grown off unevenly, may be placed to twelve leaves; the next topping may be ten, and as the season advances, the number may be lessened, as the appearance of the crops and season indicate. This will insure more uniformity in maturing of the crop, saves much labor, and adds to the value of the crop, making it uniform in quality. At this stage of the crop the care and attention of the planter is almost constantly required to keep off the worms and other insects which prey upon it, and in breaking off the suckers which soon appear upon the stalk at every leaf. Ample employment may be afforded to every idler about the premises.

As the plant approaches maturity, it begins to thicken, and assumes a stiff, slick, and motley appearance, which the most unpracticed eye will readily detect. Should the weather be favorable (viz.: dry), the first ripe plants may be permitted to remain standing until a sufficient quantity is matured to satisfy the planter in making a regular cutting. If, however, the

weather be unpropitious, it is best to cut as fast as it matures, as it is subject to injury under such circumstances if suffered to remain too long. The harvesting of the crop is an important period in its cultivation, and neglect on the part of the planter will bring loss in its future value. In cutting the plant, a sharp knife is to be used, and the stalk to be split about half its length, taking care not to break the leaves or otherwise injuring them, and the plant to be set with the butt of the stalk up, exposed to the sun. So soon as the plant is wilted enough to handle without breaking, they should be taken up and laid in a heap of seven to nine in a place, being governed by their size, and hung as soon as possible to prevent being scorched by the sun. The after part of the day is best for cutting; there is less danger of getting the plant sunburnt. The sticks upon which the plants are hung are small pieces of timber four feet long, and of sufficient size to support the plants. These are taken to the barn on a cart or wagon after receiving the plants, or may be placed upon scaffolds in the field, at the option of the planter. If the weather is fair, it is best to sun it, as it aids the curing, and adds to the strength and elasticity of the leaf after it is cured. Care should be taken not to place the sticks too close, if the weather be damp and warm, as there is danger of injuring the plant. After remaining on the scaffold a few days it becomes yellow or assumes the color of a leaf in autumn; it must then be carried to the barn or curing house, and placed away, keeping the sticks far enough apart to secure a free circulation of air through them. If the weather is wet, it is best to take the plants to the house at once, and let the yellowing process take place in the house rather than risk the changes in the weather, as rain is always injurious to the plant after it is cut, and especially so after it becomes yellow.

The curing process is one of the most important features in the future value of the crop, and too much care cannot be given it, a small neglect lessening the value of the crop seriously. If the weather is dry and the tobacco is not too much crowded in the house, the action of the atmosphere, assisted by a small portion of fire, will be sufficient to effect the object. If, however, the weather is warm and damp, the atmosphere will not aid very materially in curing the plant, and unless firing is resorted to, the plant is certain to be more or less injured. It is always safer after a house is filled with green tobacco to rely mostly upon the action of the fire to a considerable extent. These should be small and slow at first, and continued so until the tobacco is clear of the moisture engendered by the fire, is dried out, and then increased until the leaf is nearly cured. When this is the case, the fires should be suffered to go out, and the tobacco to be suffered to come in case, or get soft again. The quality of the article will be improved by permitting it to come in case once or twice before it is thoroughly cured in stem and

stalk. Dry and sound wood is best for firing. If the object of the planter is to make a piebald or fancy article, care should be taken never to permit the leaf to get very soft during the curing process; and to make a really fancy article, the tobacco must be thoroughly yellowed before, and cured entirely by fire. This particular description is, however, not more desirable or valuable to the consumer, as the essential properties of the plant are frequently destroyed by the action of the fire. As a general thing, it is better to cure the weed by a natural process of air and the action of the atmosphere, and where the planter is provided with a sufficient quantity of room to house the crop without crowding too close, the object can be attained without the aid of much fire, and the wood and danger of the crop saved, and in some markets increase the value of the crop.

Having now arrived at the time when it is supposed the planter has secured and cured the crop, we proceed to give some directions in its future management and preparation for market—remarking that many, after all their previous care and labor, lose its profits to a good extent by either a want of knowledge as to its management, or a carelessness which is inexcusable upon their part. After being for upwards of thirty years engaged in its culture, and to some extent a dealer in the article—after visiting the principal markets in the Union—I have long since come to the conclusion (and I have never seen any reason for a change of the opinion) that the prices paid for the different qualities of the article by the purchaser is more generally a matter of fancy than of superior judgment on his part of the quality of the article bought, and that fancy was generally governed by the care bestowed by the planter in preparing the article for market. If this opinion is correct, how very important for the planter to so prepare his crop for market as to realize its greatest value, and I proceed now to speak definitely upon that subject.

After the tobacco has been thoroughly cured in stem and stalk, it is then ready to commence stripping or taking the leaves from the stalk. In this process the plant first passes through the hands of the most experienced laborer on the farm, who takes off the bad or injured leaves and ties them neatly in bundles of eight or ten. The plants that are thus culled are given to others who strip off the remaining leaves, and tie them in bands of six or eight leaves, wrapping tightly and neatly with the tip of the leaf used as a tie, so as to form a head of one and a half to two inches in length. Care should be had to make the bundles as uniform in size and color as possible, as it adds to the beauty of sample by which it is to be sold. When the days work is done, let the tobacco, neatly pressed through the hands, be put in a winrow, as it is termed, viz: laid straight in a bulk or pile of sufficient length to hold the day or two day's work, and only the width of one bundle and one-half, or

versing each course so as to have the heads of the bundles out. Here it may remain until stripping season is over or the crop stripped. The first good drying spell of weather after the stripping get the smoothest and smallest sticks upon which the tobacco was hung, and hang up the tobacco to dry, carefully shaking it out when hung so as to secure a uniform drying. When the weather again becomes moist enough to bring the tobacco in case, take it down and carefully bulk it away as before directed, only taking more care to straighten the bundles and make the bulk much wider; this is done by lapping the bundles over each course, similar to shingling a roof, the bulker having his knees upon the bulk, carefully laying down the tobacco as it is straightened and handed him. When the bulk is finished, weigh it down heavily with logs or some heavy weight. Care must be taken that the tobacco does not imbibe too much moisture, or get too high in case before it is bulked, as it will injure. So soon as the tobacco becomes soft enough to handle without breaking, it may be put in bulk, and should the stems break a little under the pressure of the bulker's knee, no material damage will be done, provided the leaf does not crumble. A little attention will soon teach the most ignorant the proper order for safe-keeping. The tobacco will be safe in bulk, and will wait the planter's convenience to prize it in hogsheads.

In prizing, the different qualities should not be mixed, and if the planter has been careful to keep them separated, no trouble will be had in assorting them when ready to prize. In packing in the hogsheads care should be taken to have every bundle straight, and every leaf to its bundle. From a well-packed hogshead, any bundle may be drawn without injury or interruption to others. The usual way of packing is to commence across the middle of the hogshead, placing the heads of the first course of bundles about eight or ten inches from the outer edge and running the course evenly across; the packer then places the bundles of the next course in the same direction, the heads against the side or edge of the hogshead, and follows the circumference until the heads of the two courses come in contact; after that course is completed, he finishes the other side by placing the heads against the cask as before, so as to have three courses across the cask, the bundles all laid in the same direction, and the next layer is reversed, carefully placing each bundle as it is thrown or handed him. When filled it is subjected to the press or screw and forced down.

Our hogsheads are from thirty-eight to forty-four inches across the head, and fifty-six to fifty-eight inches in length, and from 1,800 to 2,000 pounds can be easily prized into them. If the tobacco is large, rich, and oily, the harder it is pressed the better, and the better price it commands. These remarks are particularly applicable to those heavy descriptions of tobacco known in Virginia as heavy shipping leaf, and

in the West as Clarksville tobacco, where the soil and climate are peculiarly adapted to the production of this description of tobacco. In climates not so well adapted and soil of a different character, the same variety of the weed will assume a different character, being of a finer or coarser texture, as the case may be, light and bulky, and destitute of oil and substance. Tobacco of this description should be managed as before directed, but prized lightly in the casks so as to admit of a free and open leaf, such being mostly required for cigar leaf.

There are several varieties of the weed, but as they all partake more or less of the same essential qualities under the same circumstances, it is unnecessary to enumerate them; the difference being more in the choice or fancy of the planter than any material difference in the growth and product of the variety, all requiring the same labor and attention, and the same cultivation and management. Climate and soil have very much to do in forming the definite character of the tobacco, and seed of any variety taken to another climate and a different soil may produce a very different article, and observation and experience alone upon the part of the planter can determine the best method of improving its character whilst becoming acclimated.

L. J. BRADFORD.

Augusta, Feb 2, 1863.

ON TURNIP CULTURE.

EDITOR OF THE AGRICULTURIST. Dear Sir, —Your correspondent B. N. B. wishes to learn the experience of some of your readers in regard to the turnip crop of the past season. And as I have the pleasure of reading your Journal, it may not be out of the way to give here the benefit of my humble experience.

I sowed one acre of turnips last season; one half of them I sowed on the flat surface, in rows 22 inches apart, and thinned out, from 10 to 12 inches in the row. On this half acre, I put twenty wagon loads of well rotted manure, in the fall, and plowed it in, and in the spring, I plowed it three times, and harrowed it in; by so doing I thoroughly incorporated the manure into the soil. I then sowed one hundred pounds of salt upon it, and then rolled it with a heavy roller, and marked it into rows as above stated. I used a piece of three inch scantling for a marker, with a handle in the centre, and a brace on each side to guide and to strengthen it. In this three wooden teeth, one inch in diameter are set 22 inches apart—teeth six inches long. One man works this, thus opening two rows at a time, as one tooth must be kept in the last made drill to keep your rows straight. From off this half acre I harvested twenty two-horse wagon loads of turnips. On plot No. 2 I applied thirty wagon loads

of well rotted manure in the fall, which I plowed under, and in the spring it was plowed three times, and harrowed well after each plowing. I then threw it up into ridges in the usual manner, and sowed the seed on those ridges. Its after treatment was similar to plot No. 1, viz., frequent stirring of the soil with the horse hoe, and carrying on a war of extermination against the weeds. From off this half acre, I had only 12 wagon loads, or about three hundred bushels, allowing 25 bushels for a wagon load. The flies never touched plot No. 1, but did considerable damage to No. 2. My experience is certainly in favor of planting on the flat system, thereby lessening the danger from droughts, and I think from the flies. I found no difficulty in using my horse hoe between the rows. To my horse hoe I had a small harrow attached, which most effectually uprooted all weeds that were loosened by the hoe, and left them on the surface to perish. I think Mr. Editor, that there is no use in trying to cultivate too great a breadth of roots, as one acre well tilled, and thoroughly manured, and sowed in drills from 20 to 30 inches apart, thinned from 10 inches to one foot in the drill, and well cultivated between the drills, will yield more turnips than two acres under ordinary cultivation. In fact, you cannot stir the soil too often. Your correspondent may think that I thinned out my turnips too much, and that there is no need in having so great a distance between the drills. The following table is given by Mr. Coleman, in his "European Agriculture," as the result of an experiment of an eminent agriculturist in England, which certainly coincides with my limited experience in growing turnips. The rows are twenty yards long.

Row	No. of turnips in each row.	Dist. apart in each row.	Wt. of each Turnip in the row.	Weight of all in the row.	Produce per Acre topped and tailed.
1	32	24	5½	11 12	24 4
2	38	22	5¼	10 2	20 1
3	39	20	5½	10 00	19 13
4	40	18	3	5 10	17 15

Fractions are omitted

The farmers of Canada are yearly becoming more and more impressed with the fact that an abundant supply of succulent food should be provided for their stock during our long winters—first as conducive to the health of their stock; and next as contributing essentially to the improvement of fattening stock, and as enabling the farmer to keep more stock; and lastly as furnishing him with the best means of enriching his farm, and extending and improving all his other crops. It should be the object of every tiller of the soil to leave his land in good condition after the removal of his crop, and at the same time

obtain as remunerating returns as possible. This can be done only by husbanding all the sources of fertility upon the farm, and adding thereto in every available manner. And now Mr. Editor, hoping that all of your readers will try "to steal an hour away," to give their experience through the medium of your very valuable Journal.

I remain, yours, &c.,

E. A. P.

Hope, March 24th, 1863.

FARMERS WILL WRITE FOR THEIR OWN PAPER.

EDITORS OF AGRICULTURIST.—I fully intended some time ago, to have made an earnest appeal to my brother farmers urging their assistance in support of your valuable journal, by a contribution of original or local matter that would prove both instructive and interesting to your readers.

Noticing month after month the great paucity of such matter, which to a certain class of your subscribers would prove far more interesting than the very able and scientific articles you have so liberally supplied us with, I consequently had, as I have before said, fully intended making an effort to persuade those who are able, of our profession, to give their experience in *black and white*. Or in other words, that they would let the agricultural world know of their whereabouts, and what they were doing. But reading with unspeakable pleasure in your March issue, the extraordinary announcement, "To correspondents—Several communications which have come to hand too late for the present number shall appear in our next," I felt myself quite relieved of the intended task I had imposed upon myself, and have now, instead, taken up my pen to congratulate you on the apparently new and extraordinary era that has so suddenly set in, in favor of your Journal.

In truth, I almost had to rub my eyes, and my spectacles to be sure of the truth of what I was really reading, so greatly astonished was I at the truly acceptable paragraph! Long may that paragraph continue to appear at the close of your monthly publication, is my earnest wish!

Your last appeal and philippic to my brother farmers, it would appear, has had its desired effect, if we may judge from that notice, and I pray that much future good may come of it.

That there are men in our community who are able to write, there can be no doubt, and it is a *burning shame* that they should hitherto have been either too lazy or too indifferent to give the results of their labor and experience to the world. Many of them however, are eager enough, to my knowledge, to secure valuable information from others, at a mere nominal cost, or I might fairly say, at no cost at all! But they are unwilling to give the "quid pro quo"

Why should this be? It all were to pursue this plan, *where* could we look for the information and knowledge we require, and daily and thankfully receive from the invaluable agricultural articles so freely and frequently published?

I trust, Messrs. Editors, that henceforth such supineness will cease to exist, and that a laudable pride as well as that of interest will produce a praiseworthy emulation and ambition in adding something to the stock of knowledge at all times acceptable, and so much needed in our highly important calling.

If an agricultural journal is to be the instructive medium it is intended to be, to those agriculturists who take a proper interest in their profession, how is it possible that it can become so, unless practical agriculturists will give their experience and their aid, in occasionally sending a short article of their doings to their own Journal?

It is not, as you, Messrs. Editors, say, "the long and labored article that you want, nor need that article to be wove in the finest silk—if ever so home spun, you will welcome it, and should it require a slight touch of your pen, you will cheerfully bestow it!" This should encourage all farmers, who are able to wield the pen, to try and send the results of their successful or unsuccessful operations.

Surely many of our profession must think that you have the power and the ability to *cook* articles on the subject of agriculture when sitting at the desk in your office! That is, giving the results of your *imagination*, for practical experience, and so, by such mysterious hocus-nocussing, fill your journal with *very interesting, and highly instructive articles for their perusal!* If they do not, how do they imagine that an instructive and interesting agricultural paper can be produced, when the results of all genuine experiments, and the much desired information needed, is withheld?

I am myself out of all business, and therefore cannot send my daily experience in agricultural matters, or I would occasionally, and gladly, contribute to your paper as heretofore. But the young, and the older experienced should make an effort to encourage and support your journal by articles that will prove interesting to your readers. And I earnestly hope they will do so.

I shall endeavor this next summer, if my health and other circumstances permit, to make a few experiments in garden culture, and if I deem them worthy of note, you shall have the result.

It seems the more extraordinary to me, that there should have been such a lack of communications to your journal (the sole one in Upper Canada) from farmers of this province, when agricultural papers in the adjoining States, have more sent them than they can possibly insert. I well remember hearing the respected Editor (Mr. Tucker) of the *Albany Agriculturist* once say, when I was in that city that, "he

had, at that time, more articles on his desk from voluntary correspondents, than he could possibly publish the next six months! I will not, Messrs. Editors, wish you quite such an indication, but heartily do I hope your correspondents may numerically and satisfactorily increase to your heart's content.

Believe me, with sincere wishes for the future success, of your Journal, truly yours,

LEICESTERENSIS.

Mar 24th, 1863.

OBSERVATIONS on RABIES IN SHEEP.

In our report of the proceedings at the Annual Meeting of the State Agricultural Society, we referred particularly to a paper recounting the complete history of several cases of Rabies in a flock of sheep, read by Hon. Henry S. Randall, and containing full details as to each animal attacked, from the inception to the termination of the disease, from notes daily made during its entire progress. As the fullest and most carefully prepared record of the kind extant, this paper possesses an especial interest, aside from that which ever attaches itself to so fearful and mysterious a complaint. Mr. Randall's design was to report all the symptoms and results connected with it, whether at the time apparently important or not—thus presenting a complete view of the case, and leaving it for further observation or individual judgment to determine the relative importance of the facts stated. The sheep belonged to the flock of Mr. H. P. Randall, and were bitten by a mad dog on Christmas Eve, 1862,—the flock consisting of about 300 ewes, three years old last spring, and in lamb. They were bitten mostly about the head, on the nose and ears, the wounds healing rapidly, and the existence of the disease being unsuspected until the 12th of January. On the 12th, Mr. Randall's observations commenced, and were continued daily until the 29th—the results of each day's examination being written down on the spot. The different cases were found to present some variation in the minor developments of Rabies, "owing, perhaps, to individual peculiarities of the different animals," but, as a whole, a remarkable identity was observable in the general symptoms throughout, and we give below Mr. Randall's careful summary of the conclusions attained:

FIRST SYMPTOMS OF RABIES.

Assuming that the rabid sheep which I have designated as No. 3, was seen by me on the first day of the attack of the disease—a fact of which I entertain no doubt, after comparing her subsequent symptoms with those of the later ones—and estimating the two first numbered cases to have had the average duration of the other five, the period of "incubation" in the whole seven (that is, the period between the sheep's being bitten and the appearance of

rabies,) ranged from fifteen to twenty-six days, and averaged about twenty-one days.

The first observed symptom in every case, which was seen at or near its commencement, was the same, viz.: ungovernable apparent salacity, manifested not according to the sex of the patients—all of which were ewes, and supposed to be in lamb—but in the manner in which the ram exhibits sexual heat. This resemblance extended to the minutest particulars in movements, postures, and in the characteristic note with which the male animal expresses desire as he approaches and impertunes the female. In no instance did the rabid ewe show any of the usual indications of rutting. She incessantly attempted to ride her companions, but uniformly manifested rage, and turned and fought the one attempting to ride her. This propensity remained active until the sheep became too weak to exercise it, and never entirely ceased.

