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TORONTO, UPPER CANADA, JANUARY 15, 1867.

POSTAGE FREE.

The Field.

Familiar Talks on Agricultural Principles,

INDIAN CORN.

This valuable cereal is largely grown in the United States, and is cultivated to some extent in this country, though from some cause or other, a prejudice exists against it in the minds of not a few of our farmers, especially those who have emigrated from Britain in middle or advanced life, and who appear to think that no grain can possibly be worthy of attention which does not find a place in old-country crop rotations. There are very few parts of Canada where Indian corn cannot be raised to advantage provided the seed of a suitable variety be planted. In those portions of the country where the summers are shortest, the small eight-rowed variety will do well, and yield a remunerative crop; while in the most genial sections of the Province, the larger dent varieties which are grown on the western prairies will usually come to perfection. A small variety is cultivated as far north as fifty-one degrees of latitude on the Red River. It is a most useful grain; capable of being put to a great variety of uses; contains a large amount of nourishment; and as it is a hoed crop, requiring clean culture, is excellent for ridding the soil of weeds. Every part of the plant may be turned to account. The leaves and stalks make an excellent fodder, both green and in a dried state. Even the cob may be ground, and thus converted into a wholesome food much relished by stock. The grain itself is highly nutritious, and stands unrivalled for fattening purposes. The meal is a valuable article of human food, and the starch prepared from it is now extensively used for making jellies and other delicacies.

The composition of the grain of Indian corn is variously stated by chemists who have analyzed it, but all agree in assigning to it a large amount of those qualities which make it a desirable food for both man and beast. According to some analyses, it furnishes 88.43 per cent. of fat-forming principles, gum, &c.; 1.26 per cent. of flesh-forming principles, 9 per cent. of water, and 1.31 per cent. of salts. According to Salisbury of New York, quoted by Norton, it contains 60 per cent. starch, 10 per cent. fatty matter, and 12 to 16 per cent. gluten and analogous substances. It belongs to the class sometimes called *potash plants*, as it does not flourish in a soil which, however rich it may be in other respects, is destitute of potash. It does best in a rich soil, though from the fact that its broad leaves take up a large amount of nourishment from the air, it is not strictly speaking an exhaustive crop. Its proper place in a rotation is as a green crop, since the treatment it requires, and the effect it produces on the soil, do not differ much from those of the turnip and carrot. It succeeds best on light and porous loams, though it

easily adapts itself to a variety of soils, doing well on all, if well manured, except the strongest clays. A good yield is often got on newly ploughed green sward, but when it is designed to plant it on such land, it is best to plough it the previous Autumn, and cross plough, manure, and harrow in the Spring.

Corn should be planted in hills, the distance apart being regulated by the variety grown. Three feet apart each way will do for the smaller kinds, but the larger varieties should be four feet. Care should be taken to have the rows as straight as possible, to facilitate culture with the horse-hoe, which is a great saving of time and hard labour. The seed should be covered from an inch to an inch and a half deep, according as the soil is moist and heavy or of light texture. Three hoeings are thought by many to be about the thing for the growing plant, but in general the oftener it can be hoed the better. The more the ground is stirred the faster the plant will grow, and the larger the yield will be. In case of drought, frequent stirring of the soil will be found most beneficial. Care should be taken thoroughly to exterminate all weeds. It is considered by many experienced cultivators a good plan to cut off the feather or bloom—the male flower of the corn—after it has fertilized the ear. The proper time for doing this is when the beard or tassel of the ear begins to wither, not before. As few large leaves as possible should be cut off with the top, as they help the growth of the ear. The tops make good green fodder, and their removal renders the plant less liable to be blown down by strong autumnal winds. It is time to harvest Indian corn when the ears are glazed, but not perfectly hard. The stalks are cut close to the ground, and “stooked,” as it is called. If this be done before the grain becomes hard, the fodder will be of a much more highly nutritive quality than if it be deferred longer. While the crop is standing in the field, and before the gathering, it is well to mark the earliest and best formed ears for next year’s seed. Selection of early and well filled ears will have an excellent effect on the future crop.

Principal Dawson in his little work on “Scientific Agriculture” remarks that “the meal from corn raised in this country is finer and more delicate in flavour than that from Southern and Western corn. This should cause it to bring a higher price; and should in connection with the productiveness of the crop, commend its culture to all farmers who have the sandy or loamy soils which it prefers. Even if too late to ripen, it is valuable for fodder, if cut immediately after the frost strikes it.”

Steam Cultivation: Its Comparative Cost.

In a former article on “Steam in Agriculture,” we endeavoured to point out the advantages of steam over horse-power in the cultivation of the soil. These may be briefly summed up as follows:—The

greater rapidity of the process effects an important saving of time, and in the short Canadian seasons, during which all agricultural operations have to be crowded in, this consideration is of even greater force than in England, where the operations of the farm can be carried on more or less throughout the whole year. A second advantage secured by the employment of steam power, is the more complete destruction of troublesome weeds that already have possession of the soil, and to eradicate which, with his ordinary appliances, sometimes baffles all the efforts of the farmer. Among such pests may be mentioned the Canada thistle, and couch grass. Next to this, a kindred advantage in favour of steam is the more extensive germination which it favours of the seeds in the ground, and their subsequent destruction, thus ridding the ground more thoroughly of an ever recurring source of trouble to the farmer. A more complete aeration of the soil is further effected by the thorough manner in which the steam plough tears up the ground, and exposes fresh, moist portions in a fit condition to absorb from the air those gases which thus stored become a rich supply of plant food. And, lastly, the deeper ploughing of the land in steam cultivation secures in a great degree the advantage of drainage—a most important element of success in all soils, but especially in the stiff clays for which the steam plough is best adapted.

These are weighty considerations, and some perception of the valuable results that would follow the substitution of a more efficient power for animal muscle, suggested, more than two centuries ago, various schemes for cultivating land by steam; among these, so far back as 1618, a patent was obtained by David Ramsay and Thomas Wildgoose for a machine to “plough ground without horses or oxen.” No doubt the scheme was reckoned by many in those days as fitly characterized by the name of the inventor. Nevertheless, other patents for a similar purpose were taken out by the same genius in 1630 and 1634. In the latter year one William Barham also obtained a patent for an “engine for the drainage and ploughing of land without the use or help of horses or oxen.” About 40 years after, another inventor, named Francis Moore, took out no less than three patents for contrivances having in view the “dispensing of animal power in tillage, navigation, &c.” It is recorded in a periodical of the day that Mr. Moore had such faith in his invention that he not only sold his own horses, but by his advice, many of his friends imitated his example, fearing their value would be effected by the general introduction of his machine. About the same time Mr. Edgeworth, (father of the celebrated Maria Edgeworth,) patented an engine with an “endless railway,” almost identical with that invented by the late Mr. Boydell. Coming down to the present century, in 1810, a Major Platt obtained Letters patent for a steam ploughing apparatus; and still later, “in 1849,

Mr. H. Hannam, of Bureote, near Abingdon, a well-known agriculturist, in connection with Messrs. Barrett & Exall, constructed an apparatus for steam ploughing, which may be regarded as the first attempt to work ploughs or cultivators by the ordinary portable engine, and also to be the first attempt to plough the land by an engine stationed at one corner or outside the field." All these various inventions have, however, been superseded by the three contrivances that now take the lead—Smith's, Fowler's, and Howard's. In England these are now in full operation, and have each produced extraordinary results. The main features in these systems are— "1st, Smith's is essentially a grubber or cultivator, and is worked by an ordinary stationary engine at any part of a field, generally placed as conveniently as possible for water, and then snatch-blocks or anchors are placed at different angles of the field, and a steel wire rope is passed round or across the field round these anchors, and is wound or unwound on two separate drums of a windlass placed near the engine, and turned in the ordinary way by a strap round the driving wheels of both engine and windlass. The main difficulty Mr. Smith had to encounter was to know what to do with the slack rope, so as to pull the grubber back again after it had first crossed the field, and he at last succeeded in inventing a very simple plan, which he called a "turnbow." This plan of Smith's was called the roundabout system. Mr. Fowler's may be described as the direct system, as he places his engine, a very expensive one and not an ordinary farm engine, on the headland of a field, and a travelling anchor on the opposite headland, a wire rope being attached to the plough, which is generally one of four or five furrows, and hangs on the balance principle. The rope passes round a most ingeniously constructed apparatus, called a clip-drum, affixed under the boiler of the engine, and winds up the rope, drawing the balance-plough after it; the furrow-plough, which has been up in the air as it comes to the engine, being on its return to the windlass on the opposite side of the field placed in work by a simple movement of the driver, and the furrow-plough, which has been in the ground, takes its place in the air back again; the windlass also, in a most singular manner, being attached to an anchor at one corner of the field, moves itself along simultaneously with the engine. Mr. Howard's plan is like Mr. Smith's, viz., the roundabout system, but he has a frame for his implement carrying four or five coulters, with points and shares both in front and behind, so that this grubber or cultivator simply is moved backwards and forwards across the field, without the necessity of using Mr. Smith's turnbow. Mr. Howard has made several most important improvements in his windlass, snatch-blocks and anchors; and the perfection to which he has brought the manufacture of the steel wire rope has been to a great extent the cause of the successful adaptation of steam to the cultivation of the land. Amongst others is that of a steam-engine with the boiler placed transverse or across the carriage, which enables the engine to travel up and down hills with great facility. One of the great advantages of Smith's and Howard's plans over Fowler's is that it matters not if the field be triangular, five-cornered, or ever so oddly shaped, or whether it be up hill, down hill, or with high ridges across the field, this roundabout system accomplishes its work thoroughly, and by crossing every bit of the land can be moved; but with Fowler's system, moving on the headlands, the fields must be square, and the water-cart must follow the engine; and on strong clay lands, where steam cultivation is of such vast importance, the kneading and treading of the headlands is a matter of great detriment. The advantages which the supporters of Fowler's system claim are—that the traction being direct, the power of the engine to be exerted is less, and that only about one-half the rope is required."

We have taken the foregoing account from the report in the "Gardener's Chronicle and Agricultural Gazette" of a lecture recently delivered by Mr J. K. Fowler, Aylesbury, England. From the same source we now proceed to give some observations on the cost of steam cultivation. This is, after all, the great practical question, and in this country especially, where capital is even more difficult to obtain than labour for agricultural purposes, we cannot expect or advocate the adoption of any scheme respecting which an affirmative answer cannot be given to the important enquiry—"will it pay?" But in estimating the cost of steam cultivation, we must bear in mind that the work is by this means done much more thoroughly and efficiently; and if the profits in the crop should outweigh additional expense, the wise

economist will not grudge the required cost. As the steam plough has hitherto been very little employed in the neighbouring States, and not at all, so far as we are aware, in this country, we must deduce our estimate of the cost of this plan from its practical working in England.

The following examples were cited in a paper read by Mr. Charles Morton before a Farmers' club as far back as 1863:

"Messrs. Druce, of Eynsham, farm about 900 acres of arable land and 300 of pasture. They used to work 27 horses and 22 oxen; they now work the same land with 19 horses—8 horses and 22 oxen have been put down since the purchase of Smith's tackle three years ago. They get over about 700 acres of grubbing on the two farms each year."

The whole cost of wages and fuel was 23s. 6d. (or \$5. 61) a day. 140 acres done in 20 days were at the rate of 7 acres a day, or about 3s. 6d. (81 cents) an acre. In the same paper were given other examples in which the estimate of the cost per acre with Mr. Smith's apparatus was the same. In reference to Mr. Howard's apparatus, we are informed that

"Mr. Pike, of Sterington, Bedford, also on a heavy soil, has grubbed 157 acres once, and 107 a second time—264 acres altogether—5 to 8 inches deep, in 42 days, or about 6 acres a day, spending about £25 in coals, £1 15s. in oil, £30 in wages, and very little on repairs—£57 in all, or very little more than 4s. an acre."

This reduced to Canadian currency amounts to 96 cents per acre. Various other instances were adduced with similar results. Corresponding reports were also given of work done with Fowler's apparatus. This is more costly than either Smith's or Howard's. A larger capital is invested; and it ought, therefore, according to a very general rule, to accomplish more and cheaper work than its rivals. So costly is it, they say, that it is not preferred by tenant-farmers. In the examples mentioned it is said, "the depth of the work varied from 6 to 9 inches, the tilth of the soil could not be better, and the produce was much improved. The cost, including the purchase of rope and repairs, was after the rate of 5s. (or \$1 20) per acre in one case, and in another 4s. 6d. (1 08)." Mr. J. K. Fowler next gives his own experience as follows,—"about five years ago, having seen and fully made up my mind that deep tillage was in future to be the sheet-anchor of good farming, and autumn cultivation to be the means of thorough cleansing the land, and having torn to pieces two teams of horses, and broken lots of harness and implements in this attempt, I went to see Mr. Smith's stiff land at Woolston smashed up, and I came away determined to use it as soon as I had an opportunity; but as my occupation at that time was only 200 acres, about 105 being arable, I did not feel justified in purchasing my own set of tackle, and I hired of Mr. Moore, whose implements and rope were very weak, and he broke up about 40 acres each year. The following year, Mr. Lewis Taylor having purchased a new set of Messrs. Howard, I engaged him to break up all my land that required it, and he did most excellent work; this convinced me, from the splendid crops of the next year, how thoroughly efficacious the plan was. The next year I took another farm of the same size, and at once bought a set of Smith's tackle, and set to work in earnest, and the first year—that is in 1864—I smashed up 160 acres twice over, at a depth of from 8 to 9 inches. The land was generally very tenacious clay, and being a very dry, hot year, it was as hard as iron; pieces of clay came up weighing some cwt., and the dry autumn killed nearly all the couch-grass and weeds of the farm. The year 1865 I did the same, doing about the same amount of work, but this year (1866) much more easily, and breaking it up one inch deeper; and I will now give you the result of my operations as regards expenses. I must tell you that I hire my steam engine, not having as yet a threshing machine, and that is a heavy item. I will give it per diem:—

Hire of engine—12 horse power	0	14	0	
Engine-driver	0	3	0	
Windlass men	0	2	6	
Two anchor men	0	4	6	
Two lads with rope porters	0	2	0	
Oil and waste	0	1	6	
Seven cwt. of coal	0	6	0	
Beer 10 pints per day (plus malt tax)	0	1	8	
Interest on cost of apparatus, £220, and wear and tear, at 12½ per cent., on 40 days when used	0	14	0	
Water-cart, horse, and boy	0	4	0	
		£2	12	2

Average 7 acres per day, or about 7s. 6d. per acre." This is equivalent in Canadian currency to \$1 80. Mr. Fowler considers price a secondary consideration in comparison with the excellence of the work done, respecting which he says, "the great point was that I had smashed up and made useful thousands of tons of soil that had never been disintegrated before, and never seen daylight. I had broken the pan of the earth that had been trodden and puddled for perhaps centuries by heavy horses year after year, and by means of this smashing up had rendered drainage on these stiff clays perfect. The water which formerly stood up the furrows and all over the land is now never seen; and above all I had broken up all my land and completed everything in the way of autumn cultivation by the middle of October. I am convinced that subsoils are often poor because they are not properly cultivated, and they are in an unfit state to receive manure; but this system will alter all that, and these poor clay subsoils will be found rich in the best constituents of useful land."