In all the cases rumination was totally suspended from the first visible attack of the disease until death; and throughout the same period all the patients, with perhaps one exception, were not seen to consume an ounce of natural food, though the choicest was repeatedly offered to them—in some instances, where they had been purposely deprived of it for twenty-four hours. They, however, manifested a depraved appetite. All of them frequently ate wool from each other, and gnawed the rails of their pen. One was seen to eat dungballs from the breech of another—another snow which had just been saturated with sheep's urine—and two, eagerly lick the mucus and saliva from the nose and mouth of a dead one, and afterwards the post mortem discharges from the same parts. They preyed upon every substance within their reach which was unnatural as food, except the flesh of their dead companions. Their eating, as I have termed, was attended, so far as could be observed, with no regular mastication. When they gnawed the rails of their pen, they held their head down and extended, so that it could not be seen whether they masticated or not. They did not pause and raise their heads to do so, but continued intently gnawing. The only evidence I had of their swallowing the wood, was that considerable quantities of it were bitten from all parts of the pen, and none of it could be found on the snow underneath; and as some of the wood gnawed was of a red, and much of it of a dark color, it would have been readily visible there. When they ate wool, dungballs, and the like, they generally snatched them as if in haste, and in all cases swallowed them after two or three rapid movements of the jaws, which were apparently only made to place the substance in a situation to be forced into the esophagus.

No exhibition of thirst was observed in any case, and on the other hand, no dread of water when it was placed in a pail before them.

One played in the water with her nose, as a horse is often seen to do, and drank a little without apparent difficulty. One or two were seen to nibble a little ice or snow on two or three occasions.

The evacuation of both dung and urine was very slight. The fæces appeared natural in color and consistency.

I came to the conclusion after considerable hesitation, that the disease in its earliest stages, and perhaps throughout, was accompanied by a slightly unnatural expression of the eyes, which for the want of a more expressive term, I have called glistening. But I do not think any one could safely undertake to select a rabid sheep from a flock, even if one was known to be there, by this indication alone. Yet, obscure as is this symptom, it is the only one which distinguishes the rabid sheep, in appearance, from one in perfect health, until emaciation and the other latter effects of the malady exhibit themselves. The animal is as gregarious as ever—eats its food and ruminates as placidly as usual—looks as plump, bright, and healthy as any sheep in the flock; half an hour later, with looks entirely unchanged, unless in the trifling particular named, it is moving around restlessly and incessantly among its companions, struck by a malady which has transformed the habits of its sex—which no human power can arrest or even palliate—and which will know no respite until terminated in a miserable death.

A PUGNACIOUS DISPOSITION MANIFESTED * THROUGHOUT.

The subsequent occurrence and progress of the symptoms, in the cases observed by me, were about as follows: The rabid sheep both exhibited and provoked extreme rage when they were first put in a pen with other rabid sheep. They fought or pursued each other fiercely. But this mood soon subsided in the new comers, and for the next twenty-four hours they remained comparatively peaceable, at least unaggressive; but they were ever ready to fight on being ridden. On the second day, the depraved appetite manifested itself, and they began to rub their heads against fences, walls, &c., and to scratch with their own hind feet, leading to the inference that they were suffering severe cerebral pain. The part of the head invariably rubbed was that over the parietal bones. On the second or third day, the scars left by the dog's tooth looked red and inflamed. The sheep were more restless and irritable. They frequently assailed their companions, without any provocation. They fiercely butted, and two of them actually bit at a stick as often as it was pushed against or towards them. On the third or fourth day, they rushed at a man if he entered their pen, bounded forward and dashed against the fence which separated them from him, on his thrusting a stick at them. Three of the

charged the fence if only a hat or handkerchief was shaken towards them. Two were so ungovernably fierce at times, that they sprung at a bystander if he uttered a sound or merely approached their pen. They bounded forward when they made these assaults, most of them omitting that loud snuffling sound (caused by a violent expulsion of air through the nostrils), by which rams, bulls, &c., often express their rage at the approach of some object. Two of them opened their mouths, gnashing and threatening to bite whenever they attacked a man or a stick, but I did not see them offer to bite when fighting their companions. On the fourth or fifth day, the wounds of a portion of them more or less re-opened. On the fifth or sixth day, they began to exhibit considerable weakness, and most of them displayed less ferocity. No. 1, however, remained indomitably savage to the last; No. 3, remained so until near death; and No. 6, after a temporary lull, became more deeply re-excited and furious, and remained so until death. These three last named sheep would rush at a man, a stick, or another sheep, when they were so weak as frequently to fall before reaching their object; and as soon as they could rise, they would renew the attack. They and others frequently fought each other when in this condition, constantly falling, and some of them uttering short bleating sounds, or groaning piteously when they were hurt.

Their voices on such occasions were more shrill and plaintive than the notes of the healthy sheep, but the only one I heard utter the usual prolonged bleat with which sheep call to each other, or to their keeper, uttered it in the natural key, and this was on the sixth day of the disease. Their notes were in no case very "much altered" from the usual ones which indicate rage, pain, &c., and the "howl of the dog," said by Mr. Youatt to be "characteristic of the disease," was entirely wanting. I do not suppose, however, Mr. Youatt meant to be understood literally, but merely that the key of their voices was changed, and rendered high and plaintive, as in the case of the rabid dog.

On the sixth day, one of the sheep began to rub her breech often and hard against the fence, and she continued this more or less until death. From the appearance of the parts, I inferred this was occasioned by an irritation of the vagina.

Those which exhibited the greatest decrease of aggressiveness, as their strength failed, never resumed the usual timid habits of their nature. They retreated from nothing; and to the last, if a man entered their pen and threatened them with a stick, they instantly attacked him.

THE LAST STAGES AND FINAL PROSTRATION OF THE SHEEP.

The prostration of strength progressed with different degrees of rapidity, owing probably

to their difference of constitutional vigor; but all showed much and rapidly increasing debility by the close of the sixth day. Their respiration was labored, and sometimes irregular. The pulse of the only one counted rose to one hundred and forty a minute. One became blind in one eye, one in both, and a third partly blind in one eye. The cornea in each instance became opaque and white. But tuis happened only where wounds of the dog's teeth could be found on the lids, or close to the affected eye. At this stage, the scabs of nearly all of them dried up, and their wounds appeared to be rapidly healing again. When standing quiet, their heads sunk down low, and they trembled slightly all over, as an animal often does after drinking cold water. Froth exuded in rather small quantities from the broad part of the mouths of three of them, and ropy saliva fell from the lips of one to the ground.

The last day or two of their lives they staggered in their gait, fell over their dead companions, and rose with difficulty. Finally they become unable to rise. The respiration was more labored and irregular, and in one instance stertorous. Their debility was extreme. Even at this stage, and until actually dying, they did not manifest that degree of "stupor" and "insensibility to all that is going forward" mentioned by Mr. Youatt. They looked up when a loud or unusual noise was made, and those that were not blind evidently took notice of objects of sight. And not one of them, to the last, showed the least indications of becoming paralytic, as the same distinguished author states rabid sheep usually do in England. Neither the appearance of the ground, nor their pastures, indicated convulsions or struggling at the time of their death. I saw some of them die.

The five cases which were seen throughout, extended respectively through nine, seven, eight, ten and six days—giving eight days as the average duration of the disease. While the preceding statement of the symptoms of rabies accords in leading features with that given by Mr. Youatt, there are even more discrepancies between them in detail than I have called attention to. I think it probable that these differences are due in some measure to local or incidental circumstances, such as the peculiar breed, constitution and habits of the animals, their previous keep, &c. In all these respects, the American Merino differs widely from the English breeds. The season of the year when the cases were noted, may also have had an influence. And finally, owing to climate, or other undetected causes, the malady may not assume precisely the same form in different countries. But be all this as it may, I at least know that I carefully noticed, and instantly, and, so far as I could, faithfully recorded the facts seen by my own eyes. I have especially referred to Mr

Youatt's statements, because his work on the sheep has ten, and perhaps twenty times the circulation of any other foreign work on sheep in our country—and he is justly regarded as very high veterinary authority. His experience with rabies in domestic animals, probably exceeded that of any other writer on the subject, and he is often cited with great respect by authors on that disease in the human subject. But from the manner in which he cites Mr. Harris' experience and observations in regard to rabies in sheep, and his entire omission to convey any intimation, directly or by implication, that he has been an eye witness of it, I am led to infer that he did not describe the disease from his own personal knowledge.

An anticipated post mortem examination, in which an eminent medical gentleman has promised his assistance, has not yet taken place. *Cleveland Wool Grower.*

WASHING SHEEP.

There seems to be a strong disposition to revolt against the time-honored custom of washing sheep. Whatever conservative influences there are among us should be at once invoked, or "immemorial usage" may have to succumb to rampant innovation.

The whole matter of preparing wool for market needs careful revision. The present system of buying upon the *general average*, is an outrageous discrimination in favor of carelessness and fraud. Wool that will shrink twenty per cent. is bought at the same figure with wool that will shrink fifty per cent; hence, the man that "takes pains" does it at a serious loss. *The good sense of buyers* is but a poor guarantee for equal and exact justice to all wool-growers. The wool is bought in a hurry, and the agent that is the least particular, buys the most pounds, and gets the most pay. At present we have every degree of dirtiness, from that which is artistically put on, to that which is infinitesimally reduced by washing; and so on, in diminishing quantities till we reach the flocks that have little affinity for dirt, and the flock owners of the old school who wash thoroughly from the force of habit, or because they have a fancy that it is wrong to cheat. It all goes for about the same price, unless, perhaps, the clean wool brings less, because the man who is so unsophisticated as to raise it is too unsophisticated for a salesman.

Can we sooner get our *deserts* (which is just what a good many of us don't want,) by continuing to wash, or by giving it up? This is the real question. It is conceded that the manufacturer can purify the wool cheaper and better than we can, but it is of the highest importance that we adopt that method that will put every man's wool on its true merits. Washing would do this if all the wool was

perfectly cleansed and purified. I need not repeat that this is not the case. The assumption that *washed* wool belongs in one class, in regard to cleanliness, is the direct source of the grossest injustice. Washed or not washed, every individual lot should stand on its individual merits. I see not but that can be determined as well before washing as afterwards.

When the water is warm, and plenty, and clean, and convenient, it is no very serious matter to wash sheep. These contingencies, however, don't often happen. Our streams generally come from springs, and cold ones at that, approached by long and dusty roads, and the panting sheep take a cold bath, and keep on a wet blanket through, perhaps, a chilly night, to be followed, in some cases, by coughs and decline. If we *do* wash, we ought to use warm water, and house the sheep, unless very warm the next night.

It is now held by some of the best flock masters that early shearing (say the first of May) is preferable to the first of July—the sheep being, if properly protected against cold and storms, much better without their fleeces, while they are allowed to commence clothing themselves early for the next winter; but it is difficult, or impossible, to find a suitable time to wash and dry sheep, in this latitude, before the first of June.

I apprehend serious difficulty in fixing upon the proper allowance to be made for unwashed wool. It may be right enough to deduct "one third" for very greasy or dirty fleeces, but clips in general will not be submitted to such shrinkage. I understand it is in contemplation to hold a meeting of wool-growers in Rochester early in April to discuss this matter, inviting buyers and manufacturers to meet with them. The subject is an important one, and if the change is to be made, it should, if possible, be generally concurred in.—*H. T. Brooks, in Rural New Yorker.*

ON TILE MANUFACTURE AND DRAINAGE.

EDITOR OF THE CANADIAN AGRICULTURIST:—Sir:—In your number for January 1863, you call upon your subscribers to send on their contributions, to aid in filling up the pages of the *Agriculturist*. I would solicit through the medium of its columns, the insertion of a few suggestions, in reference to tile draining, and the pressing exigency for their manufacture.

In the county of Huron where I reside, being entirely a wheat growing county, many thousands of acres lie quietly undisturbed in a state of immersion, we might almost say waste condition, save perhaps what coarse pasture it may produce. Such land when once thoroughly drained, can be made productive of crops the most abundant. The neglect manifested in this important branch of agriculture is certainly man-

to be deplored. I know not in this county, within the range of my knowledge, of a single farm that does not require draining, to an extent more or less. In this locality, where the country is for the most part cleared up, the first grand aim toward the development of its agricultural resources, is that of draining. But the proper material used for such purpose is here wanting. No tile works in this section have as yet been instituted; and, from present appearances no capitalist seems possessed of that daring energy, to embark in any such enterprise. In relation to the farmer, it would prove an enterprise of massive utility, though perhaps in the eyes of the projector of such a scheme it may appear a rather speculative and risky affair. I am confidently of opinion, that were tile-works to be constructed, in, or around the village of Clinton, they would ultimately prove highly remunerative; a lack of patronage at the outset might possibly cramp its energies, but assiduity combined with perseverance would certainly result in positive success. The government we are well aware, have granted large sums for the building of canals and railroads throughout the country, and have also made liberal appropriations toward the promotion of Agricultural Societies. For so doing they are deserving of much praise. Seeing that the government has heretofore aided the farmer in the construction of these great outlets for the products of the soil, the time has now arrived when they might give further "aid and comfort," by giving an impetus to the construction of tile-works, by granting appropriations in the shape of a loan, or in whatever shape they may deem proper; so as to give an impulse to the art of tile-making, whereby the farmer may be enabled to realize the benefit of this indispensable article at a moderate price.

Yours, &c.,

JAMES TORRANCE.

Sixth Con. Gaderich, Feb. 21st, 1863.

THE POTATO DISEASE.

MESSRS EDITORS OF AGRICULTURIST.—It is with diffidence that I approach a subject that has been so extensively commented upon by many able writers, and amongst them many practical agriculturists have taken a part. Yet the subject still seems to be fraught with apparent mystery; though my own impression is that we are somewhat nearer a solution of it than we were a few years ago. And I think that any one who is able, from his own experience, or from that of his neighbours, should impart any new phase on the subject that may, in his estimation, tend to throw further light on a matter of such vast importance to the community at large.

I have not, however, taken up my pen with any view of entering into a controversial correspondence on the subject, but am induced merely to give a representation of two or three circumstances which occurred some years since,

immediately connected with the mysterious disease, and which have been brought to my mind by the perusal of two or three articles in the late January and March numbers of your journal.

Your correspondent from Blanchard seems quite to have made up his mind that the disease is to be averted by planting seed from new seedling varieties. This theory, however, is at once shown to be at fault, by letters from your Niagara and London correspondents, independently of what has fallen from other writers, proving, by *their experience*, that such theory is unquestionably untenable; though, doubtless, there may be advantages attending the planting of new seedling varieties. But to attribute the blight, or rot, as it is called, to the circumstance of using *old seed*, when there must indisputably have been thousands upon thousands of acres planted, with *new* as well as *old* seed at the very time the blight made its appearance over all Europe, and when the produce of all seed suffered alike from the plague, seems to me to be a *perfect fallacy*, and one that ought not, in my humble opinion, to be entertained for a single moment.

The facts which I am about to relate, and in one instance was a party to, will, I think, throw more light on the subject than your well-intentioned Blanchard correspondent has done.

It was in the second year of the blight making its appearance that I chanced to be spending a few days with a friend at Hamilton, and he having two very promising pieces of potatoes in his garden, was naturally very anxious that no check should mar his expectations of them, particularly as reports were then prevalent that the rot had again assailed the potato crop. I consequently strongly recommended sprinkling the tops with slaked lime, watering them freely first, that the dressing might adhere well to the tops, so that the little black fly, very similar to the turnip fly, could no longer perforate the leaves of the plants, thinking, *at that time*, that they were the cause of the grievous calamity, they having made their appearance *simultaneously* with the rot in the potato, and were, apparently, consuming the very life of the plant by the myriads of perforations they made in the leaves, which every day increased with new leaves, and which were daily shrivelled up as though scorched by the sun after the frost.

I found that I was by no means alone in the opinion I had formed as the cause of the trouble; but I no longer adhere to that opinion now, for I am fully convinced that it is atmospheric, and that the plant is attacked by a species of fungus, which is washed down the haulm of the plant to the tubers, hence the decay of the potato. And I have two very cogent reasons for this conclusion: first, because the several rows in the garden of my friend, before alluded to, which I dressed with slacked lime, were perfectly free from disease when gathered in the Fall, and the remaining rows, *undressed* for want of sufficient lime, were not useable from disease! What inference can any one draw from this statement but that the *lime* had de-

stroyed the fungus or disease upon the haulm and prevented it reaching the tuber? Each number of rows had received just the same treatment from the time of setting, as the others, with the exception of the dressing of lime. I learnt afterwards that the disease was prevalent in every ones crop that season around where my friend resided. The next circumstance I have to relate occurred the same year with a gentleman near Ancaster, upon whom I made a call on business at a time when he was hauling out manure from his farm-yard for a wheat crop, and had to pass over a piece of ground planted with potatoes, and as the oxen had trampled the tops, then more than half grown, pretty well to pieces, in going to fro with their load, I remarked that the potatoes there would not, I feared, be worth much, unless, as I happened to say, the trampling of the tops to pieces, (they then being very luxuriant) should destroy the fly and check the disease that was then so prevalent, to which either the son or the father remarked, "we shall see the result when we lift them in the Fall," and plainly enough the result did show itself, for, to my surprise, late in the Fall, I was told by the son, whom I accidentally met, that the potatoes from the trampled rows were all sound and good, whilst the other rows on each side those that were trampled were so diseased as to be quite unfit for use! Here, again, is proof positive that the fungus could not attach itself to the haulm in consequence of its mutilated and prostrate state. But I then thought that the fly, the supposed author, by many, of all the evil, had been crushed to death, or had been driven off by the trampling of the oxen, as the flies were then working at the leaves just as they had been in my friend's garden before alluded to. The vitality of the tops was not entirely destroyed; but yet not in a position, nor sufficiently thrifty to be injured by the blight, consequently the tubers continued to grow in a healthy state, and the produce was a large-sized good potato. I called this circumstance to the recollection of the gentleman, whose company I happened to be in last summer, and he said that "he well recollected all the circumstances!" In reading an article upon the potato disease in one of your numbers of last year, wherein the writer speaks of the successful result of his own experience in laying or beating down the tops of his potatoes, most forcibly reminded me of the singular coincidence of the case above related, to his own. He therein said that the potatoes in the rows on each side of those beaten down were entirely diseased, whilst those where the tops were prostrated, proved perfectly sound! Surely, Mr. Editor, there is food enough here for reflection, and the only conclusion that I can possibly arrive at is, that the tops were trampled down before the blight had struck them, or that they might have been struck at an early stage of their growth, and that the mutilation of the haulm stayed its progress.

I earnestly hope that some of your readers, and practical farmers, will give the experiment

a fair trial, and send the result to you for publication, taking care to effect the operation immediately they perceive the haulm affected, for by such means we may obtain much valuable information on the subject.

I think myself that the operation of laying down the tops (if a small patch in the garden), can be effectively performed by the spade, or by trampling down with the foot; if a large one, and in the field, it can be well carried out at little expense or trouble, with the roller, or driving oxen or horses several times up and down the rows, so as to mutilate the tops pretty much. The fungus cannot then very well settle on the stem, nor can it, if assailed in that position, be washed off the stem down to the tubers.

I am glad to see that both your correspondents, in your March number, take a similar view of the case with myself; but I perceive that neither have suggested the remedy which your correspondent of last year, or myself, have proposed.

Your Blanchard correspondent alludes to the success he has met with in his cultivation of the "Chili potato" ("Garnet Chili," I suppose) a seedling of five or six year's growth; at least, I feel pretty certain it is such from his descriptions of it. But he must allow me to suggest to him that his success in growing sound potatoes of that kind has not emanated from that circumstance alone of its being a seedling, but that I feel pretty certain that it arises from the fact of the haulm of that potato being of a coarse heavy nature, so much so as to be impervious to the fungus. And there is another potato that grows equally rank in the tops, and which has hitherto, with my son, resisted the blight; and that is the "Victoria," as prolific a yielder as the Garnet Chili. But neither of which do I admire for the table, both having rather a coarse watery flavor, and the former (Victoria) by no means so mealy as other kinds I have grown. But the age of the seedlings, both being, I think, 5 or 6 years old, or the soil may have much to do with this, as when I first obtained the "Victoria" from the late respected Dr. Sampson, of Kingston, it was as mealy a potato as I could wish for. But I have long found, from experience, that the potato in one soil and climate is quite a different potato in another; just so is it with the apple!

I could have wished to have said something in reference to two or three observations made by your London correspondent, respecting the phenomenon he alludes to, regarding the potatoes coming up in his carrot patch two years after sown; and also respecting the one patch of the potatoes being diseased, and the other not. But I feel that I have already trespassed too much on your space, and will take some other opportunity of making a few remarks after your correspondent has favored us with the remainder of his promised communication on the subject. There are also two or three other features regarding the rot that I must reserve for another letter, which showed themselves in last year's crop.

In the meantime, and in conclusion, I shall

just ask the question of my brother farmers, if the *red-rust* in wheat is not atmospherical? Why, then, should not the attack on the potato be atmospherical also? I may possibly be wrong in my surmise, though I think not. Yet, I consider myself quite open to conviction, and shall receive, with great interest, any new light that may be thrown on this important subject, by any of your subscribers,

And am, your obedient servant,

10th April, 1863.

LEICESTERENSIS.

THE POTATO DISEASE.

Continued from page 89.

London, C. W., April 20, 1863.

When first the potato was introduced into Europe to form, under the blessing of the Almighty, a large portion of food for mankind, and when it was first consigned to the earth with the view to its cultivation, the ground did not object to nourish and mature it, but as a good foster mother the earth fulfilled her duty—and she has during the past ages, under the superintendence of man, continued her faithfulness and care—and, although after a lapse of many seasons a fatal calamity visited the potato crop, still the earth most strictly continues her adherence, and we cannot accuse her of being an accomplice in the production of the existing disease; nor can she be held responsible in any way for the acts man may commit, whether for good or ill.

To enable me to arrive at an explanation, under my promise made at the conclusion of the first part already published, I must crave permission to refer back to the fall of the year 1860, when, as already stated, the crop of potatoes was of excellent quality and free from disease. It happened on one afternoon, after a good many potatoes had been taken up, that a sudden change of weather took place, and heavy rain prevented the possibility of taking all of them indoors, and those left outside were collected and covered over with potato haulm. When these tubers were uncovered the following day, with the intention of storing them, they were found too wet to remove, and were consequently left over another day; when, upon a second attempt, it was discovered that the disease gave very strong indications of its presence. These potatoes were fed off to the swine, but before they were all consumed, the rot assumed so malignant a character that even the pigs refused them. The whole of these rotten potatoes, about eight bushels, went to form manure, and from this very manure heap, and from that part thereof where the diseased potatoes had been deposited, a portion was used in the spring of 1861 to enrich the ground where the diseased tubers were found in the fall of that year, and also wherein the *young plants* were placed for experiment in 1862.

From the well known fact that the tubers were perfectly healthy when first taken out of the ground in 1860, it must be conclusive that the disease in this case was of atmospheric ac-

tion, and that certain peculiar characteristics of the soil where they grew, had not the tendency to develop it so long as the crop remained in the earth, and I feel convinced that had the soil been used for a covering instead of the haulm, the potatoes in question would have been found as free of disease when again uncovered as they were when first taken from the ground.

From these facts I think there will be no want of evidence to establish the reality that although the disease had not the power to fix its blight upon the crop while in the earth, it was there ready to seize upon it as soon as exposed to the influence of the atmosphere, and there being little room for doubt that this disease will exist in unfermented manure, formed where swine are fed on unsound potatoes, care should be taken never to apply it where this root is cultivated, and also to avoid using the haulm of the potato as a protection either against wet or frost. Although the manure of swine is a very valuable fertilizer, yet it is certain that under *any circumstances where it is extensively applied* to feed the potato crop, it generally produces a sort of skin disease, commonly called the scab. There being reason to believe that the haulm of the potato forms food for the disease after the tubers have been removed, and in order to prevent the possibility of its existing there, it would be well to have the haulm collected and consumed by fire; and, in regard to any diseased tubers that may be found, it would be more wise either to destroy them with the haulm in this way, or to bury them in the earth, below the range of future cultivation, than to feed them off to the swine.

Observation has proved that the potato malady abhors the solar rays—it delights to lurk beneath the foliage skirting the forest, and wood-belted plantations, facing the north-east, it also distinctly establishes itself in particular spots in the field and garden, where the sun cannot visit during the greater part of the day, and it is so partial in its attacks as to effect the north-east sides of the hills and ridges, on which sides or lines deserted tubers are found, whereas those growing on the opposite angles are untouched by the rot. Attention may also be directed to the fact that the disease does not generally feed upon the potato until late in the month of August; and, although under the existing mode of cultivation both weeding and hoeing the crop have at this time ceased, yet the sprinkling of either air-slacked lime or leached wood ashes, followed by a very light stirring of the earth at this season would tend to lessen if not altogether defeat the disease.

It is the practice in some sections of this country, as well as in Europe, to plant the sets in unbroken parallel lines, or ridges, moulding the earth *high* on both sides, with the plough. This practice may answer in a country where it is advisable to get rid of the rain as fast as it falls; but in this continent we seldom have too much wet from *above*, and the hill system will be found the most desirable, so long as *too much earth is not moulded up round the plant*. These hills should be at least three feet apart each

way, in order to admit of the thorough cultivation with the one horse cultivator and mould-board each way, thereby giving the hills a sufficiently elevated form.

To be continued.

THE PRINCIPLES OF CATTLE BREEDING.

MESSRS. EDITORS OF AGRICULTURIST.—I submit the following for the perusal of your numerous readers. Although much has been written upon the subject, much more might be said with advantage, if it would have a tendency to improve the all important race of animals to which the community is on the whole more indebted. They not only cultivate the land, but afford food of various kinds, in different circumstances of their existence. With respect to the points of symmetry in cattle, of which the various breeds exhibit several degrees of modification, there are certain rules which are generally acknowledged as applicable to good cattle of all kinds, of which I may treat in a future article.

We may offer a few remarks on the principles by which the breeder ought to be guided in the successful management or improvement of his stock, in whatever points he wishes to excel, whether those required by the grazier or the dairy-farmer. Every man, whether grazier or dairy-farmer, is desirous of turning his cattle to the most advantage, nor can this be done unless the size of the farm, soil, climate, the produce, and the nature and extent of the pasturage, be well considered, for the cattle that the farm is best adapted for maintaining will be the most profitable.

It is, however, essential, whatever the cattle be, whether for the purpose of the dairy or for the immediate supply of the market with their flesh, that they be well-bred, and excellent of their kind. To the dairy-farmer the most important points are, the quantity of milk yielding, its quality, its value for the production of butter, or of cheese, a freedom in the cow from vicious habits and ill temper, their character as good and healthy breeders, the ease with which, when useless as milkers, they become fattened for the market, and the nature and quality of food requisite for this purpose. To the grazier, the quickness of becoming fat, and at as little expense as possible, the fineness of the grain of meat or the muscular fibre, the mode of laying on the fat, the smallness of bone, soundness of constitution and congeniality with the soil and the climate, are the chief points which he takes into consideration. If he is wise he will never stint keep, nor transfer his stock from a good to an indifferent soil, and this is true also with respect to the dairy farmer.

Beauty of form is desirable; indeed it is more or less connected with what may be

termed utility of form, that is, a preponderance of those points in the beast which are most delicate for the table, and bear the highest price, over the parts of inferior quality, or of less value. This is connected with smallness of bone, but not a preternatural smallness, and with a tendency to deposition of fat, which, however, should not be carried to an extreme, otherwise the quantity of flesh is disproportionate, and its fibre is dry and insipid; nor is the weight of the beast proportionate to its admeasure-ment.

Previously to the time of Mr. Bakewell, the cattle in general were large, long-bodied, big-boned, flat-sided, or as it is called in Yorkshire "lyery." This truly patriotic breeder, acting upon true principles, energetically set to work upon the improvement of cattle, and in defiance of opposition and a thousand difficulties, I vied to see the success of his long continued efforts. Experience and a close and acute observation had taught him that "like produces like;" in other words, that the quality of the parents, such as beauty or utility of form, disposition to fatness, goodness of flesh, abundance of milk, and an even temper, were inherited by their offspring, and that by careful selections on the side of both the sire and dam, a breed might be ultimately established to which the title "blood" could be distinctly applied. This of course supposes a primary selection, then a selection of such of the offspring as exhibit the properties which constitute their perfection in the highest degree; and again of the offspring of the same, and so on progressively.*

At first Mr. Bakewell was necessitated to breed in and in, but as his stock increased he was enabled to interpose more or less remote removes between the members of the same family; and ultimately he established the Dishley or New Leicester long-horns, a breed remarkable for smallness of bone, roundness of form, aptitude to fatten upon a moderate allowance, and fineness of flesh. But while he accomplished this, rendering the animals admirably suited for the grazier, it was found that their qualities as milkers were much deteriorated, the dairy-farmer consequently retained their old breed, noted for the richness, though perhaps not the great abundance of the milk.

We are not here speaking about the differences or the distinguished excellences of the various breeds of cattle, but of the principles upon which excellences, it matters not of what sort, may be obtained. "Like produces like," and both parents must represent the same excellences, the same characteristics. It was by following out these rules that Mr. Bakewell arrived at perfection in his breed indeed, by some he is thought to

* Mr. Bates' rule was, "Breed in and in from best stock and you commit ruin and degeneration; but if a good stock be selected, you may breed in and in as much as you please," and he followed this practice for fifty years, and yet had out of the finest breeds ever known.

have pushed his principles too far, and the following remarks have perhaps some justice in them.—“It was his grand maxim, that the bones of the animals intended for food could not be too small; and that the fat, being the most valuable part of the carcass, could not consequently be too abundant. In pursuance of this leading theory, by inducing a preternatural smallness of bone and rotundity of carcass, he sought to cover the bones of all his animals externally with masses of fat. Thus the entire New Leicester breed, from their excessive tendency to fatten, produce too small a quantity of eatable meat, and that, too, necessarily of inferior flavor and quality. They are, in general, found defective in weight proportionately to their bulk, and if not thoroughly fattened, their flesh is crude and without flavor, while, if they be so, their carcasses produce little else but fat.”

“This great and sagacious improver (Mr. Bakewell), very justly disgusted at the sight of those huge, gaunt, leggy and mishappen animals with which his vicinity abounded, and which scarcely any length of time or quantity of food would fatten, patriotically determined upon a more sightly and profitable breed, yet, rather unfortunately, his zeal impelled him to the opposite extreme. Having painfully and at much cost raised a variety of cattle, the chief merit of which is to make fat, he has apparently laid his disciples and successors under the necessity of substituting another that will make lean.”

Granting the truth of these strictures, which we scarcely can to the full extent, what is the inference as it respects the system of breeding? Namely, this, that by pursuing the proper mode, by proper selections, and by joining like excellences and properties in the sire and dam, and not by harshly crossing distinct breeds, but by making one breed the great foundation and working upon it, remembering that “like produces like;” not only will the new point aimed at be attained, but it may even be overshoot, thus demonstrating the power which the judicious breeder possesses.

Since Mr. Bakewell's time the New Leicester breed has become degenerated. By some the stock has been bred in and too closely, and by others very injudiciously crossed. In the meantime the short-horned breeds of cattle have been gaining an ascendancy so that few really excellent long-horns are now to be seen. This, however, has nothing to do with the great principles we have endeavored to illustrate; they apply alike to all breeds of cattle. Every breeder, then, should well consider the properties of the stock from which he breeds, investigating their good qualities and their bad qualities, and while he endeavors to keep up or improve the former, he should study to remove the latter. His selections must be strict, the heifer or cow should have as few of the bad points as possible, every excellence in per-

fection, and be in good health, the bull should be of the same kind, and if related, only in a remote degree, nor should he have been brought up on a pasturage differing from that of the cow, or under the influence of different local climate; he should not only possess the good points desired, in all their perfection, but he should also have points which the farmer considers to be the excellences of his own stock, as admirably developed. Thus acting with judgment he may expect improvement, and if he fail, there is some concealed fault which has been overlooked, either on the one side or the other, or some defects in their parents, and which (in accordance with the tendency there is in families to exhibit from time to time certain peculiarities, latent perhaps for a generation) has again made itself manifest; consequently, on both sides there ought to be what is termed “good blood.” But this is to suppose a stock already improved to a great extent, and here we may repeat the injunctions laid down by the Rev. H. Berry, which more particularly apply to the farmer commencing *de novo*.

“A person selecting a stock from which to breed, notwithstanding he has set up for himself a standard of perfection, will obtain them with qualifications of different descriptions, and in different degrees. In breeding from such he will exercise his judgment, and decide what are indispensable or desirable qualities, and will be of the give and take kind. He will submit to the introduction of a trifling defect, in order that he may profit by a great excellence, and between excellences perhaps somewhat incompatible, he will decide on which is the greatest, and give it the preference. To a person commencing improvement, the best advice is to get as good a bull as he can, and if he be good of his kind, to use him indiscriminately with all his cows, and when by this proceeding, which ought to be persisted in, his stock has, with an occasional change of bull, become sufficiently stamped with desirable excellences, his selection of males should then be made to eradicate defects which he thinks desirable to be got rid of.

“He will not fail to keep in view the necessity of good blood in the bulls resorted to, for that will give the only assurance that they will transmit their own valuable properties to their offspring; but he must not trust to this alone or he will soon run the risk of degeneracy. In animals evincing an extraordinary degree of perfection, where the constitution is decidedly good, and there is no prominent defect, a little close breeding may be allowed, but this must not be injudiciously adopted or carried too far, for although it may increase and confirm valuable properties, it will also increase and confirm defects, and no breeder need be long in discovering that in an improved state animals have a greater tendency to defect than perfection. Close breeding from

affinities impairs the constitution and affects the procreative powers, and therefore a strong cross is occasionally necessary."

The dairy-farmer, however, is less concerned in this high breeding than the grazier, yet he is not by any means indifferent in the matter, for his aim ought to be to obtain a breed no less valuable as milkers than for their disposition to fatten when the milk is dried. These two qualifications are not to be attained very easily, yet they may be, and indeed, have been attained, and especially among the improved short-horn breeds, as those of Durham and Yorkshire, or the cross-breeds between the old Shropshire and Holderness. The breeds most valued in the great dairies around the Metropolis are mixed between the Yorkshire, Holderness and Durham. For quality and quantity of milk they are eminent, and when dry they are in general readily fattened for the butcher.

W. A. C.

Ancaster, April 16, 1863.

INFORMATION FOR IMMIGRANTS.

A Committee of the Legislative Council has issued the following circular, with the view of eliciting information that will convey an adequate idea of the resources of this Province to persons proposing Emigration from Europe.

LEGISLATIVE COUNCIL,
Quebec 3rd March, 1863.

SIR,—The Committee of the *Legislative Council* appointed to "take into consideration the subject of Immigration, and especially to report upon the best means of diffusing a knowledge of the great resources of the Province, so as to induce the influx of men of capital and manufacturing enterprise" are anxious to obtain your views as to the advantages which the Province presents to Agriculturists of moderate capital coming from Europe, or from other parts of the Continent, especially upon the following points, viz:—

As to the facility of obtaining valuable cleared farms near Railway Stations or Water Communication, at such prices as will prove a safe and profitable investment?—As to the returns which may be gained from the soil, if farmed with care and judgment?—As to the rates of interest to be obtained upon perfectly reliable securities? And as to the many other advantages which Canada affords to men of moderate capital?

The Committee would also be glad to receive full information from you in regard to the advantages of your own district of country; their object being to publish reliable facts in Europe and elsewhere, for the guidance of those disposed to emigrate.

Be pleased to favor the Committee with an early reply, and oblige, &c. &c.

GEORGE ALEXANDER.

Chairman.

FLAX CULTURE.

There is apparently more movement amongst our farmers on the subject of flax culture, this Spring, than ever heretofore. From the scarcity of raw cotton for manufacturing purposes, owing to the American war, other fibres, which had been more or less displaced or superseded by the cheaper article of cotton, are again coming into active requisition. Hence the increased attention directed towards the production of wool and flax on this continent and Europe. Although under ordinary circumstances, in times of peace, linen goods could scarcely be manufactured at a low enough cost to compete with cotton fabrics for such general purposes as they may be used in common for, yet when cotton rises to double or treble its former value, the conditions of the competition become more equalized, and linen goods may find a sale at better prices than formerly, and which may afford a handsome profit to both the grower and manufacturer of the flax.