The question of cost is thus summed up by Mr. Fowler—

"Looking at the comparison in a pecuniary light, it is immeasurably in favour of steam over horse-labour. It was absolutely impossible that all the horses in England could do what the steam engine could do. There was no invented implement that could go deep enough. There was no invented harness that could move the masses of earth that steam could; and the very method by which the steam plough drove like a sledge-hammer into the soil—not like the dead pull of horses, but the banging of the engine itself on the soil—disintegrated it in a way that no horse labour could effect. He was for smashing up. Mr. Mechi once said at a dinner that he had never seen furrows made by horse-power, deeper than a wineglass; and he afterwards took a wineglass and placed it in the furrow in the ploughing field; and in no case was the furrow deeper. He had heard of people ploughing by horse-power 10 inches deep; but he would be glad to go any distance to see it. What he would say was, 'Let us stick to this principle: whatever is to be obtained, go to steam and have deep cultivation, especially on your heavy clay lands.'"

Such is the opinion of practical agriculturists in England; and although in this country the difference in the cost of labour and the price of produce, must ever modify the conclusions we draw with regard to the application of the same force to farm operations among ourselves, yet we believe that progressive improvement in steam apparatus, the cheapening of its use, and its adaptation to the circumstances of the country, will ere long introduce here also this great power as a labourer in the field; and that the time is not far distant when the might of this untiring worker shall wonderfully enlarge the capabilities of the Canadian farmer, and while mitigating the sweat of man's brow and the labour of his hands, will relieve in no small measure the strained muscles of his faithful and too often over-taxed servants, the ox and the horse.

Small Farms and Thorough Cultivation.

The celebrated Robert Bakewell, of Dishley, Leicestershire, and the founder of the new Leicestershire sheep, used to tell an anecdote with exceeding glee, of a farmer not only of the olden school but of the olden times.

This farmer, who owned and occupied 1000 acres of land, had 3 daughters. When his eldest daughter married, he gave her ¼ of his land for her portion, but no money; and he found, by a little more speed, and a little better management, the produce of his farm did not decrease. When his second daughter married, he gave her ¼ of the remaining land for her portion, but no money. He then set to work, and began to grub up his furze and fern, and ploughed up what he called his poor, dry furze, covering in some places nearly half the land. After giving half his land away to two of his daughters, to his great surprise he found that the product increased; he made more money, because his new broken up furze land brought excessive crops, and at the same time he farmed the whole of his land better, for he employed three times more labourers upon it; he rose two hours sooner in the morning, had no more dead fallows once in 3 years; instead of which he got two green crops in one year, and ate them upon the land. A garden never requires a dead fallow. But the great advantage was, that he had got the same money to manage 500 acres as he had to manage 1000 acres; therefore he laid out double the money upon the land. When the third and last daughter married, he gave her 250 acres, or half of what remained, for her portion, and no money. He then found that he had the same money to farm ¼ of the land as he had at first to farm the whole.

He began to ask himself a few questions, and set his wits to work to see how he was to make as much of 250 acres as he had of 1000. He then paid off his bailiff, who weighed 20 stone and rose with the lark in the long days, and went to bed with the lamb; he got twice as much work done for his money; he made his servants and labourers, and horses, move faster,—broke them from their snail's pace,—and found that the eye of the master quickened the pace of his servant. He saw the beginning and ending of everything; and to his servants and labourers, instead of saying, "go and do it," he said to them "let us go, my boys, and do it." Between come and go he soon found out a great difference. He grubbed up the whole of his furze and ferns, and then ploughed up the whole of his poor grass land, and converted a great deal of corn into meat for the sake of the manure, and he preserved his black water (the essence of manure); cut his hedges down which had not been plashed for 40 to 50 years; straightened his zig-zag fences; cut his water courses straight, and gained a deal of land by doing so; made dams and sluices, and irrigated all the land he could; he grubbed up many of his hedges and borders covered with bushes, in many places from 10 to 14 yards in width, some more in his small closes, some not wider than streets, and threw 3, 4, 5 and 6 closes into one. He found out that instead of growing whitethorn hedges and haws to feed foreign birds in winter, he could grow food for man instead of migratory birds.

After all this improvement, he grew more and made more of 250 acres than he did from 1000; at the same time he found out that half of England was not cultivated at that time, for want of means to cultivate it with. I let him rams and sold him long-horned bulls (said Mr. B.) and told him the real value of labour, both in-doors and out, and what ought to be done with a certain number of men, oxen and horses, within a given time. I taught him to sow less and plough better; that there were limits and measures to all things; and that the husbandman ought to be stronger than the farm. I told him how to make hot land colder, and cold land hotter, light land stiffer, and stiff land lighter: I soon caused him to shake off his old, deep-rooted prejudices, and I grafted new ones in their places. I told him not to breed inferior cattle, sheep or horses, but the best of every kind, for the best consumed no more than the worst. My friend became a new man in his old age.—*Gardeners' Chronicle*.

Improvement in Steam Ploughing.

We learn from our English exchanges that some new features have recently been presented to the public in the machinery for steam cultivation. We clip the following account of them from the *Times* newspaper:—

"Messrs. John Fowler & Co. have brought out a six-furrow plough, and a plough turning eight furrows at once is being constructed. Now, although this piece of information may appear of slight importance, we believe that it is practically one of the greatest steps yet made in steam-power husbandry, because it involves a successful application of the system upon light lands. The vast advantage of deep and expeditious tillage upon strong soils has been proved in numberless cases, but farmers have doubted whether a costly apparatus can profitably cultivate those soils where a thin staple necessitates a shallow furrow, and where a pair of light horses can plough with ease one and a half acres per day, with few interruptions occasioned by wet weather. Norfolk is precisely the county to test the question properly, and during the past two or three months a pair of 10-horse engines (that is, one "double-engine set") from the Leeds firm has been making some extraordinary results upon the farms of Mr. Clare Sewell Read, M.P., Mr. John Hudson, of Castle Acre, and several other large occupiers. On one farm of sandy loam soil, 200 acres were ploughed 4 to 5 inches deep in 120 hours of actual work, or 143 hours inclusive of time occupied in removals, labourers' meal-times, delays for breakage, and waiting for coal and water; this is at the rate of 16 or 17 acres per day through 12 long autumn days of 12 hours each—the rate of performance when in actual work being no less than 20 acres in a day of 12 hours. On another light-land farm the apparatus smashed up with the cultivator, at eight inches depth, 20 acres in eight hours, or at the rate of 30 acres per day of 12 hours. On Mr. Hudson's medium and heavier soil, 50 acres were ploughed six inches deep, and 40 acres were cultivated nine inches deep, and all within the space of four and a half days in November. It has thus been demonstrated in the field that by simply widening the implement the full force of powerful engines may be employed in tilling a light as well as

a heavy soil; and it is evident that the cost will be less per cwt. of draught, because the machine can be at work on light land when it would be stopped on a clay by wet weather, saving both time and wages, while the risk of breakage is also less.

"Messrs. Howard of Bedford, exhibit one of their new engines for working on the double-engine system, with a drawing explaining their method of operation. The boiler is placed crosswise upon a carriage frame, having two rope-winding drums, one at the fore-part, the other at the rear of the machine. Two engines of this construction traverse upon opposite headlands of a field, the two forward drums of both engines hauling one implement to and fro, while the two backward drums of the two engines haul a second implement to and fro. However, the implements are not pulled across the field from engine to engine, but only half way, alternately meeting in the middle of the field, and then returning each to its engine. Leaving a strip of unmoved ground at the midway meeting place is prevented by the implements not being in line, so that they pass each other for a few feet, one setting into work again at the ends of the furrows left by the other at the previous bout. Hitherto, in the double-engine system (admitted on all hands to be the most expeditious), each engine has worked only half its time, working when the plough is going one way, and resting when it is going the other; and attempts have been made to couple the two engines, so that both may simultaneously operate upon the implement both in its to and fro journey, and two 7-horse engines always working, thus do as much as two 14-horse engines alternately resting. The Bedford firm adopt the obviously more sensible plan of keeping the same power in the engines, and enabling them to work all their time by driving two implements instead of one. The amount of performance will not be quite doubled, because the ploughs, stopping half-way instead of travelling the whole length of the field, make twice the number of "turnings" in a day; but it may very probably be one-half to two-thirds more than upon the old method."

Gardening vs. Farming.

We hold that no person will attempt to cultivate a vegetable garden without deep cultivation and pulverization of the soil, and thoroughly enriching the ground by the use of manure in some form. Everybody at once concedes this to be necessary, and his practice is in accordance. Now, in what respect does a farm differ from a garden, except in the number of acres cultivated. A corn or wheat field is, or should be, but a garden on a large scale, for the cultivation of corn or wheat; yet how few farmers there are, who bestow a tithe of the labor or manure on the corn field, they acknowledge to be indispensable to the vegetable garden, to make it productive and profitable. Now, if it is necessary for the production of good vegetable crops, it must be patent to every one that there is the same existing necessity, in order to secure the production of good crops of corn and wheat. All are organized plants, and require the same treatment in regard to the enrichment of the ground in which they grow, as well as in their cultivation by manual labor. The object in view by every farmer and gardener, is to convert the elements derived from the soil and earth into substances available to sustain life, and add to our enjoyments. To do this, we must furnish such materials as can be metamorphosed into vegetables and grains, or disappointment is our lot. We have no right to expect that nature will convert pure sand and clay into cabbages, turnips, corn or wheat. Every intelligent mind knows that something more is required, in addition to sand and clay. Manure of some sort is indispensable, which is but the debris or remains of vegetables, which have once lived and died, or performed the office of food to animals.

All manures—even those derived from animals—are of vegetable origin. The minerals required by plants are usually found of sufficient quantity in most soils, and are rarely required to be furnished artificially. With these views, we hold it to be folly to expect a crop, so long as we furnish nothing but the seed out of which to make it. There should be no farmers, in the common acceptance of the term. All should be gardeners in respect to thorough manuring and cultivation, and all farms should be gardens, whether they contain one acre or fifty acres.

Dr. Parker, of Columbia, S. C., a few years since, made two hundred and twelve bushels of corn on one acre of ground, by judicious manuring and cultivation. What he did, can be done again under like conditions, and by any one; yet we will aver that his neighbours, with land as good by nature as his, did not make more than twenty bushels per acre, by the usual manure and method of cultivation, thus making it necessary for them to work ten acres to get

a crop equal to his from one acre. Let us hereafter follow gardening. If we can make and work a garden of fifty acres, well; if only ten acres, do no more; if only five, be sure and have it a garden as regards the fertility of the soil and cultivation.

With these views, we say cultivate small farms, enrich your lands, diversify your crops, and labor diligently yourselves, and if you do not become wealthy, you can have at least an abundance about you to render life a blessing.—*Cor. Southern Cultivator*.

Crop of Mangold Wurtzels and Turnips.

A CORRESPONDENT of the *Country Gentleman* writes that journal as follows:—I have just finished getting up the mangolds and thought you would perhaps like to know the result. The plot furthest from the road—I think you did not see it last summer when you were here—produced the best crop, having had barnyard manure as well as bone dust applied to it. It contains 2a. 3r. 3p., and produced 3,155 bushels, at 60 pounds to the bushel. One-half acre was measured and carefully weighed; the product was 664½ bushels or at the rate of 1,328½ bushels, or over 39 tons per acre. Variety Yellow Globe. Part was sown with the Long Red, which brought down the average. I am more convinced than ever that the Yellow Globe is the dairyman's best root. On finishing our carrots last winter and commencing to feed mangolds, our cows increased their milk very perceptibly. The lot near the road, not sown quite so early, manured with 7 bushels of bonedust per acre, containing 1a. 3r. 6p., produced 1,664 bushels. Turnips also good. One small plot of 1a. 2r. 3p., produced 1,421 bushels I have 3,097 bushels in all. The Skirving's, as usual are the best. Also tried Laing's, French Sweet and Ruta Baga. Skirving's are large, well grown, with good clear skins as nice as I ever grew. But running short of seed, I was prevailed upon to try the so-called *Ruta Baga*, which produced a small, ill shaped, green topped root with many fangs. Laing's were fair, and the French Sweet larger than usual. We made short work of harvesting them—cut off and piled tops with a sharp hoe—pulling up roots where the heaps were placed, being careful to place the heaps so that they would range in rows each way, then run over the field and again across, with a chain harrow I got from England last year. It worked splendidly, pulling all up, and shaking soil well off, without injuring the roots in the least.

FROST LIFTING FENCE POSTS.—Mr. J. Griffin writes us that the action of frost in lifting posts from the ground may be prevented by casing the lower end of the posts with boards, (tile of the right size would be preferable.) This casing will be affected by repeated freezing and thawing, but the post will remain unmoved.—*Prairie Farmer*.

THE STEAM PLOUGH IN NEW ZEALAND.—The first steam cultivator has penetrated the soil of the Canterbury plains. After some difficulties the machinery and implements consigned to Mr. A. L. Powys have been delivered at the Waipara Flat. The plough, from Messrs. Howard, of Bedford, was taken and put together, so far up the country, by Mr. Woole and a few farm-labourers, without even a pin being found wanting or a screw deficient.—*Mark Lane Express*.

FORKING BARNYARD MANURE OVER.—This is essential to rotting well. When corn stalks, straw, and ordure of animals are all trod down firmly during the winter and spring, the air is effectually excluded, and the material will not rot until it has been forked over, were it to remain there for a year or more. If it is loosened up, so that the air can circulate among it, the entire mass will decay in a few weeks so that it will be easy to pitch and spread it. Now, the most expeditious way of pitching manure up clean from the bottom is to do the greater portion of it with a strong horse fork. Set up three long poles as for pitching hay on a round stack, and make a hole down to the bottom of the manure first: then thrust the tines of the horse fork under the manure, and turn it up in large rolls, and tear it to pieces with hand forks. Horse forks are of great service where the manure is very long. After it has rotted, a man, or two men, can pitch much faster by hand. If barnyard manure remains in the yard all summer, it should always be forked over, to facilitate the decay of corn stalks and coarse straw. But it should be protected from rain. Some farmers pitch long manure on the waggon with horse forks. But I never could perceive that the practice would pay, because a horse fork will not hold as much as a horse is capable of elevating. It is easy for any one to try the experiment which will soon satisfy all anticipations or doubts on this subject.—*North British Agriculturist*.