It is not, however, for the products of the loom alone that flax is in demand. Much is used in the manufacture of thread, twine, cordage, &c., and with the increased consumption of the fibre in manufactures of a finer description, the way is cleared for the sale of increased quantities of qualities of the raw material suitable only for coarse products. If the growers of flax in this country, for want of sufficient knowledge or appliances, do not succeed in producing an article fit for the finest purposes of manufacture, they may yet be so far successful as to produce a fibre which they can sell at remunerating prices for coarser purposes.

We have already, at various times, given full particulars of the mode of cultivation of flax, and its preparation for market. Our remarks at this time, therefore, need be but brief. The cultivation is as simple as that of any other crop. Any good clay loam is a suitable soil. The ground ought to be in the finest possible state of tilth, and as clean and free from weed seeds as possible. The seed should be sown when the soil has got sufficiently dry and warm, and the season sufficiently genial, to be suitable for the sowing of other crops—barley for instance. When the soil and the season are suitable for sowing barley, then flax may also be sown. The ground should be harrowed

smoothly before sowing the seed, which should be very lightly harrowed in afterwards, so as to cover the seed not more than about an inch in depth. As to the quantity of seed, if a crop of seed is the principal object, a bushel to the acre is sufficient. If a fine quality of fibre is the object, without reference to the seed, two bushels to two and a half should be sown. If it is desired to secure both results as far as possible, then a medium quantity—say five pecks, or from that up to seven pecks will be required.

Seed of good quality, this Spring, is, unfortunately, scarce, and held at a very high price. We have had many inquiries, as to where it could be obtained, which we have not always found it easy to answer. The demand has been greater than anticipated, or we certainly should have expected that some of our merchants would have imported a quantity to meet it. Under the circumstances, all that the farmer, who wishes to sow a little flax, can do is to get the best seed possible. It should be plump, fresh in appearance, of a uniform bright brown colour, and free from mixture with other seeds. This last point is most important. If the farmer finds, on procuring his seed, that it contains any admixture of weed seeds, he should take every possible means to clean it thoroughly before sowing.

We trust that ere another season comes around, there will be, by some means, provision made for the importation of a sufficient quantity of the best Riga seed to meet the requirements of the country.

Agricultural Intelligence.

ROOT CULTIVATION.

The following Report of the results of a competition in the cultivation of Field Roots, in the County of Wentworth, last season, though written and forwarded to the parties to whom it is addressed last autumn, has only just now been placed in our hands. The events recorded, therefore, are not altogether recent, but the statements of the mode of cultivating the different crops, and the results, may be read with interest and advantage at this season of the year.—[Eds.]

Report of the Judges appointed to decide the Prizes offered by the Directors of the Hamilton and Wentworth Agricultural Societies, for the best field of Turnips, not less than two acres, 4 Prizes; and for the best piece of Carrots, not less than $\frac{1}{4}$ acre, 2 Prizes; and the best piece of Mangel Wurzel, $\frac{1}{4}$ acre, 2 Prizes.

To H. R. O'Reilly, Esq., Waterdown, and W. A. Cooley, Esq., Ancaster, joint Secretaries of the above Societies.

GENTLEMEN,—

We, the undersigned Judges, beg to report as follows on the root crops which we inspected: On Monday, the 27th October, we proceeded on our tour of inspection, accompanied by Mr. O'Reilly, who did us good service, and assisted us very much in the duties we had to perform. Leaving Dundas about 2 o'clock P.M., we called on the different competitors in the following order: For Turnips, our rule was, in each case, to measure off a square of 25 feet (being within a fraction of the 70th part of an acre), in such portion of the field as presented a fair average of the whole; and to weigh and measure the produce carefully. For Mangels and Carrots, our rule was to measure off $12\frac{1}{2}$ feet by 25 feet, being the 140th part of an acre, and weighed and measured the produce the same as the turnips.

First.—Mr. Joseph Webster, West Flamboro, near Dundas, about one acre of White Belgian Carrots, pretty pure, but small roots, and rather thin on the ground; soil, clayey loam; well manured; measured off a piece, $12\frac{1}{2}$ feet by 25 feet, being a fair average of his crop; topped off the carrots, and cleaned the soil from the roots; measured one bushel, which weighed 56 lbs.; measured off the produce of the piece, which yielded 7 bushels.

54,880lbs.	914	bus. per acre.	60lbs. to bus.
	980	“ “	56 “ “

Second.—Mr. John Wier, West Flamboro', a fine field of Purple Top Swede Turnips; about five acres; sown after sod, manured in the Fall; about 10 waggon loads of manure to the acre ploughed in; well tilled in the Spring, and about 500 lbs. of bone dust put into the drills before the seed was sown. The crop was very fair and even; sown about the 10th of June, 3 lbs. of seed to the acre; soil, a black loam, partially drained, and in a very good state of cultivation; measured off 25 feet square, 11 drills; topped and rooted them in the ordinary way, and found the yield to be 11 bus., 67 lbs. to the bus.

51,590lbs.	859 $\frac{2}{6}$	bus. per acre.	60lbs. to bus.
	770	“ “	67 “ “

Mr. Wier's farm is beautifully situated on the Flamboro' Heights, and commands a fine view of the surrounding country. The soil is varied and well adapted for growing grain and root crops; he cultivates about 250 acres.

Third.—Mr. Thomas Hatt, Ancaster, close

to the town of Dundas, a pretty field of about 7 acres, nearly all Purple Top, with a few of Skirving's Improved; a fair crop of turnips, very even in the drills; had evidently been well attended to in the hoeing season, as the crop was very clean, and no weeds of any kind in the field; drills 2 feet apart; soil, a sandy loam. After wheat, ploughed in the Fall, and manured with about 16 waggon loads of barn-yard manure to the acre, drilled up in the Spring, and sown about the 15th June, at the rate of 2½ lbs. seed to the acre. The bulbs were of a medium size, and very few necks. Measured off 25 feet square, which produced 13¼ bus., at 66 lbs. to the bushel.

61,215 lbs. 1020 $\frac{1}{3}$ bus. per acre. 60 lbs. to bus.
927 $\frac{3}{8}$ " " 66 " "

Mr. H. cultivates about 200 acres. Keeps a dairy of 12 cows. Night coming on, we could proceed no farther. Our thanks are due to Mr. and Mrs. Hatt, for their kind hospitality.

Fourth.—On Tuesday morning we proceeded with our work of examination. Had a long drive of about 7 miles, to the farm of Mr. John Ireland, 2nd con., Township of Ancaster; a very nice field of Skirving's Purple Top; about 3¼ acres; crop very uniform; bulbs medium size; drills 26 inches apart; soil, light loam; crop after oats; ploughed in the Fall, and manured in the Spring, with 15 waggon loads of stable manure to the acre; seed sown 24th June, 1½ lbs. to the acre. Taking the average of the field, and measured off the 25 feet square, the produce was 12 bus. at 67 lbs. to the bus.

56,280 lbs. 938 bus. per acre. at 60 lbs. to bus.
840 " " 67 " "

Mr. Ireland cultivates 150 acres.

Fifth.—Mr. Wm. Crawford, next farm to Mr. Ireland; about 3 acres of Purple Top Swede; a fair crop, with few blanks; bulbs medium size; soil, a clayey loam; after oat stubble; ploughed in the Fall; no manure; well worked in the Spring; seed sown in drills 2 feet apart, about the 24th June, at the rate of 2 lbs. to the acre. Produce of 25 feet square, 11¼ bus. at 69 lbs. to the bus.

56,752 lbs. 945 $\frac{3}{8}$ bus. per acre. 60 lbs. to bus.
822 $\frac{3}{8}$ " " 69 " "

Sixth.—Thos. Dunbar, Ancaster, 1½ acres of White Belgian Carrot, pretty pure, a fair crop but roots not large; drills 21 inches apart; soil sandy loam, ploughed in the Fall after wheat stubble, and manured with 15 waggon loads of manure to the acre; seed sown about the 10th of May, at the rate of 3 lbs. to the acre.

Twenty-five feet by 12½ feet yield 7½ bush. at 58 lbs. to the bush.

60,900 lbs. 1015 bush. per acre 60 lbs. to the bus.
1050 bush. " " 58 lbs. " "

Mr. Dunbar also competed with Mangel Yellow Globe, sown and cultivated in precisely the same manner as his carrots.

Twenty-five by 12½ feet yield 7½ bush. at 59 lbs. to the bush.

58,852 lbs. 980 $\frac{5}{8}$ bus. per acre. 60 lbs to the bus.
" 997 $\frac{3}{8}$ " " 59 " "

The bulbs were small, but they weighed very heavy, and we were rather surprised at the result from their appearance in the field; they looked rather a poor crop but they told up pretty well when taken up and weighed.

Seventh.—A pleasant ride of a few miles brought us to the residence of Mr. W. A. Cooley, near the Village of Ancaster; he showed a very fine field of Purple Top Swede turnips, about 6 acres, well cultivated and in the very best of order. The soil a black alluvial, very rich; the turnip crop was after wheat, ploughed in the Fall, well manured with 13 waggon loads of good barn yard manure to the acre; worked well in the spring and sown in drills 2 feet apart; seed sown 18th of June, at the rate of 3 lbs. to the acre. After selecting a fair average of the field, we measured off the 25 feet square, weighed 1 bush. 69 lbs., measured the produce of the piece 12½ bush.

60,375 lbs. 1006 $\frac{1}{8}$ bus. per acre. 60 lbs to the bus.
" 875 " " 69 " "

Eighth.—Our next visit was to Mr. John Renton, Township of Glanford, about 7 miles from Ancaster, looked over his field of Turnips of about 4 acres of Purple Top, pretty pure but not a very even crop, a good many blanks; drills 30 inches apart, which is rather far to produce a profitable crop of turnips. The crop was after wheat stubble manured in the Fall and ploughed in at the rate of 15 waggon loads of barn yard manure to the acre; the soil a pretty strong clay, required a good deal of work in the spring to make it fit for the seed, which was sown 10th of June, at the rate of 3 lbs. to the acre; 25 feet square yielded 10½ bush., 69 lbs. to the bush.

50,715 lbs. 845 $\frac{5}{8}$ bus. per acre. 60 lbs. to the bus.
" 735 " " 69 " "

Mr. Renton cultivates about 70 acres, the ground is rolling but from the strong nature of the soil it is well adapted for growing wheat. Night coming on after we had examined Mr. Renton's turnips, and no more competitors being in that neighbourhood, we had a very long ride through some very bad roads to the City of Hamilton and there took up our quarters for the night.

Ninth.—Wednesday morning we proceeded from Hamilton to the Township of East Flamboro' near the Village of Waterdown, Mr. McMonies showed two fields of turnips, about 3 acres each, one under orchard and the other in the open field; the orchard being the better crop we took our average from it. Mr. McMonies tills his orchards every year and finds his trees thrive much better than if allowed to remain in grass. His turnips were a fair crop, sown after

potatos, well manured in the spring at the rate of 10 waggon loads of barn yard manure to the acre. Nearly all Purple Tops with a few Lains's Improved; drills 2 feet apart, very few blanks, and bulbs a fair medium size; soil a gravelly loam; 25 feet square, being a fair average of the field, yielded 11½ bush. at 69 lbs. to the bush.

65,545lbs. 925⁴/₁₀ bus. per acre 60lbs. to the bus.
 " 805 " " 69 " "

Tenth.—Mr. Luke Mullock, East Flamboro, near Waterdown, showed turnips, carrots, and mangels in the same field; his turnips were a nice patch of two acres, a very fine crop and carefully cultivated; sod the previous year, manured in the Fall at the rate of 20 waggon loads of stable manure to the acre and ploughed in; soil a fine clayey loam; seed sown on the flat in rows 2 feet apart about the 12th of June at the rate of 2 lbs. of seed to the acre. Bulb, generally large and very few blanks; 25 feet square yielded 13½ bush. at 73 lbs. to the bush.

68985lbs. 1149⁴/₁₀ bus. per acre. 60lbs. to the bus.
 " 945 " " 73 " "

Mr. Mullock's carrots and mangels were manured at the same rate per acre as his turnips, and cultivated in the same way. White Belgian Carrots very pure, sown in drills on the flat 20 inches apart; measured off 12½ feet by 25 feet, produce 5½ bush. 60 lbs. to the bush.

46200lbs. 770 bush. per acre. 60lbs. to the bus

Examined his Mangels *Long Red*; roots pretty large, very few blanks, drills 20 inches apart; 12½ by 25 feet yielded 7½ bus. at 62 lbs., 65100 lbs. 1085 bus. per acre at 60 lbs. to bus.

1050 bus. per acre, at 62 lbs. to the bus.

Eleventh.—Next farm Mr. Thos. Stock's, a large field of about 10 acres; a fine piece of rolling land, clayey loam, sown after pea and oat stubble, manured with 15 waggon loads of stable-yard manure in the fall, and ploughed in drills 22 inches apart, seed sown about the 20th of June at the rate of 2 lbs. to the acre, all purple tops; bulbs average a fair size except in some parts of the field where the turnips had been affected with *lice*; 25 feet square yielded 12¾ bus. at 70 lbs. to the bus.

82,495lbs., 1041¹/₁₀ bus. per acre. 60lbs. to bus.
 892²/₁₀ " " 70 " "

Twelfth.—Mr. John Stock, next farm, showed a very fine field of turnips over two acres, grown after sod, manured in the Fall at the rate of 20 loads of good stable-yard manure to the acre and ploughed in—well worked in the Spring,—drills 2 feet, seed sown 12th of June, at the rate of 2 lbs. to the acre; bulbs generally large and well shaped, very few blanks, all purple tops, pretty pure; taking the average of the field and measuring off the usual space 25 feet square, the produce was 12¾ bus. at 71 lbs to the bus.

63,367lbs. 1056⁷/₁₀ bus. per acre. 60lbs. to bus.
 892³/₁₀ " " 71 " "

Mr. Stock was also competing with *Carrots* and *Mangels*, but declining to have them examined we passed on to the next.

Mr. S. cultivates about 150 acres, and seems to have his farm in excellent condition.

Thirteenth.—Mr. H. R. O'Reilly, a piece of three acres of Skirving's purple tops, a fair crop, but bulbs rather small; sown after barley stubble, and manured in the spring with 10 waggon loads of barn-yard manure to the acre; drills 2 feet, seed sown 20th June at the rate of 3 lbs. to the acre. A square of 25 feet yielding 10 bus. at 72 lbs. to the bus.

50,400lbs. 840 bus. per acre. 60 lbs. to the bus.
 700 " " " 72 " " "

Mr. O'Reilly, competed with mangels, long red, grown alongside of his turnips—manured and cultivated in the same manner. They were thin in the drills, and a good many blanks, roots very fair size, and if it had not been for the blanks they would have been a heavy crop; we took the average from the piece about three quarters of an acre, weighed one bus. 59 lbs. measured the produce of 12½ by 25 feet, but by an omission on taking the notes the quantity was not put down, however, we were satisfied at the time that Mr. O'Reilly's mangels did not quite come up to the others in weight, per acre. Mr. O'Reilly cultivates about 100 acres, his farm is well adapted for growing grain and root crops.

Having now finished our work of inspection, we have much pleasure in stating that we were highly pleased with all the crops that came under our notice; the general average has not been so high this year as at a former competition, owing to the very dry weather which prevailed about the time of sowing. The tendency of such competitions is highly beneficial to the country, and the results require only to be understood and appreciated by the Practical Farmers of Canada. With the above facts before us, we award the

First Prize for Swede Turnips, to Mr. Luke Mullock, East Flamboro. Second prize, Mr. John Stock, East Flamboro. Third prize, Mr. Thos. Stock, East Flamboro, Fourth prize, Mr. Thos. Hatt, Ancaster.

CARROTS.

First prize, Thomas Dunbar, Ancaster. Second prize, Joseph Webster, West Flamboro.

MANGEL WURZEL.

First prize, Luke Mullock, East Flamboro. Second prize, Thos Dunbar, Ancaster.

All of which is respectfully submitted,

JAMES FLEMING.
 JAMES CALDER.

Toronto, 1863.

EXHAUSTION OF VEGETABLE MOULD.

The means of increasing or preserving the vegetable mould is the greatest question that concerns man, while it is scarcely thought of. In the poorer soils, which include a great proportion of the more level cultivable surface of the earth, the vegetable mould is fast suffering exhaustion by aeration under the present system, and man does not seem aware of what he is about. In the Eastern States of North America from the State of Maine to Florida, in Lower Germany west of the Vistula, and in many parts of Spain and France, the vegetable mould is much exhausted, and no means taken to prevent ultimate sterility. The loss has been so great as almost to be irremediable by man, and perhaps must be left to the repairing agency of Nature, first to cover up the wasted land by a dense pine forest for a number of ages, and when, by this means, a sufficiency of mould and moisture of climate is attained for the growth of broad-leaved trees, to remain for ages more under these; or if the exhaustion is too far advanced, or the climate too dry for forest growth, the country to be again dipped for a geological period under the ocean. In most places of the American Eastern States, except the pine barrens of sheer sand, the vegetable mould, upon the clearance of the forest cover, amounts to from a foot to 18 inches of rich black vegetable mould, and this under 12 or 18 years' aeration is completely dissipated, nothing remaining but light-coloured, poor mineral earth—such as would delight the heart of Liebig or Professor Voelcker. Germany, from the Vistula to the German Ocean, with the exception of the rich river deltas, is almost equally exhausted—not only the vegetable mould lost, but even the marl and clay once existing in the soil washed away, forming the alluvions of the Rhine, Weser, Elbe, and Vistula. In the greater part of this country nothing remains on the surface within reach of the plough but sterile silicious sand, termed "geest-land," perhaps a corruption of "geist-land."

When this stage of exhaustion takes place, if the climate from position is not naturally moist, the rain clouds are not formed, or not attracted, and the region becomes arid desert. In the greater part of Germany, though adjacent to two seas, the air is becoming drier, there is less rain-fall, and the rivers are diminishing in their flow of water. This is a dangerous feature, combined with an increasing population. The only remedy is an increase of forest cover and shelter belts of trees, to encourage the formation of cloud, rain, and dew. The air in Germany is at times so dry that in the quiet, clear nights of summer there is little dew to give out heat in its change from the aerial into the liquid state, and in consequence the temperature falls sometimes at the surface of the ground in July below the freezing point,

killing the buckwheat and potatoes. In Northern Africa, and in many parts of Western and Central Asia, where man in former times had accumulated, had destroyed the forest cover, and wasted the natural vegetable mould, the country has become arid desert, animal and vegetable life extinct. There are, however, several vast deposits of vegetable mould—those of Southern Russia and Poland, the valleys of La Plata, and the Mississippi, all in the temperate zones, and suited to the white race of man, where it will be long before he is able to exhaust its great depth and richness. Volcanic land, disintegrated lava, dust and ashes, and other ejecta, will also bear a great amount of exhausting cropping. In these volcanic soils all the different mineral ingredients have been boiled in the pot together, and as the rock goes on disintegrating and top-dressings of ashes sometimes takes place, these soils afford almost everything a plant needs in continued supply. It is different with most soils consisting of ocean-drifted materials, elevated seabeds and sands, such as Western and Northern Germany, and the greater part of England. These sea-sedimentary and wave-washed soils are generally too much of one kind of mineral—too silicious, too calcareous, too aluminous—and under aeration the small quantity of vegetable mould they may have acquired is soon exhausted, and it is long before it can be replaced.