Stock Department.

The Prince of Wales' Prize Horse.

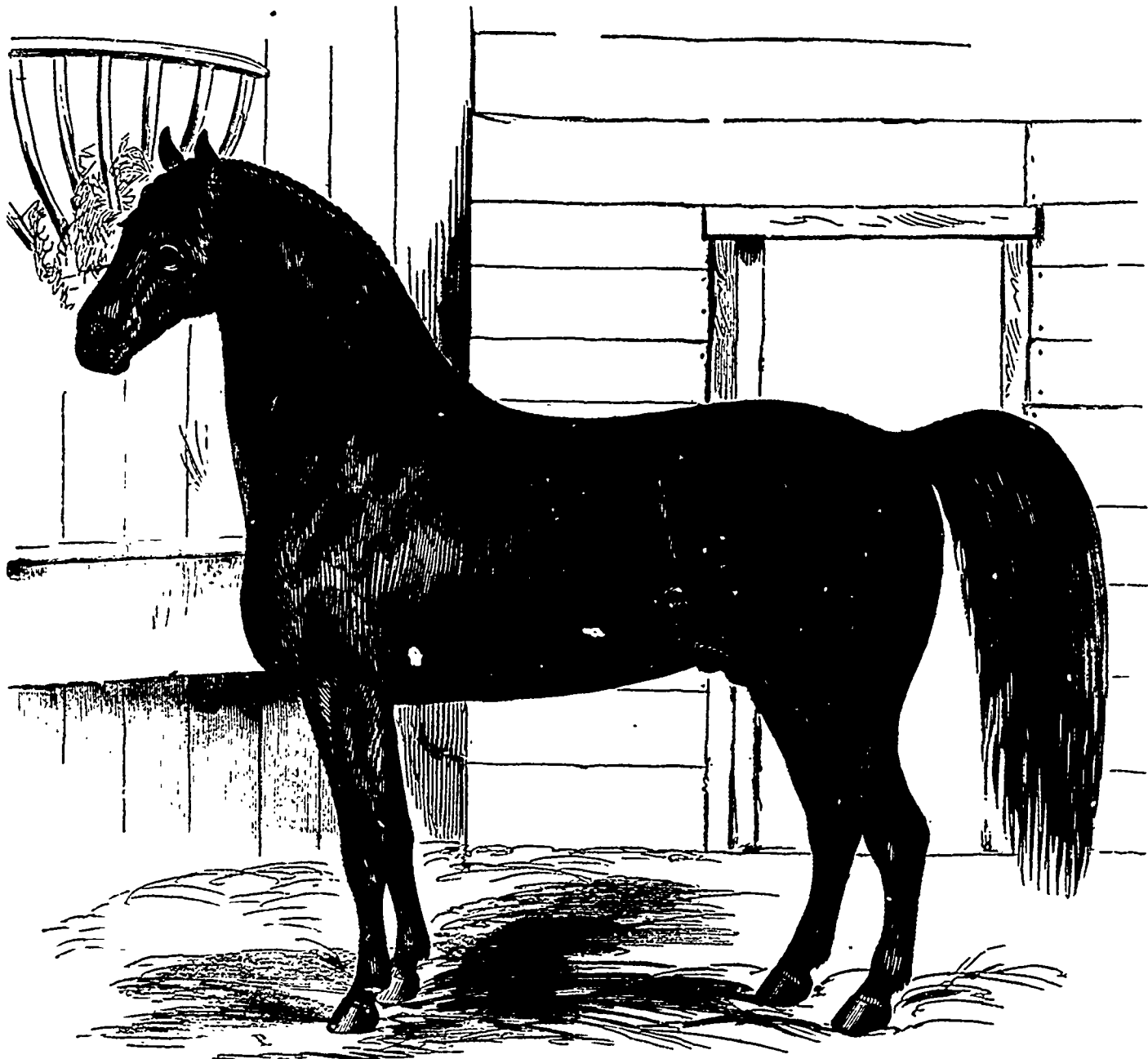
The beautiful Agricultural Stallion represented in the annexed engraving, took the Prince of Wales prize at the last Provincial Exhibition. This prize of sixty dollars is given annually by His Royal Highness for the best stallion for agricultural purposes, of any age. The fortunate owner of this fine animal, Mr. J. J. Fisher of Colborne, took also the Provincial Society's prize of thirty-six dollars, offered for the best agricultural stallion,—we suppose with the

manby Rob was got by Little John, dam (Deeper, the celebrated mare, bred by J. Simpson, which obtained nine premiums at the Birdlington Agricultural Shows, also for the best agricultural mare at Scarborough, the second prize at Leeds, the first prize at Trisk, the first at Birdlington, in the Yorkshire Agricultural Society, and the first prize at Hackness Show, also recommended at the Yorkshire Agricultural Show, in 1852, and received first prize at the Great Yorkshire Show at Malton in 1855), by Young Rob, grand-dam by Tinker, great grand-dam by Mr. Raywood's old horse, great great grand dam by Mr. Fisher's black horse. Little John was got by Old Black Legs, dam by J. Simpson's Young Tinker, grand-dam by Little Joe.

to develop his gifts. Of course there is a bound. Reason in all things. Even in trotting, it is easier and pleasanter for some horses to go twelve miles an hour than for others to go three. They were made so. Does it hurt a swallow to go swifter than an ox? Why not? Because he was made so. It is easy to do the thing we were made to do easily. And a good horse was made to go fast. He does it, when wild, of his own accord. He does not lose the relish of speed even when domesticated.

Take a fine fed horse, which in harness looks as if he were a pattern of moderation, a very deacon of sobriety, and turn him loose in pasture. Whew, what a change! He takes one or two steps slowly, just to

WINNER OF THE PRINCE OF WALES' PRIZE AT THE PROVINCIAL EXHIBITION OF 1866.



“YOUNG HARD FORTUNE,” THE PROPERTY OF J. J. FISHER, COLBORNE, CO. OF HURON.

same horse, though, as the official prize list does not give the names of the premium horses, we are left in some degree of doubt on that point. The following particulars respecting the subject of our illustration are furnished us by the proprietor:

“YOUNG HARD FORTUNE”—Is a bright bay, rising 6 years old; stands 16 hands 3 inches, with great bone and good action; has proved himself a sure foal-getter. He was got by the imported stallion Hard Fortune; dam by Magnumbonum. Hard Fortune was got by Hummanby Rob; dam by Robin Hood. Hum-

Old Black Legs was got by the old Derbyshire Horse, which covered at six guineas each mare, and for which Mr. Willis refused £00 guineas when four years old. He was imported from Yorkshire in 1859. He has taken prizes at three Provincial shows, besides 19 other prizes at different agricultural shows.

Henry Ward Beecher on Fast Horses.

Mr. Beecher descants thus:—“If a horse has had swiftness put into him, it is fair to give him a chance

be sure that you have let go of him, and then with a squeal he lets fly his heels in the air, till the sun flashes from his polished shoes, then off he goes faster and fiercer, clear across the lot, till the fence brings him up. And then, his eye flashing, his mane lifted and swelling, his tail up like a king's sceptre, he snorts a defiance to you from afar; and with a series of rearings, running sideways, pawings and plungings, friskings and whirrs, he starts again, with immense enjoyment, into another round of running. Do you not see that it is more than fun? It is ecstasy. It is horse-rapture!

I never see such a spectacle that I am not painfully impressed with the inhumanity of not letting horses run. Fastness is a virtue. Our mistaken moderation is depriving him of it. I drive fast on principle. I do it for the sake of being at one with nature. To drive slow, only and always, is to treat a horse as if he were an ox. You may be slow, if you think proper. But your horse should be kept up to nature. He would have had but two legs, if it was meant that he should go only at a "go-to-meeting" pace. He has four legs. Of course he ought to do a good deal with them.

Killing Hogs.

KILLING hogs is a business in which the whole community is interested, and perhaps a small portion acquainted with. It is termed—"butchering," and is often carried on in butchering style, while it is a business worthy of being conducted in a decent and scientific way. I do not propose going into a long programme of telling how to catch a hog, and how to hold him, &c., but to throw out a few hints.

Do not suffer the hog to be run over and worried by men, boys and dogs, getting his blood and flesh heated, just before killing. I believe this is one cause of meat spoiling. Sometimes we drive a hog or two to a neighbour's sofas to "kill together," as it is termed, making use of the same force, same fire and other fixings; and we have known the hams and shoulders of hogs thus driven to come out a little short before the next summer was over.

Let the hog be killed with as little noise and worryment, and excitement as possible. A Jerseyman has one man to go into the pen, select his first victim, and shoot him, or with a broad-faced hammer (like a shoemaker's hammer) knock down the hog, when other men come immediately and stick, others drag out, and go to scalding, and so on, with a large number of hogs.

Scalding machines have become very common, and are a good institution; but everybody has not got one, and many still use tubs. Unlike the tub, and want nothing better for ordinary times; but I want a rope and tackle, and one or two hands to help work the hog. I would not allow a hog put into water while there is a sign of life in him; but when dead, make an opening to the gambrel strings and hook in, hoist the hog and dip him head and shoulders into the scald; do not let him remain more than a second or two, lest his hair "sets;" hoist him and air him, and if needful, dip him, again and again, till done; then hook into the lower jaw, and scald the hinder parts. I like slow scalds the best, as less likely to "set the hair." While the hind parts are getting scalded, the face may be cleansed. Too little attention is generally given to cleaning the head, as also the feet, leaving them for the women to worry over by the hour in some cold out-kitchen. As soon as the hog is hung up and washed off, let the head be taken off and set upon a barrel or block, and regularly shaved and cleaned.

And now, while speaking of the head, I want to say how I cut up a head. I lay it on its side and take off the jaw (or lower jaw;) I then saw down across the face, just above the eyes, but careful to run into the eye sockets, and on through, leaving the eye balls with the snout end, so that there is no further trouble with gouging the eyes out of the face piece; then, without further separating of the parts, starting between the ears, saw up and downwise, not caring to extend further down the snout than to the saw-mark across the face, but clean through at the other end. Now, having done with the ears for handles, I cut them off, then take out the brains for pickling—skin the snout, and take off the flesh for scrapple, and throw the nasal organs away. The faces are to be cornered. I use a saw, but never an axe, in cutting up a hog; consequently the meat is clear of splinters and chips of bones. In "chining a hog" to cool, I saw down the ribs instead of hacking them with a hatchet. A small sized hog-hook flattened answers very well for taking off the hoofs and toe nails of a porker—or you may use a pair of pinchers. —*German town Telegraph.*

PIG BREEDING.—An English breeder says, the sow should be larger than the male, and the male the more perfect of the two, as the good, or bad points of the boar will preponderate in the young ones. He says that the boar the sow may have had pigs to the litter before, has a great deal to do with the following litter. He once put a black sow to a white boar, and had some black and white pigs. He then put her to a white boar, and still had some black and white, and had to wait for three litters until he got rid of the white. He once purchased a Yorkshire boar, and ninety-nine per cent of his stock died from inflammation of the lungs. He afterwards learned that the sire of the boar died from the same complaint.

Diminutive Cattle of Britany.

A gentleman from the south inquires where they can be obtained? We do not know of any one engaged in breeding them in this country. Little cows of this breed are quite fashionable in England, where they are highly prized as milkers. A few we believe have been imported into the United States. Any one having them for sale should let it be known.

Mr. Flint, in his report of the international Exhibition, says of them: "The little Bretagne cows pleased me exceedingly. Finding only about three feet high on their legs—the most fashionable height—most black and white, now and then, but rarely, a red and white, they are as docile as kittens, and look pretty enough to become the kitchen pet of the hard pressed mountain or hillside farmer, with pastures too short for a grosser animal. Ten pounds of hay will suffice for their limited wants for twenty-four hours, and they would evidently fill a seven quart pail as quick and long as any other cow. Those pretty cows will often hold out in milk, so the herdsmen said, from fifteen to eighteen months after calving, and often begin with the first calf with six or seven quarts a day. The horn is fine, not unlike the Jerseys, but smaller and tapering off gradually, and the escutcheon or milk marks of Guenon generally very good. Good cows are held from sixty to seventy dollars a head, a fancy price of course, but I am not sure that they would not pay six per cent, on the investment as well as most "fancy stocks."

Horns versus No Horns.

Horns vs. No Horns is ably handled (in theory) by J. W. C., and were it not that a lengthy experience contradicts that theory, it would be adopted. No-horned cows have always, (or at least for thirty years), been occupants of the old home farm, from one to half a dozen, sandwiched between uncivilized bovines with heathenish horns belligerently protruding from their frontispiece, yet those meek-looking Galloways, or other tribe, were quite as often the "masters of the situation," as their horned mates. They were noted for their fighting qualities; their purchase was not quite as long, but seemed to be to their advantage, nevertheless. In getting through fences they seemed to consider horns as being in the way, judging from their style, when they lost sight of the orderly proprieties. Remembering, however, their excellent qualities at the pail, when we came into possession of a home of our own, we bought a no-horned cow and installed her duly in the herd; she logged the horned sisters duly and properly, and gave more milk than either of them: we were charmed—full pail, running over a prize surely—but, alas, what she lacked in horn she made up in leg. I was kicked from the stool and the pail kicked after me. I expostulated gently—she pulled her head from the stanchions and walked out of the stable. Afterwards I stanchioned her at both ends, until her milking qualities attracted a purchaser, when she went to kick in other stables. Moral—The law of self-defence planted in human or other natures, will always work itself out, "horns or no horns." If the lack of horns really made cattle more peaceable—but that if has not been removed to us—am glad your able correspondent has had it removed for him.—*Cor. Co. Gent.*

The Safety Bridle.

This invention of which we gave some account along with an illustration in our issue of April 2 1866, is spoken of as follows in "*The Turf, Field, and Farm*:"

Dr. Hartman's safety bridle has been thoroughly tested throughout the United States, and as we predicted a year ago, it has given the greatest satisfaction. We recommend the invention on the score of safety to human life and humanity to the horse. It does away with the tortuous check rein, which barbarous contrivance is a shame to advanced civilization. We are convinced that Dr. Hartman's bridle is a guarantee against accidents—that is, if the manufacturer does not make the reins out of worthless material, aiming to promote cheapness at the sacrifice of strength and durability. A gentleman of New York, whose face is well known on Harlem Lane, purchased a safety bridle on our recommendation last year. A few days ago he was in the office, and during a conversation he remarked upon the invention of Dr. Hartman, expressing great confidence in its utility. "One day last week," said our friend, "I was driving on Harlem Lane, when my mare became frightened and started forward at the top of her speed. It was a clear case of runaway, for I tugged at the common reins with all my might without being able to exercise the least control over her. She ran

several hundred yards, everybody giving me the road, and expecting a general smash up. The safety reins were now my only hope. I dropped the main lines and pulled on the two slender cords. A finger of each hand alone was inserted in the loops, and yet, with a gentle, steady pull, I brought the mare, in a few strides, to a dead halt. I pulled gently because I did not wish to throw her, by a quick and powerful effort, on her haunches, for fear of injuring both animal and light wagon." Such practical testimonials as this are the best proofs that can be adduced as to the value of the safety bridle. No lady should be entrusted in a wagon without that guarantee of security which is afforded by it. Common humanity to the horse, as well as a prudent regard for personal safety, should commend Dr. Hartman's invention to the public everywhere.

IPAVY PIGS—I send you the weight of two yearling hogs and three spring pigs that were killed in our town, Laurence, Otsego Co.:

C. A. Barker, one yearling hog.....	575 pounds.
S. Marlett " " " " " " " "519 "
J. Cockett, one spring pig.....	388 "
N. Meade, two " " " " " " " "356 and 367 "

—C. A. B. in Co. Gent.

SELECTING SHEEP.—The most approved form in a sheep is general roundness of shape and fineness of bone. The chest should be broad, the ribs well arched, the back and loins broad, flat, and straight; the limbs should be short in proportion to the body, the head small, the ears thin, the skin soft and elastic, the wool soft to the touch, thick, and coming well forward to the face, but not covering it. The face and forehead should be clothed with short hair, and the eyes should have a lively expression.

CARE OF LONG-WOOLED SHEEP.—The *Rural World* says, that experienced breeders of Cotswold and Leicester sheep say that these sheep should not be kept in the same pastures or yards with Merino sheep. They say that the odor from the bodies of the Merinos is not only offensive but hurtful to the English breeds. The long-wooled sheep are little disposed to roam over the pastures; they eat what they want and then lie down. The Merinos, on the other hand, are much disposed to ramble all over the pasture, picking a little here and there. The consequent trampling of the grass and scattering of the droppings of the sheep seems to unfavourably affect the Cotswolds and Leicesters; so much so that it is advised, even where they are kept alone, that at least three pasture lots be kept, so that the sheep may have fresh pasture frequently.

TENACITY OF LIFE IN LAMBS.—On the 24th of August last, Mr. P. Plenderleith, of Marchlands, missed three half-bred lambs from his stock. Search was made for the animals in every direction, and advertisements in the newspapers having failed to bring any tidings of them, it was concluded that the lambs had been stolen and made away with. On Friday last, however, the animals were discovered in a culvert or water-pen at the side of the turnpike-road which intersects the farm. Two of them were got out alive, though very weak, but the third had evidently been dead for some time. The openings of the culvert were grown over with grass and rushes, and there was a quantity of mud in it, so that it is difficult to conceive how the animals managed to force their way into such an uncomfortable prison. They had been in the culvert for 21 days, during which time they were without food of any kind.—*Scotsman.*

STONE FOR STABLE FLOORS.—The use of stone in the construction of floors for stables, we believe is not common in America, at least not in the central countries. We found them in universal use abroad, and they presented quite a marked feature in contrast with the plank floors which are so common with us. In some of the best stables, both for cattle and horses, cobble-stones are bedded into the earth, in a similar way that pavements are made in cities. At first they looked as if they might be uncomfortable, especially for horses, but we were assured no bad results followed from their use, and the uneven surface was regarded as an advantage, as it served as a preventive to the animals slipping. Immediately back of the animals the floors are made to descend, forming a curved ditch or alley for conducting off the urine. In looking at these stables, the thought often occurred whether similar structures could not be profitably introduced with us. The first cost may perhaps be a little more than plank, but in the long run they are infinitely cheaper. There is another advantage—the saving of room and the prevention of accumulated filth underneath the floor, quite common where plank is used. The time will come when stone floors in many parts of our country will become a necessity, and it is a question whether their adoption upon farms where stone may conveniently be had, would not now be far more economical than wood. —*X. A. Willard, in Utica Herald.*

Veterinary Department.

"Roaring."

By T. K. QUICFALL, M. R. C. V. S. VETERINARY
SURGEON, BELLEVILLE.

ROARING in Horses is a loud grunting sound made by the animal during the function of respiration, and decidedly constitutes unsoundness. It is caused by some impediment existing in the respiratory apparatus and in many confirmed cases it may be detected even at a distance from the subject of it. The nostrils, trachea and air cells may be the seat of disease, but generally it arises from paralysis of the muscles situated on the left side of the Larynx or Throat, as it is commonly called. This abominable sound is termed Grunting, Wheezing, Whistling and High Blowing, but it is neither more or less than a diseased condition of the air passages, call it what you choose. It a mistaken idea to call every horse a roarer that makes a trumpeting noise or blowing, for they are not indications of disease as a rule, but quite the opposite, and are consequently separate from the disease in question. On attentively listening to the noise which a roarer makes, it seems that the sound is produced during the act of inspiration, and not that of expiration, and yet under circumstances of distress when the animal has been hard run, the grunt can be detected during expiration. For instance, if a roarer be trotted fast up hill he will clearly show evidence of the disease, and it is often said if when standing still, you threaten to strike him on the body or elsewhere, that the unmistakable grunt is sure to follow, but this last test does not always succeed, as I have noticed scores of horses when so practiced on, give neither a sigh, grunt or any spasmodic symptom whatever.

The surest tests in my opinion are to be observed in the peculiar long and distressing cough, characteristic of this disease, and also when the animal is undergoing severe exertion. There are several causes of this disease which would be only partially understood if related, except by the qualified Veterinarian, therefore, I shall mention only some of the causes which tend to create this disease, and frequently render it a permanent defect. I refer to the strap around the throat used for the purpose of preventing cribbing, and to the unnecessary employment of the bearing rein. The former constricts the windpipe, the latter places the neck, and with it the windpipe, in an unnatural position. But in order to be more clearly understood, let me briefly state the anatomy of the windpipe. The windpipe is composed of rings of elastic cartilage which overlap one another, joined together by an intermediate fibro-ligamentous structure, which in effect constitutes a joint between each ring, giving great flexibility to the parts, and whereby it elongates on elevating the head, and contracts on depressing it.

The strap above spoken of when fixed on the horse's throat seriously compresses these rings or cartilaginous bands, composing the windpipe, not allowing them freedom of space to perform the functions allotted to them, and on account of the strap frequently pressing upon, and irritating the windpipe, the rings become united together, thus diminishing to a serious extent the area of the air passages. The bearing rein acts by placing the horse's neck in an unnatural position, and with it the windpipe, and from long and persistent pressure, by applying the evil, causes fusion of the rings. Here again is a sure cause of impediment in the air passages, termed roaring. I would advise all horsemen never to have recourse to the crib biting strap, as the remedy is worse than the disease, and neither would I as a rule use the bearing rein. Imagine a man compelled to stand for several hours consecutively with his head bent firmly down, and besides having to undergo great physical exertion with his head in the same

position, why it would be far worse to bear than the punishment (shame to say it in the nineteenth century), practiced upon the soldiers of the late American war by bucking and gagging. If it is cruel to man, is it not cruel to a dumb creature? When any member of the body fails accidentally to perform its part, the others do all in their power to help it. For instance, when a horse falls, the first movement the animal makes to get up is to swing his head. But with a bearing rein on how can he do so, is he not literally compelled to give up his efforts to rise, owing to the injudicious and unceded application of a foreign force? Other causes, such as tumours, dilatation of bones, abscesses interfering with the free passage of air through the windpipe, and last but not least, paralysis of the muscles of the larynx, are not easily discovered, and require a medical decision of treatment, therefore, I shall omit saying anything further about them. Suppose a valuable race horse, a confirmed roarer, having been previously entered for a good stake, and his chance of winning, if sound, considered good. I would advise the performance of the operation termed Tracheotomy, which is the removal of a portion of two half rings of the windpipe, and in their place substituting a small tube, in order to allow the free ingress and egress of air, in fact to make an artificial opening, in order that the animal may the more easily perform the acts of respiration. It would be probably useless, if not dangerous, for an amateur to undertake this operation, as it can only be properly performed by the competent Veterinary Surgeon, and treated accordingly.

I mention this, first because it has not been to my knowledge performed in this country on a horse before his race, and secondly as it is very probable it would have a beneficial effect. Roaring hereditary, that is a mal or peculiar conformation of parts may be transmitted from parent to offspring, in the same way as a wen in the throat of a parent may be transmitted to the child, but I do not quite believe in the notion that a morbid action is capable of being conveyed from parent to offspring. In conclusion, if you wish to prevent horses becoming roarers, keep them on wholesome food, avoid musty hay or bad oats, mouldy corn, &c. &c.; don't use straps buckled tight round the neck, or short bearing reins; dispense with all mechanical appliances such as these, which tend to keep the neck in an unnatural and restricted position; you will then do much to prevent the disease. "Prevention is better than cure," and bear in mind that when once the disease termed roaring is set up, the most skillful and persevering are often foiled in attempts to remove it.

TREATMENT OF GALLED BACK.—George H. Dadd, Veterinary Surgeon, gives in the *Prairie Farmer*, the following:

As soon as an abrasion is discovered on the back of a horse, the animal should be excused from duty for a few days; the abraded parts should be dressed twice daily with a portion of tincture of aloe and myrrh. This simple treatment will soon heal the parts. Should there be no abrasion, but simple swelling, attended with heat, pain and tenderness, the parts should be frequently sponged with cold water. Occasionally the skin undergoes the process of hardening, (induration.) This is a condition of the parts, known to the farriers of old as "siftast," and the treatment is as follows:—Procure one ounce of iodine, and smear the indurated spot with a portion of the same, twice daily.

Some cases of galled back and shoulders are due to negligence and abuse, yet many animals, owing to a peculiarity of constitution, will "chafe," as the saying is, in those parts which come in contact with the collar and saddle, and neither human foresight nor mechanical means can prevent the same.

HOW TO FEEL THE PULSE OF THE HORSE.—This is best felt where the artery passes over the edge of the jaw-bone. To find it, apply the fingers to the angle of the jaw-bone, and slowly pass them down to where a notch in the bone may be felt; the artery passes along this notch, where the throbbing will be perceptible. It is generally situated about three inches from the angle of the bone. In the horse the beats of the pulse are from 32 to 38 times a minute, in a state of health.

CURE FOR SPAVIN.—E. J. Bantz writes to the *Prairie Farmer*, that to cure a bone spavin the leg should be washed clean with soap and warm water, then clip off the hair and apply 1 oz. pulverized sal-ammoniac; 1 oz. gum camphor; 1 oz. Venice turpentine; 1 oz. tincture of cantharides; 1 oz. spirits ammonia; 2 oz. olive oil; twice per day and rub in thoroughly. Wash clean every fourth day, till well.

Entomology.

Oak-Tree Borer.

A friend recently sent us an odd-shaped grub that he had brought to light when splitting a white-oak log, and desired some information respecting it. On examination it proved to be the larva of a bronze or metallic brown coloured beetle, (*Chrysobothris dentipes*, Germar) of the family *Buprestidae*, the members of which are more or less destructive from the boring propensities of their larvæ. The grub is white, slightly tinged with yellow, about an inch long, narrow, and flattened, but with the second segment from the head about double the width of any of the others. The head is blackish, and so much sunk into the first segment as to be almost entirely concealed from view. It has no legs or other appendages for the purpose of locomotion, but is enabled to progress in its burrow by alternately contracting and extending its segments in the same manner as an ordinary earth-worm. It feeds entirely upon the fragments of wood that it gnaws off as it burrows through the trunk or limbs of the tree, which it often perforates to such an extent as to render it useless for manufacturing purposes. In the grub state it lives, in all probability, for a considerable number of years, before proceeding to complete its transformations into the winged state, when it sallies forth into the outer world as a bright and brilliant beetle.

The beetle generally makes its appearance in the hot weather of June, and may often be captured basking in the sun on the trunk of the tree from which it has emerged. It is then a hard compactly-framed insect, oblong-oval in shape, purplish-bronze in colour above, and like burnished copper beneath; its length is about half an inch. When alarmed it draws up its legs close to its body, and drops to the ground as if dead, and then if left undisturbed, expands its ample wings, and takes flight with a whizzing noise. Like the other members of the family it delights in hot weather, and appears most to enjoy exposure to the direct rays of a burning sun.

The injuries this insect commits upon timber are often very extensive, nor does it confine its ravages only to oak, but it also sometimes attacks apple and other kindred fruit trees. The best remedy that we know for it and many other borers of similar habits, is the one that nature provides—the numerous family of wood-peckers. These active birds, by tapping on the limbs and trunks of affected trees, soon discover where a grub is at work within, and with their strong bills very soon drag out the destroyer from his nest, and devour the fat and juicy morsel. Let these and other insectivorous birds be encouraged and suffered to live unmolested by the stones of small boys and the guns of those of larger growth, and then we shall hear fewer complaints of injurious insects.

MOLES AS WORM DESTROYERS.—In a commune of the canton of Zurich, the municipal council were lately about to proceed to the selection of a mole catcher, when M. Weber, a distinguished naturalist, laid before the board the following facts:—M. Weber had carefully examined the stomachs of 15 moles caught in different localities, but failed to discover the slightest vestige of plants or of roots, whereas they were filled by the remains of acarides, or earth-worms. M. Weber, not satisfied by this fact, shut up several moles in a box containing sods of earth, on which fresh grass was growing, and a smaller case of grubs and earth-worms. In nine days two moles devoured 341 white worms, 193 earth-worms, 25 caterpillars, and a mouse, skin and bones, which had been enclosed while alive in the box. M. Weber next gave them raw meat cut up in small pieces, mixed with vegetables; the moles eat the meat and left the plants. He next gave them nothing but vegetables; in 24 hours two moles died of starvation. Another naturalist calculated that two moles destroy 200,000 white worms in a single year.—*The Economist*.

Vol page 350.

The Apiary.

Wintering Bees.

BY MRS. LILLIAN J. TUTTLE, OF IOWA.

In all parts of the world many colonies of bees perish every winter. So great is this loss that it is a most serious drawback to the business of bee-keeping. If the theory of the matter was better understood this would not be the case, for it is entirely unnecessary that any colony of bees should perish if it has been properly strengthened.