Under the present farmer occupancy, his endeavour is to obtain a large immediate production, without regard to any deterioration, however great, of the vegetable soil. Is this system to be continued? Is the goose that lays the golden egg to be killed? Liebig, a good chemist, but no farmer, in his discovery of the components of plants—that a small portion of these are mineral, necessary to give firmness and strength to the vegetable as well as the animal frame—has written in ignorance, at least ignoring the importance of the vegetable mould, the garnered food supply of the higher vegetables prepared by Nature in a manner, perhaps, more than anything else, showing a provision of means to end. Liebig seems much captivated by what he absurdly terms "inorganics" (as if one constituent of an organism was more or less organic than another) almost to recognize nothing else necessary when the fact is, that it is the carbonic acid given out by the vegetable mould that, mixed with water supply, renders the water able to dissolve and convey these minerals to the roots of the plant. In the case of a heavy crop being produced by the artificial manures so much valued by Liebig and his followers, there results a great exhaustion of the other components of the soil, not easily to be recovered.

The great importance of Liebig's discovery is the supposition, amounting to a considerable probability, that a plant nourished at an early

stage of its growth to high luxuriance by what they term "artificial manures"—what the soil may be most destitute of, and necessary to the growth of the plant—is thus enabled to extract a large quantity of carbon, ammonia, &c., from the atmosphere, and thus obtain large bulk, so that when ultimately it comes to form manure it will increase the vegetable mould. However this may be, there cannot be a doubt that these artificial manures enable the cultivator to exhaust a soil not very abundant of vegetable mould to complete barrenness.

Liebig seems in error in supposing that alternation of crops is more exhausting than a continuation of the same kind. There is something yet to be discovered as to the effect of alternation and mixed crop. A crop of mixed grasses continued to be depastured for years has also an effect not well understood. The enriching effect is especially conspicuous when the field is heavily manured with large manures previous to laying down.

A fertilizing cause, no doubt, is that the grasses are not allowed to seed, the seed containing much more of the more valuable constituents, phosphates, alkalis, &c., than the succulent leaves. Another of the causes of the enrichment from lying out in pasture for years is that the mould is covered up from the burning and exhaling influences of the sun and air. A peculiar crumbly arrangement of the mould so takes place, favourable to vegetable growth; perhaps, also a growth of fertilizing earth fungi. The great mass of roots and ploughed down sward of leaves also serves to enrich the mould. At one time it was thought that plants threw out a refuse from their roots, and that this refuse of one kind of plant served as nourishment to another, while it was poisonous to its own kind. This idea is now given up.

It has been found that the large manures ploughed down pretty deep in the ground are more effectual in enriching the vegetable soil than when near the surface, although they do not act so quickly to forward the immediate crop. A depth and richness of the vegetable mould affords the best provision against injury from drought. It is the food supply of Nature, and, as we may say, by Nature in the most profitable manner possible; and it is the part of the husbandman to do everything in his power to prevent its exhaustion. Liebig's system of artificial manures, ignorantly or improperly applied, and the scope of his lectures on the subject, have, perhaps, tended to diminish rather than increase the vegetable mould.—*Times*.

VANCOUVER ISLAND.

The *California Farmer*, published at San Francisco, gives the following sketch of the progress of agriculture in the neighborhood of Victoria, Vancouver's Island. We cannot help thinking the picture of the productiveness of the country a good deal too highly colored.

From Mr. B. we gather the following interesting facts touching the progress of agriculture and horticulture in the British possessions. These facts should be of deep interest to us as we are neighbors, and of course their progress must favorably affect us. It has been a great mistake here to suppose that Agriculture has not made progress in that region. On the contrary, they have made great progress, and have brought industry, skill, and large capital, to second their enterprises.

At Williams' Lake, one large farm and garden has realized £6,000 or \$30,000, as the income of last year, Messrs. Woodruff & Co. At Port Pemberton, Mr. Nelson and other farmers, realized from \$6,000 to \$8,000 each, for hay crops. There are many other farms where great success has been the result of well-directed efforts; and there are still large and rich tracts of land where settlers are gathering and making improvements. A large region of country is here opened, where intelligent farmers may always do well, and we are informed that settlers are constantly coming from England to take up land and go to work in earnest. We hear of one instance where an English farmer has lately taken up a tract of land; he brought with him, for the purpose, £10,000, or \$50,000. This is the way English farmers embark in agriculture.

We wish our farmers, when they take hold of farming, would get a leaf out of our neighbors' books, learn a little of their system, and put a little more soul into their work—then we should not hear so much grumbling about "hard times." English and Scotch farmers, and Irish ones, generally, love to work and they *work in earnest*, to make their farms prosper. They say, farmwork first; politics, races and sports, afterwards. We wish it were so also with our farmers and stock men; it must be so to make farming really prosperous.

Lands in Victoria, that a few years since were occupied by the Indians, and of little value, are now taken up, occupied by permanent settlers, and have been greatly improved. Settlers from England have filled up the Comox and Cowtchin districts, and the whole place has been greatly improved within a few months.

The Provincial Exhibition of Upper Canada this year, takes place at Kingston, on the 23rd, 24th, and 25th September.

As an evidence of the capacity of soil on Vancouver, we will state that one farmer (Mr. Thompson) raised 100 bushels of wheat to the acre—64 pounds per bushel. This was done in Sandwich, and—who can beat it? Barley, too, yields heavy of a very superior quality weighing 54 pounds. Oats does splendidly, and it is known to be superior to any grown here. Potatoes do admirably, and, all other crops do well.

SHEEP ON THE PAMPAS OF THE RIVER PLATE.

On our Estancia we have, first in order, the Saxon sheep or "Nigratti." When the King of Saxony (in Germany) first took sheep from Spain, the greatest care possible was given to them, in order to produce an excellent quality of wool, which should contain both fineness and weight, the carcass forming a secondary consideration. In course of time it was found that as these imported Spanish sheep improved, so that their wool was the finest and heaviest to be had, they lost too much in substance and bone; hence arose the idea of making a "cross"—that is, putting these fine sheep with rams of a different breed, and fine rams with sheep of a different quality. The result was, as can well be supposed, sheep (by "sheep" I include both sexes) possessing greater bone and less fine wool than the original superior stock. The former are termed "Electors" and the latter "Nigratti." When Mr. Pranger (a native of Bremer), the former and original owner of this Estancia, first brought the "Nigratti" from Germany to this Estancia—the first ever seen in South America—they were highly prized, and on one occasion he sold to an English Estancia a ram Nigratti for which he received as much as £500 (English); now they average at £30 and £35 (English), and are imported by many Estancieros. From 18 to 22 lb. of wool are obtained from each.

At the proper season of the year we put a certain number of these rams in our various flocks—"Nigratti," "Merino," and "Mestizo"—and when they are no longer required for use in the flock, they are brought back to the Estancia, where they all live together, enjoying their hard-headed fights and battles, and living as well as possible. We have now about 180 Nigratti rams: every year some go off, either out of the world altogether or to another Estancia, and are succeeded by their descendants, for a new race is continually coming forth. We have about 350 Saxon sheep, in round numbers, for I can't say exactly how many.

The sheep next in worth are the "Merinos," which yield each about 12 lb. or 13 lb. of wool.

The prices of these Merinoes vary; I have seen Merino rams go at £5 each and some at £10, but I have not heard of a higher rate. It is possible a higher price is obtained.

Then come the "Mestizas," giving each from 5 to 7 lb. of wool; we generally reckon four Mestizas give an arroba (25 lb.) of wool. If a person sold a flock of Mestizas (1,000) at 4 patacones (say each pt. = 4s. each), he would be said to have done "very well."

There is another kind of sheep, called the "Rambouillet," or French sheep, which we have not got, which gives as much sometimes as an arroba (25 lb.). Mr. Grierson, whom I mentioned, has one Rambouillet ram, and I saw its wool, which I should say was 4 inches deep over the shoulders, or even more.

The sheep of the country is called the "Criolla," which also we have not got.

If possible, in purchasing a flock of 1,000 a good proportion is to have 800 sheep, 200 capones (wethers), and 10 rams in addition. 10 rams are enough for such a flock, and, in a good year, 800 or even 900 lambs can be obtained from them.

As regards sheep dogs:—If I had a flock of sheep, nothing to me would be more acceptable than a pair of good English sheep dogs. These dogs may be in El Campo de Buenos Ayres, but I have never seen one of the five calendar months I have been here. A good sheep-dog is a valuable article, and, fancy, a profitable one too. Only two or three weeks ago an Englishman who has sheep up the country asked me if we had any good sheep-dogs here, pups, and, if so, he was willing to pay for one if he could obtain it. I could not get one for him, notwithstanding I rode to a puestero I know who has five lit. pups (not sheep-dogs), all of which were really bespoken.

Last week we did a little ploughing. Uncle Charles will at once think of the fine steed horses, in broad leather harness, possibly adorned with bells or tassels, with a little three feet high, with a long whip over the shoulder at their side, and the steady, sun-burned man guiding the plough as straight as a line, and fancy it is the same here. I could you only peep at us for a quarter of an hour, and then see the contrast. A greaser could not possibly be, to speak a little beyond the mark.

A good fairish plough we certainly had but see the other material. Instead of steady, fat, and strong cart horses of old land, we have horses such as would be used for a light gig, or riding at home, but only real intention, about 13 hands high, never before in front of a plough, so that they are half wild at first, rearing and plunging from side to side, one tied to the other, we have two in the plough at a time. The duty in the ploughing was to lead these

trained horses by the head and prevent any damage done, and no joke I assure you at the beginning, when they came fresh from the field, but at the end of a couple of hours they became tamer and reconciled to their fate. A second man goes behind them with a whip to keep them up to the mark if they fall back or rear, &c., and when it is applied No. 1 has to look out. A third man guides the plough as well as he can, and if we only have three or four great circles at the beginning we say it is "all right," and soon will be better. After an hour possibly No. 2 with the whip can be dispensed with. Now we have the difficulty with the horses, training a few in case we have a gig, and then they will draw all right; but a few lessons make a wonderful difference, after which they do tolerably well. — J. P., in *Agricultural Gazette*.

PATENTED AGRICULTURAL INVENTIONS

From the *Canada Gazette* of March 14 1863 is Excellency the Governor General has been pleased to grant Letters Patent for Invention for a period of fourteen years from the dates hereof, to the following persons, viz:—

Abimelech Hillman, Cabinet Maker, and Nathan Campbell, Furniture Dealer, both of the town of Stratford, county of Perth, for an improved Churn, to be called the "Prince Churn."—(Dated 22nd August, 1862)

John Angell Cull, assignee of Edward Lefroy Hill, both of the City of Toronto, county of York, gentlemen, for an article styled the "Forest Cultivator,"—(Dated 6th October, 1862.)

David Allen Rose of the township of Ernesby, county of Lennox and Addington, Mechanic, for "An improvement of a Churn for churning Butter."—(Dated 10th October, 1862)

Charles Henry Wortman, of the township of Camden East, county of Addington, Millwright, for a Force and Suction Pump, called Wortman's combined Force and Suction pump."—(Dated 17th October, 1862.)

John McConnell, of Cornwall, county of Northwath, Tinsmith, for "A Shifting Hinge, or coupling."—(Dated 17th October, 1862.)

Charles Powell, of the township and county of York, Pump Maker, for "An improved Portable Action Swing Force Pump,"—(Dated 10th October, 1862.)

John William Henry Schneider, of the township of Thorold, county of Welland, gentleman, for "New and useful improvements in Mowers or Hay Cutting Boxes,"—(Dated 24th October, 1862.)

Richard Lewis, of Melbourne, county of Simcoe, Carpenter, for "New and Improved Swing Gates,"—(Dated 30 October, 1862.)

John Glendillen, of the township of Northampton, county of Middlesex, Cabinet Ma-

ker, for "A Washing Machine,"—(Dated 17th November, 1862.)

Abimelech Hillman, of the town of Stratford, county of Perth, Cabinet Maker, for an improved Churn, to be called "Hillman's up and down self-acting rotatory reversible dash Churn,"—Dated 25 November, 1862.)

Edward Leunsbury Stilwell, of the village of Klineburgh, county of York, Cabinet Maker, for "A self setting Rat Trap,"—(Dated 27th of November, 1862.)

Nathan Campbell, of Stratford, county of Perth, Furniture Dealer, for "Certain improvements on the Prince Churn,"—(Dated 29 November, 1862.)

Lewis Pannabaker, of the township of Normanby, county of Grey, Farmer, for "A Grain Cradle Finger Adjuster,"—(Dated 1st December, 1862.)

William Randall, of the township of Uxbridge, county of Ontario, Carpenter, for a new and useful improvement in Saw Mills" called, the Excelsior Saw Mill,"—(Dated 9th December, 1862)

William Mitler, of the township of Markham, county of York, Yeoman, for "An improved geared box Churn,"—(Dated 10 December, 1862.)

Edward Trenholm, of Trenholmville, in the township of Kingscy, county of Drummond, Farmer and Miller, for a new and improved Apparatus for cooling Grain, Coal, or other articles kept in bulk on shipboard or in stores, to be called "Trenholm's Apparatus for cooling grain, coal, &c.,—(Dated 13th December, 1862.)

Richard Jones Sherrot, of the city of London, county of Middlesex, Carpenter, for "A Clothes Horse for airing and drying Linnen or clothes within doors,"—(Dated 16th December, 1862)

Warren Millar, of the city of Montreal, Sewing Machine Agent, for "A new and useful loop check in Sewing Machines using a rotating hook,"—(Dated 16th December, 1862.)

NEW YORK STATE SHOW.—The annual Show of the New York State Agricultural Society, has been appointed to be held this year at Utica on 15th to 18th Sept.

FLAX CULTIVATION.—A meeting of some of the leading agriculturists in the neighborhood of Guilford, was recently held at that place for the purpose of discussing the question of erecting a scutching mill, and entering into the cultivation of flax on an extended scale in that section. Mr. John McCrea and gentlemen associated with him pledged themselves to erect flax scutching machinery by the first of August next, and to dress the flax in the best style and on the usual terms of payment, viz: half the value of the clear fibre to be paid either way. This to be on the condition that a sufficient num-

ber of farmers should guarantee to sow and cultivate properly 300 acres of flax and deliver the produce at the mills. The required guarantee however not being forthcoming, the meeting separated without coming to any definite determination.

MUNICIPAL AID IN PROCURING SEED.

In some portions of Upper Canada, last year, particularly in the Eastern and North-Eastern counties, the crops almost totally failed, so much so that there is reason to believe that many farmers in those townships where the failure was greatest, will be destitute of the means for procuring seed to sow their land this Spring. To remedy this state of things a bill has been introduced in the Provincial Parliament to enable County Councils to raise money for the purpose of buying seed, not to exceed twenty thousand dollars in any one county. The County Council to distribute the sum so raised, in such amounts as may be expedient, amongst the township Councils, and these latter are empowered to lend it to such parties as require assistance in procuring seed to sow their land. The amounts so lent are to be repaid by a special rate levied by the township councils upon the property of the persons borrowing. Should this bill become law, as it doubtless will, it will be the means of affording very important relief to many parties who have suffered severely by the dearth of last season.

HAMBURG INTERNATIONAL AGRICULTURAL EXHIBITION.

The following named Delegates have been appointed to this exhibition from the United States:—

The Hon. James A. Wright, ex-Gov. of Indiana, and late Minister to the Court of Berlin, United States Commissioner.

Hon. Ezra Cornell, of Ithaca, ex-President of the N. Y. State Agricultural Society.

Charles L. Flint, Esq., Secretary of the Massachusetts State Agricultural Society.

Ex-Gov. Dyer, from the Society for the Improvement of Agriculture and Manufactures in Rhode Island.

Hon. Daniel Needham, of Hartford, Vt., will represent the Vermont State Agricultural Society.

Hon. W. Marsh has been appointed a delegate for the State of Illinois.

Gen. N. N. Halsted, of Harrison, and

Stephen H. Condict, Esq., of Newark, are appointed for the State of New Jersey.

Any persons in Canada who propose exhibiting implements or other articles, should make their applications for entry to the agents, Messrs. Austin Baldwin & Co., New York immediately. All articles must be delivered ready for shipment by 10th June next.

The Dairy.

DAIRY MANAGEMENT.