Bees need but two things in order to winter safely wherever they may be placed, and these are, plenty of air for ventilation without a draught through the hive, and abundance of food where they can get at it. If you can secure these two things to your bees, they may be buried in a snow-bank, put in a cellar or a garret or buried in the ground. Bear these requisites in mind, and use your ingenuity to provide for your bees according to circumstances.

Bees never perish from cold if they have sufficient numbers. Nature provides for safety in this way. Go to one of your strong colonies the coldest day in winter and thrust your thermometer into the middle of the cluster and it will rise to summer heat. A colony weak in numbers, however rich in stores, would perish for want of bees to secure this degree of heat; but it is much safer to put with it more bees from a hive well provided with stores. In cold, steady winters like those of Maine and Canada, bees winter better than in our changeable western winters. They cluster together, and remain in a semi-torpid state and really consume less honey than they do here, where often a warm day rouses them to new life, when they fly out, and return to eat or perish from the chill air. I have invariably noticed since I have been interested in bees, that far more colonies perish in a mild than an extreme cold winter. But here let me say that no one should risk leaving bees out of doors in the Langstroth hive, or any variety of shallow hives, in the Western States, however protected.

Bees naturally store their honey in the top of the hive and cluster in a ball below it. The heat of the colony constantly ascending, keeps the stores warm at all times; in the shallow forms of hive much of the honey is on one side or both sides of the cluster, and in cold weather is always frosty, and bees are always chilled when they go to it. Nothing is colder than sealed honey when not warmed by the heat of the bees. Winter passages or holes through every comb an inch in diameter should always be made for late fall and spring use; and before the coldest weather comes, every shallow hive should be put in the cellar or dark room, or if those are not handy the hives should be buried. I know of the loss of hundreds of colonies the two past winters in the Langstroth hive—the bees freezing or starving with plenty of honey by the side of them—and one of the most experienced bee-keepers in the United States, living in a warm climate too, writes me that though he has previously wintered his bees well out of doors, last winter he lost one-fourth of his entire number.

The Germans use a hive very much the shape and size of the Langstroth, which they call a "Lagerstock," and they claim for it many advantages, but they always winter them in a house or bury them in clumps. When this hive is put in a cellar or house, too much ventilation should be guarded against. I came near losing many colonies the first year I had it in use, by leaving them so that a current of air was passing constantly through the hive. Close the entrance below so as to admit the passage of only one bee at a time, and instead of taking the honey board off entirely, raise it and put a sixpenny nail under each corner of it. No bees can pass through this opening, while the vitiated air will all pass off and sufficient ventilation is secured without a draught. Bees in hex-hives or the various hives made of that shape can be safely wintered out of doors if they have honey enough. The entrance should be nearly closed, the honey-boxes taken off, the cap filled with corn-cobs or straw and replaced. The moisture is then absorbed, and the bad air passes off. The cap should not fit too closely. The entrance should be secured against mice. Much honey is saved by housing all bees, as experiments have fully proved. They should be put in the first very cold days, and box hives should always be inverted. The place where they are should always be perfectly dark and not much above the freezing point.—Prairie Farmer.

Poultry Yard.

Poultry Keeping.

The Poultry question is daily becoming, we hope better understood. It is no longer thought necessary to have a large estate to afford accommodation to a few fowls; nor is it true that to those who will exercise ordinary care and supervision, a small poultry yard is an ever-craving and insatiable monster that will consume a small income. There is however one point to be insisted upon. It is this: keep pure bred fowls, or cross only for a particular object. In our wanderings our love of poultry has afforded us many pleasant hours. The appearance of a hen-coop in the grass, the Spanish bird that looked perfect in the distance, or the hoarse crow of a Shanghai have emboldened us to ask to see the poultry, and we have enjoyed the intercourse which we have tried to make profitable to those to whose courtesy we have been indebted. We have frequently seen good specimens but have been surprised in some instances to be told smilingly. "Quite welcome to see them; but I doubt whether they are worth the trouble." We had hoped the day has gone by when any intelligent farmer would keep a mongrel fowl, but it has not. We have seen creatures that were originally that non-descript animal called a barn-door fowl, but they have been bred in and in until they are good for nothing. They are not pleasing to the eye, they eat as much as the most valuable birds, and from their small size they are hardly saleable when brought to market. We have sometimes asked, "why do you not keep pure fowls?" Very much the same answer is always returned. "The truth is I am getting careless about them. They pay badly. They breed fewer chickens every year, and they are so sickly I am tired of it. The carelessness as to breed and the non-introduction of fresh blood, are the causes why poultry in so many places is so little appreciated. With no other outlay than the purchase money, a breed may now be had that will be beautiful to look at, prolific, and profitable either for eggs or chickens, as may be desired.

The other day we were asked in regard to the points of fowls: "What have they to do with success in poultry-keeping? Is there anything in it except the caprice of fowl-fanciers? Why must the points be so and so?" We replied that certain points were necessary to secure certain results. In breeding poultry, a particular object is aimed at, and is tried for. Perhaps it is good size for the table. Look at the marvellous weight of some fowls in comparison to what they were formerly. Again, eggs are wanted at all seasons. How to obtain them is ascertained. The habits of birds are observed and those best suited to be egg-producers are made choice of. The breeds best adapted to meet particular wants are found out and kept. Some are purely fancy breeds, but even these can hardly be said to be without some useful point. Even from the defective birds cast from the lots deficient in some one or other point, better marketable fowls are obtained than from carelessly bred birds.

Earth for Poultry House.

The employment of dry, pulverized earth as the means of deodorizing poultry houses, appears to be worthy of more attention than it has hitherto received. The fact that from 400 to 500 fowls can by its aid be kept in one building together, with less smell than is to be found in an ordinary fowl-house, capable of accommodating a dozen chickens, is very conclusive as to its efficacy. In the building of the National Poultry Company, where this fact has been ascertained, seven or eight fowls are kept in each compartment, twelve feet by three feet, and yet there is no smell or trace of moisture.

Mr. Grevin informs us that if a much larger number are put into each run the ground becomes moist, ceases to deodorize, and the birds become at once unhealthy. It should be stated that the droppings that fall from the perches at night are removed from the runs next morning, and that the dry earth only receives the manure that falls through the day; this has its moisture absorbed so speedily by the earth that it at once becomes pulverized, mixes with the soil and ceases to smell. So powerful is the deodorizing effect of the earth that it does not require to be renewed in the runs for many weeks together.

It appears a question how far this system may or may not be extended. Is it applicable to private

poultry houses? Can it be usefully employed at poultry shows? Would it answer in places where it is requisite to keep birds in close confinement? Can it be advantageously used in our zoological gardens? The employment of earth closets as a means of deodorizing that which would otherwise become offensive sewage is well known, and we have no doubt that many of our "feathered friends" might be greatly benefitted by an extension of the system that has been so successfully inaugurated at Bromley.—London Field.

Produce of Eggs.

ONE of your London correspondents, at page 377 of your Number of the 13th inst., gives an account of the number of eggs laid by six hens in the year (I presume he means 1865), and you invite your readers, without confining it to London, to furnish you with similar tables.

I live in a tolerably large town in the country. My garden, a very small one, is forbidden ground for poultry, and I have, therefore, put up for them a small house 12 feet long, 6 feet wide, and about 7 feet high, half covered with zinc wire, the other half boarded, about 4 feet of it close, so as to make a place for their nest, roosting, &c. I have moveable frames covered with linen and painted, to put on the open wire top in case of rain or snow, and if necessary in midwinter, or otherwise, I cover the exposed sides with cloth, as necessity requires. I merely keep my fowls for their eggs, and raise no chickens.

In December last I bought one cock and three pullets of the Silver spangled Hamburgs, and three pullets of the Gold-pencilled Hamburgs. A friend gave me two additional pullets of the former kind, making eight hens. They began to lay on the 2nd of February last, and the following table shows the produce from these eight hens from that date to the 14th inst.:-

February	78	Brought forward.....	674
March	125	July	148
April	170	August	120
May	159	September	22
June	142	October	35
		November to 14th	16

Carried forward..... 674 1921
—S. G. J. in Journal of Horticulture.

PRECOCITY OF A GAME PULLET.—During the twenty years that I have been a breeder of poultry, I have not had an instance of such precocity as the one I am about to mention. On the 10th of March this year the fowl referred to was hatched. In July she showed signs that she would soon begin to lay eggs. I had her and a cockerel put into a room, out of which they have not been since then. On August 12 she began to lay, and in twenty-eight days laid twenty-three eggs. On the 12th of September I set her with ten eggs, seven of which were fruitful. She has now six fine chickens, and although not yet eight months old, she looks as maternally as her grandmother.—William Slayter, in London Field.

FATTENING FOWLS IN FRANCE.—The fattening of fowls is carried on to a great extent in France. In some localities it is the staple occupation of the females. In three weeks after being penned up, the birds should be ready for market, but they must be in a fair condition when cooped, and not more than six months old. Cockerels do not fatten so well as pullets, but if they have been kept apart, the young male birds of all the French breeds are very superior in flavour and delicacy to the Dorking, and must not be despised as table fowls. In France the food given is buckwheat ground into meal and mixed with milk. Barley and oatmeal, and also Indian corn meal, are good feeding stuffs. Great cleanliness is imperative, and to ensure this in the coop there should be no bottom, but merely rounded spars; the coop being on legs, is raised above the droppings, which must be removed daily, and sawdust sprinkled underneath. The chickens should be fed twice in the 24 hours, early and late, the feeding troughs taken away after each meal, washed and kept sweet, as fowls will not thrive if their food is sour and dirty. Milk may be given as drink; it is supposed to whiten the flesh, and certainly it assists in the fattening. Rice boiled in milk forms a very delicate food, but it is not so fat-forming as the meals before mentioned. Suet, molasses, &c., are often given to produce fat, but it is of too rank a nature to please those who are connoisseurs in poultry. Pure natural food must be best, and no other can be recommended. The feeding-house must be kept warm and quiet, the fowls themselves being quietly and carefully treated. In my own establishment fattening is never required; the fowls are fed up from the shell for exhibition, and therefore are always fit (after a fast of 12 hours) for the table, the only risk being of their becoming too fat for laying purposes and successful breeding.—Scottish Farmer.



Farming Notes from Niagara Township.

Editor of THE CANADA FARMER.

As you ask for communications on agricultural subjects, and as I have not seen anything of the sort from this township during the present season, I send you a few jottings. If you think them worth inserting, I may send some more as I gather them up. In common with most of Canada, we have suffered a good deal from the heavy rains in haying and harvest. There has been much surprise expressed at the scarcity of hands all over the country this season, but if anyone will give the subject a moment's thought, he will find that they are no scarcer than usual. If the weather had been as dry, and the crop as light on the ground as the last two or three years, there would have been help enough and to spare. It was the time lost by rain, and the extra demand for labour occasioned thereby, which caused the scarcity of help.

The hay crop was in most cases heavy here this season, but a great deal of it is worth very little. The farmers who are so far behind the times as not to take an agricultural paper never think it is haying time until they see their more progressive neighbours under way. It then takes them some time to get ready, and this year, before they got well started, the wheat was ready; spring grain was put in earlier than usual, and followed close on the wheat; the weather was wet, much time lost, and the result was a great deal of hay was cut in September, and is of a quality which I am inclined to think will not be worth much in making beef and mutton. Nor did the evil end there. They were taking off hay when they should have been sowing wheat, the weather again got very wet, the greater part of the wheat was put in late, and looks far from promising; while that which was put in early (say before the middle of September,) looks very well. Some say it is too much of it on the ground, though I confess I am unable to see how that is to hurt it.

The wheat crop in this township was a full average, although owing to the wet weather the samples were hardly so plump and fair as last year. Oats and barley, heavy crops. Some of them the worse of being so long uncut. Spring wheat not much grown, and yield rather poor. Peas not much grown; corn looked remarkably well, but the cold wet weather in August and September kept it from filling well, and frost coming early, much of it is soft. Potatoes promised well before the rot commenced, but by digging time there were not many sound ones, with exceptions in favour of light dry land and certain varieties. The Garnet Chili rotted very little, and yielded well on almost all soils. It is one of our best market sorts here. The Gleason, another Goodrich seedling, was introduced here this season for the first time, and seems to be a variety of great promise. The size and yield being large, the quality good and quite free from rot, the probability is that it will make a first-class market potatoe. Carrots and mangolds, very fine. Turnips not generally so good, though there are some fine pieces. The apple crop was splendid along the lake and river front. Pears rather uncertain. Some orchards good, others very poor. Peaches much the same. The Electoral Division show held here on the 4th of October was a complete success, both as regards the quantity and quality of the articles exhibited. The display of fruit and vegetables especially could not have been surpassed, if equalled, in the province. Some idea of it may be formed from the fact that the entries amounted to near 1,400. If another local show, with the same amount of population, can beat that, I for one would like to know it. But there is also a dark side

to the picture, and it would puzzle the most ardent admirer of internal progress to brighten it. In no part of the country where I have been are one-half of the farms cultivated in such a way as to yield more than a bare living to the occupants; and a big slice of the other half yields but a very small profit.

In taking a ride through the country, either by rail or team, the sight of a farm with green fields of clover, nice straight well ploughed lands, well kept stock, and everything neat and tidy about the premises is, I am sorry to say, the exception rather than the rule. That the amount of farm produce for export could be doubled by proper management, must be plain to any one who will take the trouble to consider it. Now what can be done to remedy this state of things, is the question.

Agricultural societies do such men no good. They will not join them nor even go to take a look at the show, if that would help them. Agricultural papers cannot reach them, as they will not subscribe for them; so that the labours of the editor, no matter how able, are entirely lost by the class who most need to be benefitted thereby.

I am inclined to think that if Parliament would vote enough money to pay for eight or ten thousand copies of THE CANADA FARMER, to be sent free to those who are either too poor or too careless to get it themselves. It would be putting the money to a better use than a good many of the appropriations they are in the habit of making. I don't believe it possible for any man to read a year's papers through without picking up some ideas that would stir him up a-bit; and every time two blades of grass are made to grow where only one grew before, the country is that much the richer. I am sure officers of agricultural societies who canvas for subscribers could easily send in the names of the parties most in need of the free copies in each district. There can be no doubt that the loss to Canada as a country by the shiftless hap-hazard system of farming so much practiced is incalculable, and it is the duty of every man who has the interest of his country at heart, to do all in his power to remedy the evil. I know it is unpleasant to write in such a strain. The other side of the picture I relish much better, but the truth must be told.

Another time, if you wish it, I may give you a description of some barnyards I know of, drawn from actual real examples, showing the bright as well as the dark side.

A WORKING FARMER.

Niagara Township, Dec. 28, 1866.