The following report was read by Mr. Cunningham at a recent meeting of the Committee of the County of Cork (Ireland) Agricultural Society:—

“Visitors to the Munster Agricultural School almost invariably put the following questions;—‘Which kind of pan is preferred? and which kind throws up the largest quantity of cream or ultimately gives the largest produce in butter?’ The first question is easily answered, as glass pans are the favourites, owing to their cleanliness and economy in management. To the second question no definite answer could be given; and with the view of eliciting reliable particulars on this point, the following experiments were undertaken. Three pans selected were three years in use, and of the following kinds—glass, earthenware (ba glaze), delft, tinned iron, and wooden vessels. In order to carry out the experiment with the greatest accuracy, the feeding of the cows was changed, and the temperature of the dairy varied at each experiment. The milk as it came from the cows was strained into a large vessel and then measured accurately into the pail. The quantity of milk set in all cases was eight gallons, and the cream from this was allowed to separate from five to six pints. I do not set much value on the measurement of the cream, as a great deal depends upon the state of the milk and the dexterity of the dairymaid in taking it off. One week was allowed to elapse before the next experiment was commenced. In all, four experiments were made. In the first the feeding was of a rich nature, and a large produce of butter was expected, and the temperature of the dairy was high for the season, viz., 55 deg. The feeding consisted of white turnips, swedes, cake (three lbs. to each cow per day), grass and hay. The expectation as to large yield of butter was realised, as two of the vessels produced the highest produce—3 lbs. of butter for eight gallons of milk. In the second experiment the temperature of the dairy was lowered to 48 Deg., and the feeding was Aberdeenshire turnips, swedes, grains, and hay. In the third experiment the temperature was raised to 50 deg. and the feeding was mangels, swedes, Aberdeenshire turnips, and hay. The temperature was 52 deg. in the fourth experiment, and the feeding was mangels, swedes, grains, and hay. The

duce in butter is summarised in the following table:—

Milk vessels.	Experiment No. 1.	Experiment No. 2.	Experiment No. 1.	Experiment No. 2.	Average of the four experiments.
	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.
Glass	3 0	2 10	2 12	2 14	2 13
Earthenware (black glaze)	3 0	2 10	2 12	2 14	2 13
Delft	2 14	2 8	2 10	2 12	2 11
Tinned iron	2 14	2 8	2 10	2 12	2 11
Wooden (cedars)	2 4	2 4	2 6	2 7	2 5½

On tabulating the 1st experiment I was under the impression that an error had occurred in the case of wooden vessels, as the quantity of butter yielded, when compared with other vessels, was very small. It was then the thought struck me to vary the temperature of the dairy and to alter the feeding of the cows, as I had not the least doubt but by so doing I would vary the quantity of butter in all the vessels, and which would tend to confirm the accuracy of the experiment, or the reverse. In the second experiment no rape cake was given to the cows, and the temperature of the dairy was lowered to 48° F. It is a well known fact that a low temperature has the effect of preventing the cream from rising, and this was exemplified in a remarkable degree in this trial, as all the pans, with the exception of the wooden ones, produced the smallest quantity of butter. When we consider that the materials of the wooden vessels, is less liable to be acted upon by a variation in the temperature, or, in other words, is a better non-conductor, hence the produce of the butter remained the same as in the first experiment, while in that of the other pans the produce was lessened very much. I believe from experiments conducted during the past season at the Albert Institution, Glasnevin, it was found that rape cake did not add to the increased richness of the milk, but that it tended to bring the cattle to a higher condition, so that the absence of the cake in the feeding does not account for the sudden decrease in butter, but that it wholly arose from the sudden depression in the temperature. I may here take the liberty of stating two or two facts with regard to rape-cake. The cows on the Munster Farm receive about 1 lb. of this cake per day during the winter months, and it has the effect of counteracting to a great degree the unpleasant flavour of the turnips; so much so, that although the tops are eaten given with the turnips, still we have had no complaint from our numerous customers of turnip flavour in butter. The rape cake is to butter a closeness of grain and a soft consistency even in frosty weather, and it is by use of this rape cake that the Belgian farmer is able to command so high a price in the London market during the winter months. In the last and fourth experiments the temperature of the dairy was gradually raised, and a higher

class of feeding was given, so that all the vessels gave a corresponding higher produce of butter. The milk turns sour or thickens in the course of from twelve to eighteen hours in the wooden vessels, and in the delft and tinned iron a few hours sooner than in glass and earthenware ones. A vessel that will keep the milk longest sweet will have more time to throw up a larger quantity of cream, a circumstance which these experiments tend to corroborate—260 lbs. of butter are considered a fair average produce for a cow during twelve months, and if we take this quantity as realized from the glass and earthenware pans there will be a loss of 9½ lbs. of butter, or 5 per cent. by using pans of delft or tinned iron, and a loss of 36 lbs., or 18 per cent. by using vessels of wood. To manage a dairy successfully, cleanliness is a most essential requisite; and dampness should by all means be avoided, as it soon taints the milk, and the butter is consequently deteriorated. Vessels that require much cleansing and scrubbing, as wood, and certain sorts of earthenware, should be at once thrown aside, as the moisture absorbed soon taints the milk, as I have had ample experience in a tour of inspection, as a judge of green crops, &c., in Kerry and the west of Ireland, where I found in dairies having vessels of wood, the milk, in all cases, was corrupted before the cream was taken off, and this more especially if the dairies were damp and not properly cleaned. The conclusion I have come to is, that glass pans have the decided advantage, that they are easily cleaned, that the milk keeps longer sweet in them, and that they give the highest produce in butter, which is of a superior quality. As to breakages, the dairymaid at this farm has just received a small gratuity for her care in managing these pans, as not one was broken during the last 18 months. I purpose continuing these experiments still further as soon as some additions to the dairy are completed, and I shall be most happy to bring the results before you.

From a most excellent little work on dairy husbandry (which should be in the hands of every dairy farmer), by the editor of the *London Agricultural Gazette*—I shall read one or two extracts:—Captain Car, who farms largely in Holstein, and who has 180 cows in his dairy, uses almost exclusively glass pans, and he gives them a decided preference over all others. He says: 'It is self-evident that acidity cannot be communicated to glass; and the ease and rapidity with which they are cleaned, requiring merely to be first washed with lukewarm water, then rinsed in cold water and placed in a rack to dry, effect a great saving in fuel and labour, diminishing the number of dairymaids by at least two.' A Mr. Duncan, of Bradwell, in England, who has a dairy on a large scale, writes thus of glass pans:—'On further acquaintance with them, I have come to the conclusion that they are the cheapest thing (even at 4s. each) that a farmer can use, for they are washed and wiped and kept

clean with 300 per cent. less trouble than other vessels.'

"The prices of the pans holding three gallons each, as sold by Mr. Sheehan, 110 Patrick street, are per dozen—glass, 51s.; delft, 72s.; earthenware, English manufacture, 18s.; and tinned iron, 42s.

"I have just received from Dr. Kirkpatrick an extract from the *Merikane Express*, requesting me to test the accuracy of an experiment therein contained. The experiment is thus set forth:—

"In order to determine with certainty the results of setting milk for cream in deep or shallow pans, several experiments were made with accuracy and care.

"In pans containing 1 quart the cream measured

				1 gill.
Do.	do.	2 do.	do.	2 do.
Do.	do.	3 do.	do.	2 $\frac{1}{4}$ do.
Do.	do.	4 do.	do.	3 do.
Do.	do.	5 do.	do.	3 $\frac{3}{4}$ do.

"The same experiments were tried twice successively with the same results. The question will readily occur, whether there would be any difference in the percentage of butter in either of the above experiments.'"

Horticulture.

HAMILTON HORTICULTURAL CLUB.

The following papers, recently read before the Hamilton Horticultural club, have been kindly furnished to us by the Secretary, for publication.

On the Culture and Arrangement of Annuals.

MR. PRESIDENT AND GENTLEMEN.—In accordance with your request at last meeting, I shall endeavor, hereby to make a few remarks on annuals—i. e. plants that live but one year, and consequently require to be raised from seed annually, and in doing so, I think the better way to bring forward the discussion will be to name a few of the most common, and best suited for a display in the flower-garden. It would be superfluous for me to describe at any length varieties of annuals with which most or all of you are familiar, and I shall therefore confine myself to those few which I have found most suitable for our usually hot and dry summers. There are many excellent things which cannot be grown successfully in some seasons, and in certain situations, which in other seasons in different situations will make a grand display. Some of those plants I have reference to are stocks, asters, and French Marygold, neither of which will do so well in a summer like the past, except in a moist and somewhat shaded exposure. Whereas balsams, globe aramantus, zinnea elegans,

and phlox Drummondii will do excellently in an exposure where the others would not succeed.

I. *Gomphrena Globosa*—(globe aramantus) is an excellent annual either for beds in gardens or flower borders. All should be sown pretty early, say the end of February or beginning of March in a slight hot-bed. When the plants are well up and fit to handle, pick off in shallow pans or boxes to be sheltered again before planting out in the flower garden. All danger of frost ought to be over before risking the final planting out, which will be towards the end of May. The plants may be set out at 12 inches apart each way.

II. *Balsams* make a good bed in the flower garden, they may be planted as soon as danger from frost is past, but in that case the flowering of them will not last throughout the season. I have found the balsam well adapted to plant after bulbs, such as tulips &c. Planted from the beginning to the end of July, plants not too large but well established will bloom well throughout the autumn until the frost cuts them off.

III. *Stocks*—Although a favorite flower with many, are by some good gardeners considered unsuited for a bed in the flower garden, it is very useful for borders, and I have found this like the balsam well suited for a good crop to flower in autumn.

IV. *Asters*.—China and German belong to a class of annuals better adapted to the flower border than the bed in the flower garden, they are also recommended for pot plants in the greenhouse or conservatory. The French varieties are recommended by Carter & Co., in their catalogue for '61, as making a very effective bed or riband by planting two or three rows of gladiolus (French seedlings for garden) in April as a back ground or centre, as a case may be, next to which several rows transplanted plants of French asters of several varieties raised from seed, and forcing dwarf varieties after the same class, will form a very lasting and showy bed the autumn.

V. *Dwarf French Marygold* is a plant well adapted for bedding purposes, either dark or the orange are colors that tell well in the flower garden; and one great advantage to some gardeners at least, is, that no one will put a hand to it or touch it; so that when the plants have covered the ground, the bed looks gay there is no danger of flowers being cut away for bouquets and other things in the flower garden are subjected to. Its height, color, and duration are favorable for a bed affording dimensions nothing in fact is against it but its disagreeable smell.

VI. *Zinnia elegans*—for a bed of large dimensions is admirably adapted for flower garden in this part of Canada; easily raised from seed, will plant out at

time during May, June or July—stands all sorts of weather, until frost makes its appearance. The double form introduced a few years ago, is an acquisition, and as it gets more improved the double flowers more numerous, no doubt will become a favorite with the flower gardener.

VII. *Phlox Drummondii* has been a general favorite for several years, and of late it has been so much improved both in size of flowers, number of varieties, and compactness of habit, that it may in truth be called one of the best annuals grown, for a mixed bed or bordering it is equally well adapted.

VIII. *Pelunius*.—From the variety of color and profuseness of bloom are very effective plants for the flower garden; some of them are sweet scented, and like several sorts of annuals can be continued by cutting.

IX. *Portulacca*—is a very useful plant for small beds, edging larger ones a ribanding—plants grow close to the ground, and when in full bloom under a meridian sun the earth appears covered with their richly colored blossoms, a very useful plant for dry banks or places where very few other plants will grow.

X. *Sponaria Calabrica*.—For a bed of medium size or edging to large beds is very fitting, being of compact habit, covering the ground like chickweed, and as it flowers very profusely during the end of summer and autumn with its small rose colored blossoms, it is a very fine object for the flower garden.

XI. *Lobelia Speciosa*—is a plant of great merits, and is expected by some (Mr. Robson in large gardening) to attain to the number of varieties of even the verbena “when as good scarlet lobelia is obtained as the blossom now have, no verbena will be able to compare with it,” unless having all the good qualities and habit of the pulchella. I have known this variety only two seasons, but in that short time it has promised to be all that it should claim for it. The color being dark red, almost purple, the habit unexceptionable—a profuse bloomer, showing the flowers all above foliage, and unaffected by either sunshine or rain, it must become a great favorite with the flower gardener.

XII. *Mirabilis Jalapa—Marvel of Peru*.—As an annual is a useful plant in the flower garden. Its height 2 feet, is an objection for a small bed, but for a pretty large bed or clumps in a border, it is worth a place in every garden. From the fact of its opening its blossoms in the evening when many of its neighbors retire for the night, or when the day is hid from view. That peculiarity alone will make it a favorite with every one who in the cool of the evening delights to muse among the haunts of the flower garden. I might have added to this list of annuals a much greater number, but a selection being the object, more than a collection—and to

leave room for discussion. I trust you will pardon me for brevity.

Hamilton, Jan. 6th, 1863.

C. M.

Mignonnette; Larkspurs, various; Sanvitalia precumbens; Aerolinum roseum; Linum Rubrum grandiflora; Clarkia pulchella; Bartonia aurea; Coreopsis drummondii; Calluhoe prodata; Tropaeolum Tom Thumb; Clintonia pulchella; Escholtia California.

The Flower Garden.

MR. PRESIDENT AND GENTLEMEN.—Although it affords me pleasure to contribute towards all horticultural pursuits, I must say, that I think your call upon me at this time, for a paper on the flower garden, is rather premature; it being much earlier than usual, and at a season very ungenial to the nature of the subject, so much so, that the writer is scarcely yet in trim. The mind of man in many respects resembles the vegetable kingdom, which at present lies dormant, divested of all its fragrance and beauty. The snow drop, our earliest of flowers, has not yet shown its welcome face—John Frost reigns king—the tinkling of the sleigh bell is still heard in our streets of ice, with the curlers on the slippery surface occasionally enjoying their roaring game. John Frost during the past parts of the winter has been rather a fickle customer, sudden and uncertain in his movements, and at times hard in his bites. I fear that where there has not been good protection his evils will be felt.

In my paper to you last year on this subject, published in the *Agriculturist* for April, page 246. I noticed the new bedding system in a general way—the arrangement of plants with a due regard to colours, light and shade. Since then I am not aware of anything new having transpired, particularly commanding notice, further than the gratification I have in being able to state, that a considerable improvement was made in several arrangements of last year in this city and neighbourhood. We had neatly kept lawns, pleasure grounds and flower gardens; such things are very attractive and must be very pleasing to their owners. Not less to the humble cottagers, are their small tidy flower beds and choice hardy flowers.

As regards ribanding, panelling and making linked chains, &c., &c., of flowering plants; we cannot as yet cope with our old country friends, for we have not the material. The only thing we can do for the present is to try and make much of what we have, and live in the hope that we may see the day when we shall surprise them in our floral department, as we have already done in our fruit. I am quite sure that there is both taste and knowledge amongst the gardeners and amateurs to manage this matter if they

will only try. It is true we have not the fine large pastures, long avenues and serpentine walks, borders and figures to operate upon, that they possess in the old country; but we here many neat well got up places, although small, most creditable to their possessors, whose comfort and pleasure is in their being well kept, and this depends upon the industry, the care and attention of their gardeners. Although the places, borders and beds be small, the riband principle may, in a minute way, be carried out successfully so as to have a very good effect. Every man has a taste of his own, and in carrying out his ideas ought to exercise his own judgment, and endeavour, as far as lies in his power, to excel his neighbours.

Begin preparations now, look carefully after the bedding out of plants for the coming season, propagate as much as you can, especially in new things and of what good things you may have least of; and endeavour to have all things in readiness by the time of planting.

From the stock of plants in store, and the exertions which no doubt will be made, I feel assured that the ladies would look forward to the coming season for a fine display of new ribbons and other nice things in the floral way. Not long ago, I heard it remarked that few in Hamilton had seen this new bedding system properly carried out; this may be very true, nevertheless I maintain, that every practical gardener who has read the *Gardener's Chronicle* or the *Cottage Gardener*, where it has been very fully described, cannot but know the mode. If he understands the nature and culture of plants, and is capable of discerning one colour from another, he cannot fail in carrying it out.

Mr. Fleming, Seedsman and Florist in Toronto, has, through the columns of the *Agriculturist* been entertaining us with his Horticultural Notes, made during his tour last summer in the old country. He particularly notices the ribanding systems "grouping" he calls it—see the *Agriculturist* for January of this year, page 27, where he gives a list of plants and colours suitable for the purpose. It is to be hoped he has brought home such as he did not possess when he left Toronto, and that by this time he has largely increased their numbers and is now able to supply his numerous customers.

Excellent new varieties of bedding plants are being yearly produced in England and elsewhere—our Canadian nurserymen and florists ought to endeavour to obtain as many of them as they possibly can. There is in this no doubt a considerable risk, and sometimes serious loss; such consequences must be submitted to, as there is no way of avoiding them. The wealthy portion of the community, possessing taste, would be sure to possess them at the first, and afterwards they would

become general. Mr. Bruce of Bruce & Mcray in this city, and Mr. Fleming, of Toronto had both importations of new bedding plants last year. I have seen in their nurseries some gold and silvered geraniums, and several of the other new varieties; they may wish to keep them in a corner for a time, but like the Highlandman, they will be out.

It would be well if our nurserymen, florists and gardeners would turn their attention to hybridizing, by which means new varieties would be obtained at home. There is nothing particularly difficult in the matter, and they would only begin and persevere there can be no doubt of success.

I would also notice that some exertion should be made this year, to discover among our native plants, those best adapted for bedding purposes; a good number may be found and made to answer the end. Let this be properly looked into during the summer season, and it may be that a good collection will be obtained sufficient to form a nice border. For such a collection there would be a good inducement to some of our very liberal special prize contributors to offer a handsome prize.

Had time permitted, I fully intended to have laid down before you diagrams illustrating my own ideas on the bedding system, but this I must forgo at present.

GEORGE LAING,
Landscape Gardener.

Hamilton, Mar. 3rd, 1863.

GARDEN MEMORANDA.

The delightful and busy season of spring having arrived, the following hints relative to the culture of the principal garden crops, will be found useful. They are taken from the year's Descriptive Catalogue of JAMES FLAHERTY & Co., Seedsmen, of this City.

Brief Hints on Sowing Seeds, Transplanting, Watering, Insects, &c.

SOWING SEEDS.—Warmth and moisture, essential, and seclusion from light is favorable to germination. The first care in sowing should be to choose suitable ground, the temperature and state of the earth, and then place them at such depth beneath the surface as will ensure the requisite supply of moisture. In general all seeds should be covered more or less according to their size and the advance of the season; late sowings require to be covered the deepest. The smallest seeds ought to be sown very shallow, in fine earth, and rolled or beaten firmly with the back of a spade.

The freshest seeds of some kinds often fail from unseasonable and improper management in sowing, and other circumstances affecting their vegetation. When sown too early or

deep while the ground is cold, wet, and heavy, they are apt to rot; when sown too shallow, in a dry time, and late in the season, there may not be sufficient moisture to sprout them, or they may be dried up by dry winds or a hot sun after they have germinated. Sometimes insects destroy them before or immediately after their appearance above ground, so that the complaints occasionally made by the inexperienced are not always to be attributed to the quality of the seeds.

Soaking in warm water twenty-four or forty-eight hours, and then rolling in plaster or ashes will very much hasten the germination and growth of hard and dry seeds. It will give the plants a start of the weeds, and lessen good deal the labour of cultivation.

To Prove Seeds, place a few in a pot of earth and keep it warm and moist. Onion seed tied in a cloth and put first into cold water and boiled half an hour, will sprout in that time if it is good.

Transplanting should be done just at evening, or immediately before or soon after a rain. Make the holes with the *dibble*, hold the plant in one hand, and with the other bear the point of the dibble into the ground by the side of it, and press the earth closely to the *bottom* of the pot, taking care not to bury the heart of the plant. Give each plant a gill of water about the root, and shade with a shingle in sunny weather.