NOTE BY ED. C. F.—We are much obliged to our correspondent for his interesting practical letter, and shall be glad to hear from him again in reference to the subject he names, and also in relation to crop matters, when the growing season comes round again.

Guano and Farm Yard Manure.

To the Editor of THE CANADA FARMER:

SIR: It was not until it was too late to admit of my reply being published in your last number that I observed the letter of "J. F. C." which appeared in your issue of the 1st inst.

Your correspondent has raised a ghost for himself which he will be able to lay if he will take the trouble carefully to re-peruse my letter, the gist of which is simply as follows.—"Barn yard manure is indispensable, and to a certain extent nothing will take its place, but when this limit is reached, guano may be more profitably used. In this way the farmer will be enabled to husband his manure, and to place it on land on which no manure can be used with so much advantage."

The authorities quoted by "J. F. C." are valuable as far as they go, but they argue nothing against the merits of a manure which has been in practical use for years, and is now considered indispensable where agriculture is at least as well understood as in any other part of the world.

Actual practical experiment alone must be allowed to prove the value of guano or of any other manure. Such experiments have been going on in Great Britain for years. In 1840 there were only 20 casks of guano imported into that country; last year the imports were upwards of 150,000 tons. I think this result should be sufficiently practical and convincing as to the value of this fertilizer. These figures show that however true in theory your correspondent's statement might seem that "a system of agriculture which is not self-supporting, one that cannot keep up

the natural fertility of the farm without resorting to foreign sources, is imperfect and bad," it is practically contradicted in England and Scotland. Such a theory is unsuited to a civilised and progressive country, and extended a little further would forbid us the use of coal, tea and cotton, and confine every country to the use of such products only as are indigenous to its soil. It is rash, to say the least of it, to assert that the great guano deposits have no place among the requirements of humanity.

The following is an extract from Chambers Encyclopedia which I trust you will allow me to embody in this communication, as practically connected with this subject.

"Guano is largely used for all the cultivated crops on the farm. Being a high-priced, but concentrated and powerful fertilizer, in ordinary farm management it is applied with more economical results to some crops than to others. On grasses proper, it is sown broadcast in the early part of spring when vegetation begins to start. At this time the roots take it up, and prevent it from being washed out of the soil. Clover on the other hand, being a deep-rooted plant, is supposed by some to be best dressed with it in autumn, before vegetation is stopped for the season. The roots store up the active principles of the manure till spring, and the plants are in a far more vigorous state for the summer growth. From two to three cwts. of guano per acre is the common allowance for grasses intended to be cut for hay, but the Italian variety of ryegrass will sometimes bear a large quantity with beneficial results. Guano is rather too soluble to be applied to early autumn sown wheat. It both stimulates the plant too much before winter, and is apt to be partially washed out of the soil with the winter rains. In moist springs when there are abundance of rains to wash it in, guano forms an admirable top-dressing for winter wheat. For spring sown wheat, and other cereals, no manure has a more powerful influence. The closer it is put to seed, the better. The common dressing is from two to three cwts. to the acre for cereals. It should be kept in mind in regulating the quantity, that the stronger the land is the larger the quantity that can be applied with a prospect of yielding a profit. The same principle should be observed in its use for the turnip crop. As much as from four to six cwts. may sometimes be beneficially applied to early sown turnips on deep and able soils, while two to three cwts. when farmyard manure is given, will in general prove the most economical quantity. Guano is apt to produce too much heat when it is applied in large quantities to late sown turnips, and to prevent the formation of bulbs. In such circumstances, phosphoric manures will often yield better crops at less expense. When guano is applied to beans or potatoes, they should be also dressed with farmyard manure. Guano does not possess the power of sustaining the healthy growth of these plants on most soils without something else in addition."

Before charging me with the advocacy of guano as a substitute for barnyard manure, it should have occurred to your correspondent that such an absurd idea could scarcely have found room for its enunciation in the columns of THE CANADA FARMER.

CULTIVATOR.

December 27th, 1866.

AGRICULTURAL SOCIETIES—RIGHT TO VOTE.—In reply to the enquiry of "the Secretary of a Township Agricultural Society" on this subject, we think there can be no doubt that, according to the terms of the Act of Parliament, the Secretary and other officers of such a society have the same right to vote as the Directors.

PROPER TIME FOR SOWING SALT ON FALL WHEAT.—On th's question we must refer our Nottawa correspondent to the writer spoken of by him, who recommends the use of salt so highly, and who is so sanguine respecting its merits that he engages to "pay for the salt" in case of failure. We have ourselves no experience in the matter.

GOOD EIGHT MONTHS' OLD PIGS.—"John Amelstane" of Ernest Town, sends us word that on the 11th of December last he killed four pigs, not eight months old, that weighed respectively, 220 lbs, 295 lbs., 320 lbs., and 325 lbs., making a total of 1150 lbs. He says they were of the white Yorkshire breed, that they were weaned when six weeks old, were shut up in a pen, and fed on buckwheat meal, mixed with milk.

A HINT TO FARMERS—“Edward Walker” of Utica, C. W. writes as follows:—“The subscriber offers his experience in favour of a good breed of pigs. On the 5th day of December, 1865, I bought a small sow, of the small breed. Her weight was about 80 pounds, on the 8th day of May, 1866, she had eleven pigs, of which I took particular care, keeping one of the eleven to breed from another year. I fed the sow and ten pigs, and on the 10th of December I killed them, the sow weighing 404 pounds, and the ten pigs 2,116 pounds, making in all 2,520 pounds.

PINE SAWDUST AS MANURE—“A Farmer” writes from Uxbridge, complaining of the nuisance arising from the accumulation of sawdust from a shingle factory in the village, and wishes to know if it is of sufficient value as a manure to be worth carting on to his farm, situated only forty rods from the factory. We think it questionable whether a material so slowly yielding to decomposition could be advantageously employed alone for this purpose, but as an absorbent to take up the liquid draining from stables, or to mix with nightsoil, nothing could be better adapted to make a valuable manure.

TAN BARK AS A COVERING FOR VINES—An enquirer writing from London, wishes to know whether tan-bark employed as a winter covering for vines laid down in long boxes constructed for the purpose, is likely to prove injurious to the plants. If the tan-bark was procured from oak, we believe there would be no danger whatever; but if, as is most probable, the material used was fresh hemlock tan-bark, we should fear it might prove injurious, as there is a poisonous property in hemlock bark which would render it unsuitable for such a purpose. If, however, the hemlock tan-bark were old, and had been long exposed to the air, we believe it might be safely used.

OX-EYE DAISY—Alexander Anderson writing from Gloucester wishes to be informed of any method of extirpating a pest known as the ox-eye daisy. “A portion of my farm,” he writes, “is very stony, and this weed seems to have a strong liking for the soil, so much so that before I had any idea of its apparently never-dying nature, it had killed most of the grass where it grows. I have tried cutting down year after year without any apparent effect.”

ANS.—The ox-eye daisy makes its appearance on naturally poor or worn-out and neglected soils, and the only remedy we can suggest, where it has taken such complete possession of the land as our correspondent describes, is breaking up the sod with the plough, manuring, and seeding down afresh.

BLOODY MURRAIN AND HEAVES—“Donald McColl,” of East Aldborough, asks:—“Would you be kind enough to let me know if there is any preventive or cure for that disease called the Bloody Murrain. I also would trouble you to publish receipt of cure for a Heavey horse.”

ANS.—“Bloody Murrain” is a disease which runs a fixed and determinate course, and is therefore best treated by good nursing and careful feeding. Give easily digested food of a laxative tendency, as small quantities of boiled barley, oats, bran mash, linseed tea, &c. Small doses of Epsom salts should be given, combined with half-a-pound of molasses. If the animal becomes very weak, stimulants must be given as warm ale, one quart, in which is mixed one ounce each of gentian and ginger. Recovery is greatly expedited by a generous diet and mineral tonics, as sulphate of iron in one drachm doses twice a day.

A “heavey horse” cannot be cured that is if the disease be confirmed, as our correspondent’s language would seem to indicate. But by damping the food given to the animal, giving water only in moderate quantities, and working carefully, the symptoms may be kept under, so that the disease will not interfere much with the creature’s usefulness.

EVERGREEN ROOTS AND TILE DRAINS—“A subscriber” at Windsor sends us the following enquiry,—“would there be any danger of the roots of ever-

greens obstructing the drains when placed four feet beneath the ground, and fifty feet apart?” It is well known that the roots of trees will penetrate the soil to a much greater depth than four feet. It is quite possible, therefore, that some fibres might find their way through the joints of the drain, and ultimately become a cause of obstruction. But if the tiles were carefully laid, we should think the risk so slight at that depth and distance apart, that we should not hesitate to plant our evergreens where we wanted them. The roots of evergreens would be less likely to cause obstruction than those of many deciduous trees.

GREASE AND SWELLED LEGS IN HORSES—“A. B.” of Markham, asks:—“Can you or any of your readers of THE CANADA FARMER give me any information respecting the cause and treatment of grease in the leg of the horse? Is hand rubbing injurious? Also, I have a prize beast, when it stands in the stable twelve or fifteen hours at this season of the year, its leg is apt to swell, exercise always made it go down until this last week or ten days. Should like to prevent a thick leg if possible.”

ANS.—The causes of grease are various, and perhaps the most common cause amongst farmer’s horses is a want of cleanliness; allowing horses to stand in the stable with dirty heels, or washing the legs and not drying them thoroughly. This irritates the skin and sets up inflammation in the sebaceous glands. It may also be produced by high feeding and a want of regular exercise. Certain breeds of horses are predisposed to this disease. In treating grease, the parts should be washed with tepid water every day and immediately thoroughly dried. If the parts are very tender apply poultice of linseed meal, to which may be added a little charcoal. Occasional doses of diuretic medicine should also be given, and the heels may be dressed daily with an astringent wash, such as sulphate of lime two drachms dissolved in a pint of water.

For “swelled legs:”—Feed on bran mashes for twenty-four or thirty-six hours, then give a smart dose of purgative medicine, such as seven to eight drachms of aloes for an ordinary sized horse. Hand rub and bandage the legs, and also administer every night for a fortnight one drachm of Iodide of Potassium. The horse should have regular but moderate exercise.

The Canada Farmer.

TORONTO, UPPER CANADA, JAN. 15, 1867.

Drying and Preservation of Grain.

ONE of the most serious difficulties to contend with in storing and shipping grain arises from its tendency to heat when packed together in any considerable bulk. This difficulty is felt to a greater extent in the old country than among us; the difference being probably due to the hotter summer and harvest season of our climate, which renders the grain naturally drier, and enables the Canadian farmer to complete all the operations of harvesting and storing his crop in a much shorter time than is usually required in England. The English farmer would not venture, like the Canadian, to put away his grain, as it comes from the threshing machine, into spacious and deep bins, there to be left without being moved again, perhaps, till carried away to market, but must spread it out thinly over the granary floor, and stir it from time to time to prevent the mass heating to a degree that would seriously injure the grain. Our farmers are undoubtedly often negligent in this matter, and hurry over the processes of harvesting and threshing, without sufficient regard to the time required for allowing the grain to become thoroughly dry. It is

the buyer and shipper, however, who are much more liable to loss from packing in too great bulk this insufficiently dried grain. The liability of his stock in trade to spoil on his hands obliges him to seek the readiest and nearest market, and deprives him of the opportunity of a better trade that would be secured by a long transit to more distant parts. Very little Canadian grain could pass through the ordeal of a long voyage and a warmer climate. Yet, in view of the opening up of direct communication between our ports and the West Indies, and other places in warmer latitudes, it will become necessary for the grain merchant, if not for the farmer, to adopt some method of more thoroughly drying the grain. To effect this object, various processes have for some time been employed in England, and more recently in the United States. We condense from the *Farmer* (Scottish) the following sketch of some of these methods:—The most general and convenient, and therefore the earliest adopted mode, is that known under the name of kiln drying. The grain is spread on a series of perforated metal plates, through which the heated air from a fire or furnace below passes up, and makes its way through the superincumbent grain. The objection to this method is the irregular drying that results—those portions of the grain which touch the plates being subject to a much greater heat than the rest. To obviate this objection, various contrivances have been employed. One of these resembles a plan in use among millers for carrying forward grain along an inclined or horizontal trough, by means of a screw revolving within it. For the purpose of drying, a series of tubes is substituted for the open trough, and within these, by similar revolving screws, the grain is pushed or carried forward from one end to the other. The tubes, of course, being heated, the grain is thus more or less thoroughly dried. But this plan, though a great advance on the kiln-drying method, was not found to answer so well as might have been expected; for although a greater number of individual grains were by the motion of the screws brought into contact with heated surfaces; yet the grains were simply pushed along, and not turned over. “The difficulty was got over by a very simple and ingenious appliance, the invention of Messrs. Robert Davison and James S. Horrocks, this being simply the addition of a rib of metal between each convolution of the screw, which, as the screw revolved, came in contact with the grain, lifted it up and turned it over.” A still better plan than either of the foregoing is now very extensively adopted. This consists in forcing a blast of heated air, by means of a revolving fan, into the chamber in which the grain is spread out. Mr. Robert Davison is the inventor of one contrivance. Air is forced through a series of bent tubes placed within a furnace, and thus heated, passes through the grain to be dried. A somewhat simpler plan, on the same principle of forcing a blast of heated air through the grain, has been in operation in the United States. This method is found to secure the desired object, of thoroughly and evenly drying each individual grain. After being subjected to this process, the grain is wonderfully improved for all purposes, both of transportation and milling. It will not be long, we venture to predict, before some of our enterprising grain merchants in this country, who wish to carry on the trade to the greatest advantage, will introduce the system among ourselves.

Earth versus Water.

FOR THE UTILIZATION OF NIGHT-SOIL, &c.

WE have already noticed in these columns the method of deodorizing and utilizing night-soil and other offensive matters, which has been introduced in England by the Rev. Henry Monle, of Dorchester, Dorset. In order that our readers may become more familiar with what we cannot help regarding as the simplest, most feasible, and generally practicable mode of dealing with a “social evil,” we give here-

with the substance of two lectures by Mr. Moule himself, in which that gentleman explains and argues for the plan of which he is the author.

As the evils of the water system of sewage become daily more manifest, especially in the pollution of rivers, and in the increased burden of rates thrown by expensive public works on the industrial classes, the prejudice against the mode of removal of excrementitious and other offensive matters by means of DRY EARTH seems greatly to abate. At all events, the inquiries on the subject are so frequent as to compel me to undertake this fuller and more practical statement than I have hitherto given, of the advantages of this system and of its principles; of the application of those principles in individual cases; and of the feasibility of its general adoption in villages and towns. And I do this now, not merely for the sake of England, but of other countries; amongst which, those perhaps will derive from the adoption of the system the greatest advantage, which are situated either within the tropics, or in the more northerly latitudes. It has already been introduced into all parts of British India and the Straits settlements. Many high class natives in the Punjab have been induced to adopt it; and the able Inspector-General of Gaols in Bengal, who led to this, by bringing to the notice of the Sanitary Committee in Calcutta a paper read by me before the Society of Arts in 1863, has together with other medical officers, expressed his decided opinion that the benefits already apparent are such as to render it impossible to over-estimate the advantages likely to arise to India, both as to comfort, health, and economy, through the adoption of this system.

I.—THE ADVANTAGES OF THE DRY EARTH SYSTEM.

The only other system with which this has to compete is that for removing excrementitious and other offensive matter by means of water. The advantages of the DRY EARTH system, as compared with this, are as follows:—

1. In a sanitary point of view—the evil of foul and noxious smells and gases is not merely removed from the individual house into the public sewer, or brook, or stream, or cesspool, there to ferment and become far more injurious to others, and perhaps to the inhabitants of that very house; it is actually destroyed. Injurious exhalations are prevented; fermentation and the escape of sulphuretted hydrogen are prevented; and the mixture of earth and excrement, unlike the mixture of water and excrement, is removed from the premises without the possibility of injury either to the occupiers of those premises or to the public.

2. The DRY EARTH system is admissible into sick rooms and into the wards of hospitals; and through its admission one of the greatest miseries of human life, the foul smells of the sick room, and one of the most frequent means of communicating infection, may be entirely checked. Again, public urinals at railway stations and in our streets, instead of being the greatest nuisances, may be rendered completely inodorous. And other public conveniences, to the immense relief of human nature, may, by this means, be established, not only without any offence to the neighbourhood, but with pecuniary profits to the parties establishing and maintaining them.

Lastly, while this system obviates the contamination of well-water, quite as effectually as the water system can; it does not, as the water system invariably does, by expensive works entailing heavy rates and increased burden of rent, promote the over-crowding of houses and rooms, and the increase in this direction of the causes of sickness.

This points to the advantages of the DRY EARTH system in an economical point of view. No expensive public works are required for its adoption. A population of 7000 people would require, for the water system, an outlay on such works of at least £7000, to say nothing of the cost of the water works. The private cost would be, I suppose, equal to this; and there is the lasting expense of water supply and repairs. The private works for such a population adopting the dry earth system, could scarcely exceed the cost of £7000,—the public works would be nothing—and the repairs ought to be almost nothing. Indeed, I know a case—the case of a school of seventy boys—in which the earth is supplied and removed by a farmer, who has agreed to give 10s. a month for the produce. This is little enough—still even this is a vast advantage over the water system. By the water system, again, the whole, or very nearly the whole,

of this valuable source of manure for our farms is thrown away and wasted. By the dry earth system the whole might be saved, and utilized to such an extent that it shall be profitable, not only to the farmers who use it, but to the towns from whence it is procured.

II.—THE PRINCIPLES OF THE DRY EARTH SYSTEM.

These are, first, the marvellous capability of dry and silted earth, or clayey subsoil, for deodorisation. This is such, that two pounds weight of such earth, or three half-pints, is amply sufficient for one use of a closet. And if with this quantity the excreta covered by it be intimately mixed, it may in a very short time be dried without offence by artificial heat. And the mass, when dried thus, or by natural heat, may be used again and again for the same purpose. I have tried it with success ten times.

The second principle is in the immediate application of this deodorising power to the matter to be deodorised. To meet this evil we must take it in detail, and we must take it at once. Little real good, if not much harm, will ever be done by traps and ventilators and gullyholes, and deodorising processes for vast volumes of sewage water. The evil must be cut off at its source. At this point it can be cut off, and converted into a vast benefit.

The third principle, which has only recently, however, been observed, and which so increases the feasibility of the introduction of this system into large towns, is this: if the deposits fall into a vault, 3 feet or 4 feet deep, the superincumbent weight of the repeated addition of two pounds of earth, and an occasional act of levelling with a rake or common scraper, are sufficient for the mixing. So that within six weeks from the deposits falling, the excreta and any vegetable matter disappear; and the mass looks and smells like fresh earth. And in that vault, without the emission of any offensive smell, it may continue three, four, or six months.

III.—THE APPLICATION OF THE PRINCIPLES OF THE DRY EARTH SYSTEM TO INDIVIDUAL CASES.

In the case of the ordinary privy, whether attached to a cottage or larger dwelling house, if there be difficulty in removing it from its present site, let the present vault be emptied and cleansed, and filled up to within three or four feet of the floor, and let the bottom be paved or made water-tight by cement, or by coal ashes and tar. Let there be an opening at the back for removal, as often as necessary, of the deposit of earth and soil. Let earth be collected in sufficient quantity in dry weather; and if there be not a covered shed to keep it in, let it be placed in a portion of the coal-hole, boarded off. Let it be sifted for use through a sieve with a mesh of one-fourth of an inch. And for a family of ordinary number, if the earth so placed be not sufficiently dry, let the requisite quantity be placed either in the oven or at night under the kitchen fire.

Simple pieces of mechanism have been invented and patented, which are set in motion either by lifting a handle as in the ordinary water closet, or by a self-acting seat. This mechanism is alike adapted to fixed closets or to commodes. The earth is contained in a reservoir at the back of the seat. This reservoir is furnished with a hopper, one kind of which on being lifted fills itself, and then falling by its own weight shoots the sifted earth so as to cover the deposit. In the case of the commode, there is placed beneath the seat a galvanised iron pail, which receives the deposit and the earth, and which is removed when necessary without the slightest offence. For the removal of the contents of these pails from upstairs wards of hospitals or sick rooms, an arrangement may easily be made of this kind: in some convenient part of the building, outside (or even inside) the walls, a shaft 12 inches in diameter may be fixed almost close to the wall, at the bottom of which should be a vault or a truck, into which through the shaft the contents might be thrown, and, if a truck were used, immediately removed. This shaft, made either of earthenware or of cast iron, glazed inside, may be used also in immediate connection with the seat of the upstairs closet, and if furnished at the lower end with a moveable bottom, will greatly facilitate the removal of the deposit, and at the same time supersede in such cases the use of the vault. It may be indeed a vault in itself. And from the space being more confined than that of the vault, the mixing and the decomposition will be more rapid. Its upper end will be almost close under the pan of the closet, and its lower end be at such a height from the ground as to admit beneath, according to circumstances, a wheelbarrow or a cart. When either of these is placed beneath, and the bottom moved or loosened, the contents of a week

or a month, or two months, would fall by their own weight, and the emptying be the work of two or three minutes. This shaft may be placed within the outer walls of a house, descending into a chamber to be approached through a kind of cellar-door in the basement.

In the use of the vault as a receptacle for the contents of the closet descending through this shaft, there would, it is true, be one advantage over the shaft as itself constituting the vault. It is this, that in such cases the earth-box and the hopper may be fixed at the bottom of the shaft, and the latter worked by a wire from the uppermost story of the house; and the necessity obviated of carrying the earth upstairs. In that case two men can take out and remove the contents of a vault of a family of five persons, accumulated during six months, in less than an hour.

I must not omit to mention here the application of the DRY EARTH principle to URINALS, especially for schools and railway stations, and other public places. The contrivance is simply a pit or vault four or five feet wide, of any length required, and of that depth which will admit of easiest removal, not less than three feet. Over 12 or 18 inches of the width of this pit or vault, there is an iron grating, on which those using it stand, this grating being as wide as may be without allowing the foot to get into it. From the inner end of this grating rises an iron railing. Of course the blocking off into compartments would be the same as where water is used. It must be sheltered from rain. If the urine be thus kept from falling on stone, or slate, or wood, and fall entirely on the earth, and if this earth be well supplied, and not allowed to become very wet, all offensive smell is prevented, and a valuable manure manufactured. There are public urinals frequented by 2000 persons a day. Is it too much to say that the manure saved from them by the use of earth would be worth from £2 to £3 a day? A week or two ago I was requested to look at the privies and urinal of a national school of 400 children. The offensiveness was so great I could not bear to stand within ten yards of them. Now these places may, by the use of dry earth, be made perfectly inoffensive; and I am myself disposed to estimate the value of the manure that is now wasted, but which then would be saved, at certainly not less than 5s. a day.

IV.—THE INTRODUCTION OF THE DRY EARTH SYSTEM INTO TOWNS.

For some time after my discovery of the principles stated in a former chapter, and of their general applicability, I was quite disposed to yield to the difficulties which seemed to stand in the way of their application to towns, and to confine my attention exclusively to detached houses, and some large institutions and villages. But every year has helped to remove those difficulties. The first of those was the vast amount of earth that seemed to be requisite. But gradually we have reached this point, that for the removal of excrementitious matter alone, an average of 4 lb. a day for one person will be sufficient. This would be $\frac{1}{2}$ a cwt. a fortnight, or 1 ton for sixteen weeks, or $\frac{3}{4}$ tons a year. What family thinks of the trouble of taking in so much coal every year? The removal need not be more frequent, nor would it require much more labour. But then this labour would not devolve on the family itself.

In order to carry out the system in a town, a company must be formed, which will be in fact a manure company, and which will find it to its advantage to prepare and supply the earth, and remove it at least without any expense to the householders. For this company drying sheds and warehouses will be requisite, and of course a staff of men with horses and carts. Such a company has been projected for Sheffield. But at Lancaster, W. Garnett, Esq., of Quernmore Park, has undertaken an experimental work at his own risk and cost, and after three months reports most favourably of his progress.

By such a company as I have mentioned, the closets, where required, might be supplied at a moderate rent, to be paid by the householders—an arrangement which might ensure, in many cases, their better preservation. And if to the value of the manure arising from this source should be added that from the general cleansing of the town and of public places,—the street-sweeping, the soot, the refuse of slaughter-houses, &c.,—I feel sure that from 6s. 8d. to 10s. a head would rather be too low than too high an estimate of the whole value.

But even supposing for a moment that this should be too high an estimate, and that a town council or a board of health undertaking the work should do no more than pay its expenses, the town is cleansed for nothing, and thoroughly cleansed, instead of being heavily burdened with rates for only a very imperfect cleansing.

Report of the (U. S.) Commission of Agriculture.

Hon. Isaac Newton, commissioner of agriculture, in the United States, has made his fifth annual report to the President. A considerable portion of the report is occupied with the subject of the depressed condition of agriculture in the Southern States. Among the best means recommended as a remedy for the evil, is the introduction of a more varied system of agriculture, in place of the plan hitherto pursued of depending almost entirely upon a single crop. "As an illustration," (we quote from a notice of the above report in the *Prairie Farmer*) "it is stated that the cotton crop of Georgia, almost the sole Agricultural product, amounted only to \$30,000,000 in 1860, while the butter of New York, one of the several products of the dairy, amounted to \$60,000,000 in 1865; and yet New York had but 370,914 farm laborers, while Georgia had 316,478. To make the contrast still more striking, the other products of the New York dairy, together with the ordinary farm crops, are put down at \$205,000,000.

"A very encouraging picture is given of the condition of agriculture in the Northern States. At no previous time has it been more flourishing. High prices, accessible markets, and crops of average abundance have insured good profit; and as a result mortgages have been paid, farm buildings erected, permanent improvements accomplished, farm implements and machinery obtained, and in thousands of instances, a surplus invested in government funds. The operations of the experimental farm are considered interesting and suggestive, and valuable results are anticipated. Fifty-five varieties of winter wheat have been sown, of which six are regarded as worthy of mention. The Premium White Mediterranean, sown October 9, was harvested June 29, and produced forty-eight bushels per acre. The Red Bearded Mediterranean yielded nearly at the same rate. Both proved of fine quality, and are recommended for general cultivation. The Tappahannock and Russian 'Scheffel' wheats succeeded admirably.

"Sixty-seven varieties of Spring wheat were sown, sixteen of rye, seventeen of oats, and seventy of peas. Of a large number of varieties of potatoes, both from home and abroad, three native seedlings, the Orono, Samaritan and Early Goodrich, proved the best.

"The production of wheat in the Northern States for 1866 is estimated at 143,000,000 bushels, and of corn 880,000,000 bushels. The number of horses for the same States is put down at 3,740,933, mules, 247,553, cattle 12,840,721, sheep 28,747,279, hogs 13,075,887, the estimated value of the whole being \$1,102,884,344."

The Schrader Brome Grass.

A new fodder plant has lately been introduced from the United States into France, where it is attracting considerable attention. The name of this grass is "Schrader Brome;" it is a native chiefly of North Carolina, and has been for some time known to botanists, but its value to the Agriculturist has only recently been brought into notice, by M. Alphonse Lavallee, who read a paper on the subject before the Imperial and Central Society of Agriculture of France, at their sitting on the 5th of February last.—This gentleman has experimented on the grass for six successive years, during which, he says, he has not been able to detect any deterioration in its valuable qualities. The grass is a perennial of hardy constitution, early maturity, and wonderful productiveness. It comes in, and is fit to be cut for fodder by the end of April, according to the experiments of M. Lavallee, so that it is considerably earlier than rye, and four successive crops may be secured in one year. These four crops yielded an aggregate of 14½ tons to the acre for the year's produce. It seems to flourish well even upon poor soil, and may be expected, therefore, to yield still better results on richer ground. It may be used as green feed, or made into hay, and in either state proves superior to any other kind of fodder, especially for milch cows. Of the

comparative value of the plant for cows, the following experiment was made:—A certain number were fed on lucern for a month, the milk exactly measured, and the quantity of cream per cent, ascertained by the galactometer; three succeeding days being taken, during which the quantity was precisely the same. The same cows were then fed with the brome grass, and the first day there was an increase of 18 per cent. of milk, which on the following day was reduced to 10 per cent. at which it stood for fifteen days. At the end of that time they were again fed with lucern, and in forty-eight hours after, the quantity of milk was again reduced 10 per cent., or to the same measure as before. It is proper to state that the weight of each food given to the cows was exactly the same. There was no material difference in the quantity of cream; but the density, and consequently the value of the milk, was much greater, as was acknowledged by the dairy maids employed in making butter and cheese. The former was much firmer, kept better, and had a finer flavour, although made in very warm weather.

The growth of the plant is very rapid; it comes up quickly, forming large tufts standing separate from each other, but filling up every vacant space, and destroying every other plant. This latter property is one of its peculiar merits, as no weeds will thrive under its culture.

Improved Barley Screen.