Watering.—The best time to water plants is at sunrise or just at evening, and always use rain water when to be had. If well water must be used it should be exposed to the sun a day or two, until it rises to the temperature of the air, before it is applied. Water may be given to the roots at any time, but never should be sprinkled over the leaves in a hot sun.

Thinning is a very important operation. Everything ought to be thinned very early, even in the seed leaf if the plants stand too close. Another thinning may be necessary when they are more advanced, to give them room to grow stocky. All plants when crowded together, run up tall and slender; such never succeed so well.

Hoeing and Weeding.—It ought to be remembered that it is easiest to kill weeds when they are small, and that it is better to hoe for this purpose soon after, rather than immediately before, a rain. It ought also to be remembered that Cabbage, Cauliflower, and Brocoli, require *deep*, and that Onions and Turnips require *shallow* hoeing; that Beets, Carrots, and Turnips will put out side roots and grow raggy if hoed deep after they are nearly grown; and that *earthing up* is more proper for fibrous than for carrot-rooted plants.

The Rotation of Crops ought to be regarded in planting a garden. Fusiform or carrot-

shaped roots should follow fibrous-rooted ones, and every succeeding crop should be as dissimilar to the preceding one as possible. Onions are an exception.

Frost.—Plants are more likely to be injured by frost in a moist than in a dry atmosphere, and immediately after the ground has been worked. When frozen, plants may sometimes be preserved from destruction by a copious watering in the morning, before they are exposed to the sun. In the spring and fall, when frosts are to be expected, look out for a severe one the first night after the clearing up of a rain storm, with the wind changing to west or northwest.

Insects are troublesome and sometimes very destructive. Plaster of Paris, snuff, ashes, or soot sifted on Cucumbers and Squashes when wet with dew, is very useful against the *striped bug*. Lime, road dust, ashes, or snuff, scattered over young Cabbages and Turnips, will sometimes prevent the ravages of the *black fly*. Rolling the ground after sowing, answers a good purpose, but the best preventive is a thorough sprinkling of the plants just at night with whale oil soap suds, in proportion of one pint of soap to seven and a half gallons of water. This will kill *cabbage lice* and all other *aphids*. It is sure death to all tender insects when forcibly applied with a garden syringe or rubbed on with a brush. For the want of the whale oil soap, strong soft soap suds may be used. Salt is sometimes sown in the drills with onion seed to drive away the *grub*. Fine salt strewn broadcast over Cabbages is the best application we know of for destroying the little *green cabbage worm*. Ducks, chickens, and toads destroy a host of insects, when suffered to inhabit the garden.

ASPARAGUS.

Large Giant.

CULTURE.—Asparagus beds should be well drained, by a layer of stones, oyster shells, or bones, on which lay brushwood cuttings and some turf. On this make the bed of sandy loam, stable manure, and coarse sea or river sand, (but avoid yellow or brown sand containing iron). Lay this on the drainage bottom two feet thick, then put the roots on it, in rows eighteen inches apart, and a foot apart in the rows, cover four inches with same compost. Before Winter cover the bed with leaves and manure about four or six inches. In Spring, fork in the manure slightly and give a good dressing of salt.

ENGLISH BROAD BEANS.

Broad Windsor, Taylor's Windsor, Monarch Long Pod, Early Mazzagan.

CULTURE.—*Broad* or *Windsor Beans* do not succeed well in this climate, the summer heat coming on them before they are podded, which causes the blossoms to drop off. The best soil to grow them in is a rich stiff clay, and on a

northern border, shaded from the mid day sun. Sow in drills two feet apart, the drills two inches deep, and the seeds three inches apart.

DWARF, SNAP, OR BUSH BEANS.

Dwarf Yellow Six Weeks, Dwarf White Speckled, Dwarf Red Kidney, Dwarf Black Speckled, Royal Dwarf, Dwarf China, Pink Eye.

CULTURE.—*Kidney* or *French Beans* may be planted any time in May, in drills, two inches deep, the beans two inches from each other, the drills about eighteen inches apart. If a regular succession is required, sow a few every few weeks from the 1st of May to the 1st of July.

RUNNING OR POLE BEANS.

Lima or Butter Beans, Scarlet Runners, Black Algerian, White Dutch Case Knife, Red Cranberry, White Cranberry.

CULTURE.—All described under this head require poles eight or ten feet long. They are planted at the same time with the dwarf beans, and like them, require a warm, mellow soil. Stick the poles three feet apart each way, raise a hill, and plant around them six or seven beans; cover one inch deep with light, mellow earth.

BEEF.

Fleming's Selected Dwarf, Extra Long, Long Blood, Early Turnip-Rooted.

CULTURE.—*Blood Beet, Long and Turnip* may be sown in a cool, rich, deep soil, about the first week in May. Draw drills about a foot apart, and one inch deep; sow moderately thick; when the plants are up strong, thin them out the distance of six inches from each other in the rows.

BORECOLE OR GREENS.

German Greens, Scotch Greens, Egyptian Kail, Dwarf Canada Kail.

CULTURE.—This is the general term for that class of the Cabbage tribe which do not head, but are used for greens in their open growth. Sow in seed-bed about the middle of May, and when of suitable size, transplant to eighteen or twenty inches apart each way, and cultivate like Cabbages.

BROCOLI.

Early Purple Cape, Early White Cape, New Walcheren, Brussels Sprouts.

CAULIFLOWER.

Extra Early Paris, Half Early Paris, Late French, Early London, Le Normand, the finest variety in cultivation, very large, frequently weighing from 12 to 14 lbs.

CULTURE.—*Brocoli* and *Cauliflower* require a deep rich soil, of a clayey nature, and highly manured. To produce early Cauliflower or Brocoli, the seed ought to be sown in a hot-bed early in March. When the plants are quite strong and hardy they may be planted out in the garden about the middle of May. Plant in

rows two feet square. The kinds that will do well in this climate are the Early London & French Cauliflower, Purple Cape and Walcheren Brocoli.

CARROT.

Early Scarlet Dutch Horn (for forcing), Early Scarlet English Horn, Long Orange, Fine Selected Altringham, French Intermediate, Red Long Scarlet, Red Altringham, Red Surrey, White Belgian (for field culture).

CULTURE.—The most suitable ground for growing Carrots is a deep, rich soil that has been well manured the previous year. Sow any time in May, in drills one foot apart & one inch deep. When the Carrots are up, stick them out four inches apart, and keep the ground free from weeds. The kinds that are generally sown in gardens are the Early Horn, Long Orange, and Red Surrey; for field culture White Belgian and Altringham. The price of one acre of Field Carrot, when properly cultivated, may be rated at from 800 to 1000 bushels. In cultivating them on the field system, the drills ought to be two feet apart, & the Carrots thinned out at least 12 inches apart.

CABBAGE.

Early York, Large York, Large Drumhead Flat Dutch, Early Battersea, Savoy, or Curled, Savoy, Cattel's Dwarf, Savoy, Large Cabbage, Savoy, Marston, Sugar Loaf, Cape Matchless, Eastern Market, St. Denis, (fine winter), Late Quintal (fine winter) Shilling, Queen, (fine winter), Wilmstadt (large summer), Early Dutch (fine small variety), Flat Dutch, (for pickling), St. John's Day, (Early Drumhead), St. John's Day, (Late).

CULTURE.—*Cabbage*, both early and late may be sown any time in May. The best situation for raising the plants is a rich, damp piece of ground, partially shaded. Seed sown in situation of this kind is not so subject to be destroyed by the black flea. When the plants are strong they may be planted out in rows, managed the same as directed for Cauliflower. The best kinds for summer use are the Early York, Large York, and Wilmstadt; for winter use the Drumhead, Flat Dutch, Queen and St. Denis.

CELERY.

White Solid, Seymour's Superb, Cole's Crystal, Red Solid, Cole's Solid Red, Green White (superb).

CULTURE.—This vegetable is much esteemed as a salad. It requires considerable attention to grow it to perfection. To have early celery the seed requires to be sown in a hot-bed in month of March; for winter celery, the seed may be sown any time before the middle of May. Sow on a small bed of fine rich earth beat the bed down with the back of the spade, sift a little fine earth over the seed; shade the bed with a mat or board until the plants begin to appear. Celery plants ought to be picked

into a nursery-bed as soon as they are two or three inches high. Cut the roots and tops a little before planting; water them well and shade them from the sun until they begin to grow. Let them remain in the nursery-bed about one month, after which they will be fit to transplant into the trenches. The best sort of soil to grow celery in is deep rich loam, and in an open part of the garden. Mark out the trenches a foot wide and three feet between each trench. Dig the trenches one foot deep, and bring the earth equally on each side. Put three or four inches deep of well-rotted manure to the bottom of each trench; put a little of the surface soil over the manure; dig it well, incorporating the soil with the manure; press the plants by cutting off the long leaves and the ends of the roots. Plant in single rows along the centre of each trench, allowing six inches between each plant. Water them well, and shade them from the sun until the plants begin to grow. In earthing up celery great care should be taken not to cover the part of the plant.

CUCUMBER.

Long Prickly, Short Prickly, Early Frame, and Red-c.

See the following choice varieties for frames.

Sir Com Campbell, Manchester Prize, Sagg's Great Exhibition, West India Gherkin, English, Ze Fighter, Conqueror of the West, Sion House, Long Southgate.

CULTURE.—Cucumbers may be sown in the open air any time in May. They require a good soil. Sow in hills four feet apart, leaving only three parts on each hill. The cucumber cucumber vines are liable to be attacked by a blow fly or bug. Soot, charcoal dust, and soap suds, applied to the plants will assist in driving them off.

ENDIVE.

Green Curled, White Curled.

CULTURE.—Is a hardy annual, cultivated principally for a winter salad. It is also used in stews as garnish for the table. Sow from late in spring to the middle of summer, in shallow drills fourteen inches apart; thin the plants to one foot in the drills, and, when fully grown, tie up the outer leaves of a few plants every week for a fortnight, in dry weather, to blanch, which may be done from one to three weeks. Draw up a little earth to the base of the plants. Rich, melon soil, in an open situation, is most suitable.

EGG PLANT OR GUINEA SQUASH.

The Egg plant is a very tender vegetable, requiring a hot-bed to bring it to perfection. See the following varieties.—The earliest and most productive. Fruit long and superior quality. **Large Oval Purple.**—This variety is more generally cultivated. It grows to a large size, oblong shape and dark purple colour. There is a variety called a smooth stemmed sort. The prickly stemmed is the largest, and Smooth Stemmed is the best.

CULTURE.—Sow in hot-beds early in the spring, and transplant to two and a half feet apart each way in very rich warm ground. Draw earth to the plants as they advance. For the want of a hot-bed, the seeds may be sown in window pots early in spring, or later, on a warm, light bed, and in a sheltered part of the garden.

LEEK.

Large Flag, Musselburgh.

CULTURE.—Sow very early in spring, in drills six inches apart, and one inch deep. Thin out to one inch apart, when they are about seven inches high, plant them out in rows eight inches apart and as deep as possible not to cover the centre young leaves. Water them thoroughly if dry weather when planted out. Draw earth up to them as they grow. Require very rich soil. Take up and store away before winter.

LETTUCE.

White Paris Cos, Green Paris Cos, Simpson's Early [for forcing], Curled Silesia, Victoria Cabbage, Malta or Drumhead.

CULTURE.—Lettuce is easily raised from seed, which may be sown from the 1st of April to the end of June. If good headed Lettuce is wanted, the plants should be transplanted out on a rich piece of ground in drills, twelve inches apart, and six inches in the drills. The Malta or Drumhead and Victoria Colleege are the most suitable kinds to sow, as they head without tying up.

MUSTARD

White.

MUSK MELON.

Fine Green Fished, Fine Scarlet Fished, Minorea, Nutmeg [fruit], Pine Apple, Yellow Cantelupe, and several other choice sorts.

WATER MELON.

Long Island, Orange, Ice Cream, Mountain Sweet, Citron Melon [for preserving].

CULTURE.—Musk and Water Melons may also be sown at the same time, taking care to sow the different kinds a good distance apart from each other, as they are apt to mix. Plant in hills, six feet square, leaving only three plants on each hill. When the plants have grown about six inches, stop or pinch out the top of the leading shoots, which will make the plants throw out lateral shoots, on which you may expect to have fruit.

NASTURTIUM OR INDIAN CRESS.

CULTURE.—Sow in May or early in June, in drills about an inch deep. The tall kind near fences or poles on which they can climb and have support; if left to trail on the ground, the fruit is apt to be injured.

OKRA—GOMBO.

Improved Dwarf Green, Long Green.

CULTURE.—Plant late in spring, after the ground has become warm, in drills three feet apart, where the plants are to remain. Thin

out to nine inches. Hoe, and draw up earth occasionally to the stems.

ONION.

Large Pale Red, Wethersfield Large Red, Large Yellow, Denver's Yellow Early, White Silver Skinned.

CULTURE.—The yellow and large red are the best for a general crop. The ground for Onions should be well prepared, by digging in plenty of well-rotted manure. The seed may be sown from the middle of April to the middle of May. Sow in drills one inch deep and twelve inches apart. When the young Onions are up, thin them out to the distance of three inches apart.

PEPPERS.

Large Red, Cherry, Small Red.

CULTURE.—Sow early in hot bed, or in open ground in a seed bed, about the middle of spring, in light warm ground. When three inches high, transplant to eighteen inches apart each way; hoe frequently.

PARSLEY.

Curled, Double Curled, Myat's Matchless [for garnishing].

CULTURE.—Soak the seed a few hours in lukewarm water, and sow early in spring, in drills an inch deep and one foot asunder. Thin out the plants to four inches apart. To preserve in winter, remove some plants and set them in a light cellar.

PARSNIP.

Dutch Hollow Crown, Student [new and scarce], Long Smooth White.

CULTURE.—*Parsnips* require a deep rich soil. Sow in drills, one inch deep, and the drills 15 inches apart. Cultivate the same as directed for Carrots.

PUMPKIN.

Common Field, Cheese, Mammoth.

CULTURE.—May be planted middle of spring, amongst the Indian Corn, or in the field or garden, in hills eight or ten feet apart each way, with four seeds in a hill. In other respects, are cultivated in the same manner as melons and cucumbers; but avoid planting them anywhere near either of those.

PEAS.

Fleming's Extra Early, Daniel O'Rourke, 2½ feet high, Early Frame, 4 feet high, Early Kent, 2½ feet high, Bishop's Long Podded, 1½ feet high. **For general crops**—Champion of England [very fine], 4 feet high, Harrison's Perfection, 2 feet high [White], Harrison's Glory, 2 feet high [Blue], Napoleon's Dwarf, 2 feet high [Blue Wrinkled], White Marrowfat, 5 feet high, Missouri Marrowfat, 3 feet high, Waterloo Marrow, British Queen, White Sugar Peas [eatable pods].

CULTURE.—A light dry soil, not over rich, suits the Pea. If they grow too vigorously, and

show no sign of bloom, run a spade along about eight inches from the row straight down, and thereby root prune them. Do this each side of the row, and they will bloom in a few days. Plant as early as the ground can be worked, and again every two weeks for succession through the season. Plant in single or double rows from four to six feet apart, according to the different heights, about an inch apart in the row, and three inches deep; hoe often. In dry weather Peas should be soaked in soft water five or six hours before planting, and if the ground is very dry, it should be watered in the hills.

RADISH.

Early Frame [Wood's], Scarlet Short-top, London Particular, Black Spanish, Long Simon, Scarlet Turnip, White Turnip, Rose Olive Shaped.

CULTURE.—*Radishes* should not be sown in the open air sooner than the middle of May. They require a deep, sandy soil, that has been well cultivated and manured the previous year.

RHUBARB.

Scarlet, Myat's Victoria, Giant.

CULTURE.—Sow in drills an inch deep. Thin out to six inches apart. In the fall, trench piece of ground and manure it well; then transplant the young plants into it, three feet apart each way. Cover with leaves or litter the first winter, and a dressing of course manure should be given every fall.

SQUASH.

Acorn, Canada Crookneck, Winter Boston, Custard Marrow, Early White Scallop, Early Yellow, Hubbard [Winter].

CULTURE.—Plant in hills, as Cucumbers and Melons; the Bush three or four feet apart, and the running kinds from six to nine.

SPINACH.

Round, Prickly.

CULTURE.—*Spinach* is a useful vegetable and very hardy. Seed sown in the month of September will stand over the winter, and come in for early greens in the spring. For summer use, seed of the round Spinach may be sown from May to July. It requires a rich soil. Sow in drills one foot apart.

SALSIFY, OR VEGETABLE OYSTERS.

CULTURE.—*Salsify* is an excellent vegetable. The roots, when properly cooked, resemble oysters in flavour. The seed may be sown in the first of April to the middle of May. They require the same kind of soil and cultivation directed for Carrots.

TOMATO.

New Upright [Is a new variety from France to be entirely different from the kinds previously known, its stem is 2 feet high, or more quite upright, and so remarkably strong-stiff as to be strictly self-supporting]. E.

rench [very fine], Large Yellow [very tender], Pear Shaped [fine for preserves], Fejee Island [new, splendid], Large Smooth Red [best for general crop], Red Cherry [for pickles], Yellow Cherry.

CULTURE.—For early crops sow the seed in a bed in March; when two inches high, transplant into pots or into another bed, and attend them carefully until all danger from frost is past, then plant them in a sheltered situation, or exposed to the sun; support them with sticks to keep the fruit off the ground. For general crops the seed may be sown in the open ground, end of April, and transplant into hills or feet apart. This is a vegetable worthy the most extended cultivation.

MUSHROOM SPAWN.

CULTURE.—Mushrooms can be grown in cellars, sheds, stables, or in any other such building where they will be protected from rain. During the months of October and November collect from the stable daily the fresh droppings, throw them into a heap and turn frequently to prevent them from heating violently. When the quantity of dung, one, two or three loads, (according to requirements,) has accumulated, and has lain in a heap for two or three weeks, and the fiery heat and rank steam of the dung are gone off, it is ready for use. A bed four feet wide, by twelve feet long, will give an ample supply for a moderate-sized family. Throw out the earth about six inches deep; in the trench lay four inches of good dung, not too short, for forming the bottom of the bed, then lay on the prepared dung six inches thick, regularly over the surface, tamping it down firmly with the back of the fork, on other six inches, and so on until eighteen or twenty-four inches thick. In that state it should remain about two weeks, during which time the heat should be examined about the middle of the bed, by thrusting a small stick in several places, and when found in a very mild state, the bed may be spawned. The spawn for this purpose should be broken regularly into pieces about two inches square; plant them about two inches below the surface, and six inches apart. After spawning, level the surface with the back of the spade, beating it down, after that it may be earthed—that of a heavy, loamy nature is the best; lay it on two inches thick, level it neatly with a rake, and water it closely and evenly. When the whole is earthed, the bed must be covered a foot thick with good clean straw; cover it in severe weather with mats. In about five weeks, if the bed be under proper cultivation, mushrooms will make their appearance, and in two days they will be of a sufficient size for use.

PRICES OF NEW DAHLIAS.—the following prices have been given by members of the Society to amateurs who were so fortunate to raise new varieties of merit:—Beauty of Telford was the first that commanded a high

price; this variety was raised by the Rev. S. B. Ward of Telford, in 1835, and was purchased by the Messrs. Brown for £60. Yellow Defiance, purchased by the same firm at £200, the highest amount, we believe, ever given for a dahlia; it was sent out in 1840. Essex Triumph, raised in 1841, was sent out in 1843 at £50. Marchioness of Oimond, £105. Shylock, Beeswing, Alice, and Cleopatra, for £100 each. Lady Sale, £70. Nonpareil, Sir John Richardson, Duke of Wellington, Bob, Sir R. Whittington, and British Queen, £50 each. And Queen Victoria came out in 1853, £105. We have not heard of such prices being obtained since.—*Scottish Farmer.*

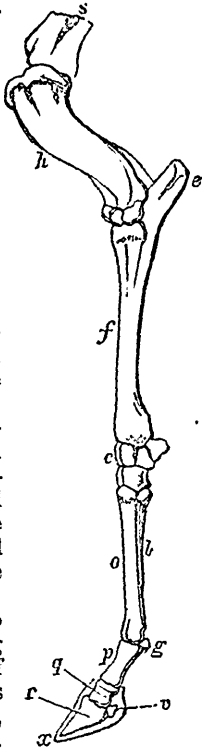
Veterinary Department.

THE HORSE.

Continued from March No.

The remaining bones of the fore extremity are (R) the Os Pedis or Coffin bone, and (V) the Navicular bone.

The Coffin bone is very irregular in form, being hard and porous, and is divided into wall, sole, tendinous surface, and wings, the wall is the semi-lunar, convex, part in front, presenting a number of perforations, the larger ones are for the passage of bloodvessels and nerves, the smaller for the attachment of the laminae. The sole is slightly excavated, and to it is attached the vascular sole. The tendinous portion is situated immediately behind the sole, and to it is attached the tendon of one of the flexor muscles of the leg. The wings consist of two protuberances projecting from the posterior part of the wall, each of the wings are divided by a notch, forming two processes.



The superior one is called the Basilar process, to which are attached the lateral cartilages. In some horses these cartilages become ossified and are known as sidebones.

The Navicular bone (V) is situated behind the coffin bone, and with it forms the navicular joint; it presents two surfaces, two borders, and two extremities. The superior surface is smooth, the inferior rough and covered by fibro cartilage. This bone acts somewhat in the manner of a pulley, over which pass the tendon

of the flexor pedis perforans. The fibres of the tendon are very apt to be lacerated at this part, inflammation sets in, which is transmitted to the joint, and in many cases gives rise to severe lameness,—this disease is known as Navicularthrites, and is of most common occurrence in horses with short, upright pasterns, and out-turned toes, as in them the distance between the insertion of the tendons and the navicular bone is so short, and the angle formed so acute, that the tendon is exceedingly liable to be ruptured. Covering the sensible structure is the Hoof (X). The hoof of the horse represents a sort of box or casement, which envelops the inferior extremity of the digit applied in a very exact manner to the sensible foot, and united to it by elevations and depressions which fit into each other. By maceration the hoof is divisible into three parts, viz.: the wall, sole and frog. The wall, also called the crust, is the part visible when the foot is on the ground, highest anteriorly at the toe, decreasing as it proceeds backward. At the posterior part the wall takes a sudden inflection inwards, at an acute angle, continued to the centre of the foot, where it unites with the sole the angle of reflection receives the name of heel, the portion inflected is called the bars. The external surface of the wall is smooth, and consists of a cuticular covering continuous with the coronary frog band. The internal surface of the wall presents throughout its whole extent parallel plates or laminae, between which are received plates of a similar form.

The superior or coronary surface of the wall of the hoof presents a groove sloped downwards and inwards, forming a gutter in which is lodged the coronary ligament or substance. The inferior surface of the wall is in contact with the ground, and is the part to which the shoe is attached.

The sole is the thick plate of horn between the inner circumference of the wall and bars, occupying the inferior portion of the foot—the external surface of the sole forms a sort of vault more or less concave—the internal surface is smooth, presenting numerous minute orifices, into which are inserted the vascular papillae of the sensible sole.

The Frog is a mass of horn of a somewhat triangular shape, placed between the bars. The inferior surface presents a triangular cavity called the cleft of the frog: the superior surface, like the sole, presents numerous orifices into which are received the vascular portions of the fatty frog. Passing round the superior surface of the wall from the heel is a broad thin band called the coronary frog band; this band serves to unite the cuticular covering of the wall with the coronary substance. The coronary substance or ligament occupies the concavity on superior surface of the wall. This substance is made up of a fibro cartilaginous band united to the coffin bone by dense cellular tissue. Resting on this cartilaginous band is

a plexus of bloodvessels, the whole being covered by a cuticular coat covered with small pores which enter into pores in the superior surface of the wall. In continuation of this substance are the sensible laminae, which are united to the coffin bone through the intervention of dense fibrous membrane in which ramify the bloodvessels. The laminae consist of about five hundred parallel folds, and cover the whole circumference of the pedal bone. Each of these sensitive laminae is received between and firmly attached to two of the horny laminae situated on the internal side of the wall of the hoof.

The laminae are continuous at the toe with the sensible sole, which is made up of a very elastic vascular membrane and covered with a cuticular coat possessing villi which penetrate into the sole of Os Pedis.

Occupying the posterior and centre part of the foot is the fatty or sensible frog, which is bounded superiorly by the tendon perforans, laterally by the lateral cartilages, inferiorly by the horny frog, and in continuation with the sensible sole and coronary substance. The frog is made up of, first of a thick layer of greenish, elastic substance above, which is a plexus of bloodvessels, and also fibro cartilage, and lastly the cuticular covering with its cuticular villi.

The horn constituting the hoof presents a fibrous appearance, most distinct in the wall. This substance is made up of minute tubes united together by an intertubular substance composed of cells; these tubes are secreted from the vascular villi of coronary substance of the sensible sole, and frog.

THE IMPROPRIETY OF PURGATION IN SOME CASES OF ABDOMINAL INFLAMMATION.

By HUGH FERGUSON, V. S. to the Queen, Veterinary Professor to the Royal Agricultural Society of Ireland.

There is an abdominal inflammation in which purgatives render the symptoms much more aggravated, and frequently induce death in cases which would recover under an opposite mode of treatment. The affection alluded to is peritonitis, or inflammation of the lining membrane of the abdomen, the outer covering of the stomach intestines, liver, spleen, and other contents of the cavity. It is frequently mistaken for colic or gripes, perhaps from its being attended with constipation, or for ordinary inflammation of the bowels. Purgatives are administered; instead of getting better, the case gets worse. The reason it does so, as an effect from purgative medicine, is very simple, though it has hitherto escaped the notice of veterinarians. The affected membrane in its healthy state is very smooth on its surface, which is lubricated with a moisture. This, by diminishing friction between the different parts coming in contact with and gliding past each other.

the movements of the intestines during the process of digestion, prevents any mechanical injury from one part of the membrane rubbing continuously against some other. Once this surface becomes inflamed, the more it is exposed to friction the greater and more persistent will be the inflammation. Therefore, any measure that causes an increase of movement in the intestines, such as the action of purgatives, only aggravates the evil instead of remedying it. In cases of inflammation of this membrane, the object should be to diminish the movements of the intestines, instead of increasing them. By treating the case on this principle, the inflamed membrane is less exposed to the irritating effects of friction to its surface, already rendered highly sensitive by increased action, and a greater chance is thus given for recovery. Instead of purgatives, opiates should be given. The former medicines should not be given until the acute inflammatory stages of the membrane shall have had completely passed away.

The chief symptoms by which this inflammation of the lining membrane of the abdomen can be distinguished from gripes, colic, and ordinary inflammation of the bowels are, that the affected animal does not knock itself about, nor roll over from side to side; the pain does not come in paroxysms, but is persistent; the belly is sore to pressure; the pulse is quick, and, in the early stages, hard to the finger.

The writer's object is to explain the injurious effects of purgatives in such cases—not to enter into a dissertation on all the other measures necessary in conjunction with opiates and other medicines producing similar effects.

ANSWERS TO CORRESPONDENTS.

W., WHITECHURCH.—“Please give me your advice on the following case. I have a horse about ten-years old that now and again for some time past, has had what appears to me to be inflammation in the eyes, sometimes in one eye which will get suddenly better, and in a short time the other eye becomes affected, the eyelids are swollen accompanied by a discharge of watery matter.” We consider your case to be one of Specific Ophthalmia or moon blindness, and in all probability will terminate in partial or total loss of vision. This disease is notoriously hereditary, and is also engendered by impure air and foul stables. As regards treatment, give a dose of laxative medicine, apply poultices to the eye, if there is much fever use small doses of extract of belladonna, and colchicum, place the animal in a comfortable well ventilated and darkened loose box, and at the same time allow soft and nourishing food.

W., SCARBORO.—“A cow of mine has been lying for sometime and is becoming greatly emaciated, her left side appears swollen and feels hard when pressed, appetite is also al-

most gone and she appears dull and stupid, and shows a great disinclination to be moved.” Your cow appears to be suffering from distension of the Rumen or Paunch, caused by indigestible food. Give large doses of purgative medicine, combined with stimulants, encourage her to take plenty of liquids, and also give injections of soap and water.

ERSON'S WORM POWDERS FOR HORSES AND DOGS.

The horse and the dog, sharers in our imperfect civilization, are also participants in most of “the ills to which *human* flesh is heir”—ills which apparently arise out of that civilization, but, in reality, spring from our inability to make surrounding circumstances harmonise with the inflexible law of nature. The progress of science and social improvement is helping us gradually out of this awkward dilemma, but in the mean time, the diseases occasioned by this transitory condition must be encountered and overcome; and our best thanks are due to those who aid us in combating those diseases, whether in man or beast.

The Parasites which infect our domestic companions—the horse and the dog—are eight or nine in number, and their expulsion has been a task of no ordinary difficulty to the veterinary profession. Happily, of late a new remedy of singular efficacy has been brought under the notice of the public. “Erson's vermifuge powders for horses and dogs” have superseded all other remedies for this purpose, owing, doubtless, to the rapidity and certainty with which they perform the office of scavengers, and clean off all the noxious matters contained in the bowels, poisoning the worms at once, or wounding them till they die, and become no longer able to resist the purgative action of the medicine, which carries them completely out of the system. We do not pretend to know what ingredients are employed in these celebrated powders, but experience proves them to be safe and harmless in their mode of operation, and they possess one other merit which no other powders can boast of, viz. that of improving the digestive powers of the animal, and thus preventing the reproduction of the worms, after a cure has been effected.

Domestic.

Ox-Cheek Soup.

INGREDIENTS.—An ox-check, 2 oz. of butter, 3 or 4 slices of lean ham or bacon, 1 parsnip, 3 carrots, 2 onions, 3 heads of celery, 2 blades of mace, 4 cloves, a faggot of savoury herbs, 1 bay-leaf, a teaspoonful of salt, half that of pepper, 1 head of celery, browning, the crust of a French roll, 5 quarts of water.

Mode.—Lay the ham in the bottom of the

stewpan, with the butter; break the bones of the cheek, wash it clean, and put it on the ham. Cut the vegetables small, add them to the other ingredients, and set the whole over a slow fire $\frac{1}{4}$ of an hour. Now put in the water, and simmer gently till it is reduced to 4 quarts, take out the fleshy part of the cheek, and strain the soup into a clean stewpan; thicken with flour, put in a head of sliced celery, and simmer till the celery is tender. If not a good colour, use a little browning. Cut the meat into small square pieces, pour the soup over, and serve with the crust of a French roll in a tureen. A glass of sherry much improves this soup.

Time, 3 to 4 hours. Average cost, 8d. per quart. Seasonable in winter. Sufficient for 10 persons.

Pea Soup (Green.)

INGREDIENTS.—3 pints of green peas, $\frac{1}{4}$ lb. of butter, 2 or three thin slices of ham, 4 onions sliced, 3 shredded lettuces, the crumb of 2 French rolls, 2 handfuls of spinach, 1 lump of sugar, 2 quarts of medium stock.

Mode.—Put the butter, ham, 1 quart of the peas, onions, and lettuces, to a pint of stock, and simmer for an hour; then add the remainder of the stock, with the crumb of the French rolls, and boil for another hour. Now boil the spinach, squeeze it very dry, and rub it, with the soup, through a sieve, to give the preparation a good colour. Have ready a pint of young peas boiled! add them to the soup, put in the sugar, give one boil, and serve. If necessary, add salt.

Time, $2\frac{1}{2}$ hours. Average cost, 1s. 9d. per quart. Seasonable from June to the end of August. Sufficient for 6 persons.

Note—It will be well to add, if the peas are not quite young, a little more sugar. Where economy is essential, water may be used instead of stock for this soup, boiling in it likewise the peashells, and using rasher a larger quantity of vegetables.

Winter Pea Soup (Yellow.)

INGREDIENTS.—1 quart of split peas, 2 lbs. of shin of beef, trimmings of meat or poultry, a slice of bacon, 2 large carrots, 2 turnips, 5 large onions, 1 head of celery, seasoning to taste, 2 quarts of soft water, any bones left from roast meat, 2 quarts of common stock, or liquor in which a joint of meat has been boiled.

Mode.—Put the peas to soak over-night in soft water, and float off such as rise to the top. Boil them in water till tender enough to pulp; then add the ingredients mentioned above, and simmer for 2 hours, stirring the soup occasionally, to prevent it from burning to the bottom of the saucepan. Press the whole through a sieve, skim well, season, and serve with toasted bread cut in dice.

Time, 4 hours. Average cost, 6d. per quart. May be made all the year round, but is more suitable for cold weather. Sufficient for 10 persons.

Miscellaneous.

NEW GRAIN ELEVATOR.—A grain elevator has been erected on the water frontage of Toronto, near the Queen's wharf, by Mr. John Shedden of this city, and which was formally opened to the public on 19th inst. (March 1868). The erection of the elevator in this city is certainly a great boon to the commercial interests of the western portion of the Province, more particularly of Toronto. It will afford facilities for the transportation of grain which has long been much needed in this city. Such an important enterprise must certainly increase our carrying trade to a very considerable extent. The building is constructed on a wharf at the foot of Peter street, and is very substantially built, its cost, exclusive of flour sheds, being upwards of \$50,000. There is store room in the building for 8,000 barrels of flour, and the sheds will contain from 15,000 to 20,000 barrels. There are 44 bins capable of containing from 4,000 to 7,000 bushels each, making in the aggregate about 220,000 bushels as the storage capacity of the building. Two vessels can be loaded at the same time, one at each side of the building. There are three separate elevators in the structure, and cars can be weighed as they are passed in on two of Fairbank's scales, which are capable of weighing about forty tons each. A weighing hopper placed in the elevator is capable of containing about 500 bushels at a draft, which can be passed into the vessels instant by opening a valve. The engine, which is a high pressure one of 40 horse power, was made by Mr. John Gartshore, of Dundas.

OUR BIRDS AND POISONED WHEAT.—In our country there is not the scarcity of small birds with which persecution has afflicted France, and our war against them is less inveterate; but still there is much to be done in every neighbourhood. Our rustics shoot owls at night, and then complain of mice, moths, and night insects—of rats in the stack, and doves in the woods. They crave credit for the stock of sparrows, wagtails, yellowhammers, and wrens that they destroy, and then are ready to cry over the ravages of worms, weevils, caterpillars, and other plagues. Late we have heard a good deal of the sporting practice of destroying so-called "vermin" (not the insects, but the birds) by poisoning wheat. I wish such devices could often meet the punishment which I remember seeing candidly narrated in a newspaper some years ago. The writer of the confession wanted to save a row of peas from the sparrows. He was struck with remorse when he saw a bird or two starting on the top of a wall, as if drunk, and falling off; but scarcely any died, while the starting birds on the wall pushed the poisoned grain off among an establishment of pet fowls, great value, every one of which died.

Editorial Notices, &c.

BACK NUMBERS.—We are still able to supply the back numbers of the present volume of the *Agriculturist* to subscribers at the very low rate mentioned in advertisement.

THE PUBLIC GRANT TO AGRICULTURAL SOCIETIES.—According to the estimates before Parliament it is probable that the grant to Agricultural Societies this year will be reduced about 5 per cent. Treasurers of County Societies should send in their affidavits promptly to this office, as soon as possible after 1st May, so that the amount to which they are entitled may be obtained without any unnecessary loss of time, as soon as available.

TORONTO MARKET PRICES.

TORONTO, APRIL 23, 1863.

All Wheat, per bushel.....	\$0 90 to \$0 94
Spring Wheat, ".....	78 " 84
Barley, ".....	1 00 " 1 05
Peas, ".....	55 " 60
Beans, ".....	42 " 45
Eye, ".....	56 " "
Pork, per 100 lbs.,.....	3 75 " 4 50
Beef, ".....	4 00 " 5 00
Mutton, ".....	4 00 " 4 50
Potatoes, per bushel,.....	65 " 70
Apples, per barrel,.....	1 00 " 1 50
Turnips, per bushel,.....	16 " "
Fresh Butter, per lb.,.....	15 " 20
Sub Butter, ".....	12½ " 15
Eggs, per doz.....	9 " 10
Chickens, ".....	40 " 60
Hay, per ton,.....	10 00 " 20 00
Straw, ".....	5 00 " 11 00
Hides, per 100 lbs.....	4 50 " 5 00
Halfskins, per lb.....	8 " 9
Deep-skins, each.....	1 40 " 1 75
Wool, per lb.....	30 " 32
Clover Seed, per bushel.....	3 75 " 4 00
Timothy Seed ".....	2 00 " 2 50
Master of Paris, per barrel ..	95 " 1 00

BLOOD STALLION FOR SALE.

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