Among Barley as it comes from the threshing-machine there is always a large percentage of bruised and broken grains, and if these could only be sifted out, the quality of the sample would be greatly improved and enhanced in value. By a most ingenious but yet simple device, Mr. Boby of Bury St. Edmunds, (England,) has succeeded in getting rid of these damaged kernels. His plan is to make the whole grains pass over a sloping, reciprocating screen of perforated iron plate, while at the same time, the broken or half grains drop through. The secret consists in bending the plate so as to form it like a succession of steps. Thus the grains in tumbling over each ledge fall endwise or perpendicularly upon the screen, and passing through the holes that their length would otherwise cause them to travel over.

Messrs. Ransome & Sims of Ipswich accomplish a similar result by a new machine which they have recently brought out. The barley passes over the face of a sloping screen of flat perforated plate, and at the same time under a succession of vulcanized indiarubber rollers, placed across it; and the rubbing action not only upturns the grains so that the broken or half grains can drop through the small holes, but also clears the holes of wedged grains. With a number of fine screens one below another, this machine effects some half-dozen different separations of dust, smut, chaff, light corn, barley, and oats from wheat, tares from rye, and so on, in the most perfect manner.

Drainage and Sewage.

Increasing attention is yearly paid in England and many parts of the continent to the effectual and innoxious drainage of large cities. An important improvement has recently been introduced by which solid and liquid portions of the sewage are separated, by means of a filter provided for the purpose. The liquid portion is thus rendered innoxious, and may be allowed to empty itself without detriment into the nearest river or watercourse, while the solid part retaining all the important ingredients of the richest manure is collected in a filtering apparatus, which is surrounded by a deodorising agent and may be removed, and the contents utilized on the neighbouring farms. The inventor of this system, Mr. Austin, thus sums up the advantages which it secures:—

"The accomplishment of the process of filtration; the sewerage having passed into the filters before the solid parts are decomposed. The preservation and consequent possibility of utilisation of the greater portion of the fertilising ingredients. The facility afforded for the innoxious transport of the solid sewage, which, when it is taken from the drain, is confined in a portable vessel, and surrounded by a deodorising medium. The disposal of the fluid portion, which, being rendered innoxious, may be allowed at once to escape into the nearest waterway, or used in any situation for purposes of irrigation; thus dispensing with the construction of large and costly conduits for conveying the fluid to distant outlets. The comparative economy of first construction in every part of the system. The facility of adapting this to any other existing system of drainage."

Reappearance of Rinderpest in England.

We regret to find that the hopes entertained with regard to the total suppression of the Cattle Plague in England, have proved premature, and that not only has it broken out anew, but there are serious apprehensions that it will again prove troublesome. The *London Times* of Dec. 13th says:

Our old friend (enemy?) the Cattle Plague is once more, we deeply regret to say, assuming an unwelcome prominence in our columns. The experience of all other countries warranted the Commission in their expectation that a return of the disease, more or less serious, might be expected in the winter months. The minute particles by which contagion is communicated, when placed in sheltered situations and protected from sun and rain, retain their deleterious qualities for a time incredibly long. When the cattle come to be placed close together in sheds, the disease must be expected to appear in its original malignity, and requires just as much care and anxious attention as when it first appeared among us. The Cattle Plague has reappeared in Lancashire, Yorkshire, and Cheshire, and we must not be surprised if we find it revisiting other localities in which it has raged and been apparently extinguished. The same intelligence reaches us from Eastern Europe. In the countries adjacent to Russia, which are now within four or five days by railway of our shores, a considerable increase of the disease is announced.

The *Times* thinks that the stringent regulations about the holding of fairs and shows have been relaxed too soon, and that it is better to err on the side of extreme caution, than on that of presumptuous and hasty confidence.

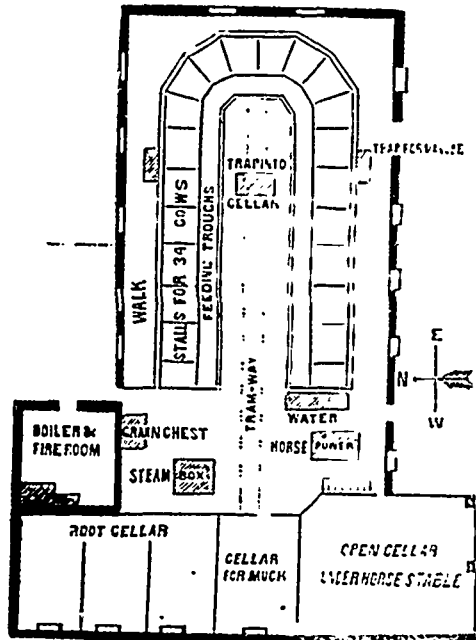
BIRMINGHAM POULTRY SHOW—IMPORTANT CHANGE.—At the recent Poultry Show, held in Birmingham a change which seems to have given great satisfaction was introduced in the mode of exhibiting poultry:—The old pen of cock and three hens has disappeared, to make room for rows of single cocks and pairs of hens and pullets. By this means the convenience of purchasers has been greatly advanced, as they can now procure only what they want, and are relieved of the embarrassing necessity of purchasing, at greatly increased expense, the whole pen, which have most probably been selected from one family, and consist of the most unfavourable of all relationships for breeding—a brother and sisters,—while the exhibitors have also been relieved of a frequent difficulty in making up their pens consequent on the necessity of matching birds.

COMING STOCK SALES.—We call attention to two sales of thorough bred stock, of which notice appears among our advertisements. The first on the 21th., of the present month, at Mr. Miller's of Markham, by Mr. S. Beattie, who offers for sale by auction his well known thorough-bred horse "Promised Land," a Short Horn bull, and other stock which we believe to be of superior excellence. The other sale is advertised for the 30th., of the month, by Mr. Snell, of Edmonton, and will afford our more enterprising farmers the opportunity of purchasing some of the finest animals in the province. Short-Horn and Galloway cattle, Leicester sheep, Cheshire and Berkshire hogs are comprised in the catalogue.

The Dairy.

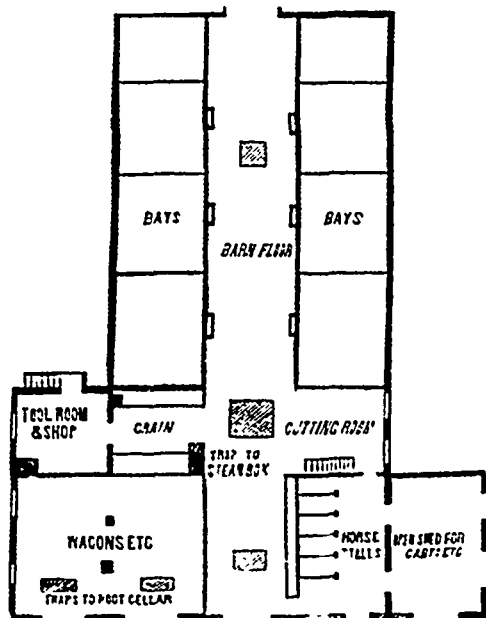
The "Edgewood" Milk Barn.

In our last issue we gave the pith of some suggestions about "Milk Farming," contributed by Donald G. Mitchell to the *Annual Register of Rural Affairs* for 1867. We now proceed to lay before our readers a description of the Milk Barn planned by Mr. Mitchell for his own use on his farm of "Edgewood. Convenient buildings are fully half the battle won in taking care of stock, or carrying forward any operations, agricultural, mechanical, or commercial, that



BASEMENT AND CELLARS OF MILK BARN.

require to be attended to under a roof and within walls. It is often with the farmer, when prepared to build, a matter of no small difficulty to plan his proposed structure. He knows what accommodation he wants, but how to get it in the most economical and convenient manner, "aye there's the rub." What suits one man will not be entirely appropriate



MAIN FLOOR

for another, but often, by seeing a plan actually drawn, it is comparatively easy to modify it, so as to suit one's own purposes. It is with this view that we lay before our readers Mr. Mitchell's plans, not at all supposing that they will exactly suit any one who may be led to examine them, still less that they will

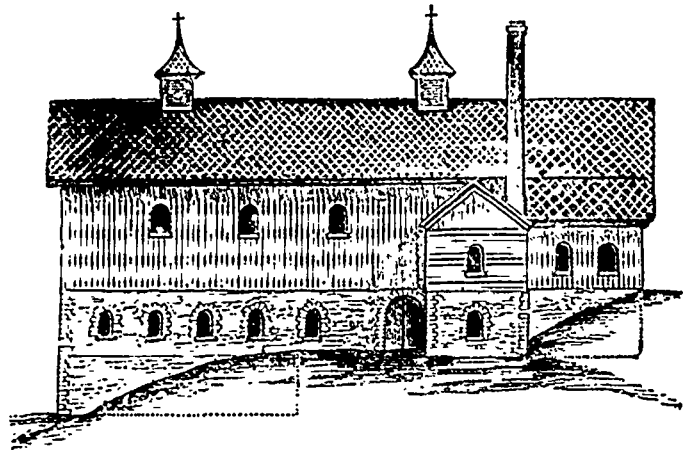
please everybody, but in the belief that they may be useful as a study, and suggestive as an example.

This barn is adapted for a liberal use of roots in winter, and also for the system of soiling in summer. Of the roots which a milk farmer may grow to a profit, Mr. Mitchell ranks the mangel wurzel first, the carrot next, and the swede turnip third. For a dairy farm where winter butter is made, carrots and parsnips are highly recommended, as fitted to give both richness and colour to the butter. The mangel wurzel is more succulent, more easily grown, and as easily harvested as a turnip crop. The great objection to the carrot is the expense and trouble of harvesting it. The objection to turnips because of their giving an unpleasant flavour to the milk, Mr. Mitchell thinks may be to a considerable extent, if not wholly met, by certain simple precautions. A little sprinkling of nitre in the cans or pans will destroy the turnip taste; or what is better, if the cows are brought to this diet gradually at first, by giving a few slices covered with bran, and afterwards increasing the allowance by slow degrees, there will be no disagreeable flavour about the milk. For saving of trouble in feeding, it is best to store the roots in the barn cellar, though they will keep well enough pitted in the field, arranged in pyramidal heaps, covered with a foot of straw, and a foot of earth over the straw, with due regard to drainage. In the cellar carrots keep their natural condition better than turnips or parsnips,—better perhaps than any root that is grown. All roots ought if possible to be harvested in sunny, dry weather, thrown in heaps, and well shaken as they are thrown, and a final shake given them when they go into the cart for hauling. If they can be dumped down the cellar trap, they will be still further shaken, and all this will tend to free them from dirt, a very desirable matter, for to wash roots daily for feeding is a troublesome, expensive thing, and there is no possible, or imaginable profit in feeding mud. Both a turnip cutter and a steaming apparatus should be provided.

In regard to summer feeding, Mr. Mitchell advocates the system of soiling in part, and has kept this in view in his barn arrangements. Nothing can be more favourable to a full flow of milk than the juices of the early spring grass, upon which we can turn the cows to graze in the month of May. As a preparation for this succulent diet, plentiful rations of carrot or mangel wurzel should be given during the latter part of April. With seasonable and copious May showers, the pasturage maintains its luxuriance up to the middle of June. At this season there is apt to be a falling away of the pasture supply, and if grazing only be depended on, there is no help to be had until the earliest mown meadows can be resorted to. In August there is often another time of scant pasturage, and this together with the hot weather then usually prevalent, tells fearfully upon the yield of milk. How are the cows to be kept up to the mark at these times? Doses of meal or bran may help the matter somewhat, but the surest and most effectual plan is to grow green forage crops, and feed these to the milch cows under the cool shelter of the stable. This is soiling, and is the true method for every milk-farmer to adopt. Of the crops that may be grown for this purpose, winter rye comes in the earliest; next clover, or what is better, if it can be grown, lucerne; then oats or spring-sown barley, and afterwards Indian corn drilled in close rows, or sown broadcast. We wonder Mr. Mitchell says nothing of vetches. Sown with a small proportion of oats to help to keep them upright, they furnish an excellent green fodder. Of Indian corn, Mr.

Mitchell prefers to sow the long kernalled Maryland variety, as giving greater breadth of leaf, greater height, and more rapid development, though some prefer sowing the sweet corn, as furnishing more saccharine qualities in the stalk. We have grown the large Southern corn as a soiling crop in the vicinage of Guelph, and find it answer admirably. Until frost comes, this green crop may be sown at intervals, and when it does come, the carrot and turnip tops will follow suit and prepare the way for the roots themselves.

Mr. Mitchell's barn plan is provided with all appliances necessary for the system of winter and summer feeding, of which we have given a brief account, and nothing more will be necessary in addition to the engravings—which speak for themselves—except a few explanations, and these will be best given in the author's own words: "The boiler and fire-room, it



MANURE CELLAR. NORTH ELEVATION. ROOT CELLAR.

will be observed, are entered only by an exterior door, and steam is conveyed to the cooking tank through the wall. A manure cellar is under the eastern half of the stable, extending from a point indicated by the dotted lines on either side. A tramway is provided, leading down the centre of the stable, for the distribution of food, and for transport of muck from the cellar, partitioned from the root cellar for that purpose. The tramway car should be furnished with a moveable box for cooked food, another for muck, and a third and larger open frame for the reception of green fodder dropped through from the barn floor above.

Water should pass in a trough—indicated by the two lines within the feeding-boxes—completely



WESTERN ELEVATION.

round the stalls. This trough should be covered to exclude dirt, and provided with traps against every manger, which traps the cows will easily learn to lift with their noses. The gutter for liquid manure may be made to discharge at any point into the cellar below. "Stanchions," as fixtures for cows, are most economical of space; but I prefer the ring and chain fastenings; these allow of an unobstructed view of the animal, from either front or rear, and show I think a little more of humanity in the herdsman. The upper floor is simply arranged, and will explain itself, when examined in connection with the basement and elevations. The farther trap upon

the floor is for the discharge of chaff, or muck—if desired—directly through the stable to the cellar below; on either side, under each bay are indicated openings, through which the hay when necessary can be dropped immediately into the feeding trough; the two farthest to the East and the two westernmost, serve also as ventilators being joined at the peak, for connection with the exterior ventilators shown above the roof. An exterior connection with the workshop, above the boiler room, is not shown in the elevation, but indicated in the ground plan; it would be better, however, for the stairs to descend on the north side. The western front may be made much more effective architecturally if desired. I have consulted simplicity and economy only, in the plans. The space of the right of the horse stable, (marked "open shed" in the ground front—and by error represented with door in the elevation,) might if desired—by glazing its southern part, be converted into an admirable poultry house, communicating with the open cellar below, or the cellar itself with its southwestern frontage would serve well for such a purpose, while a portion of the space above could be reserved for nests or roosts. If a bull is kept—and unless a near one is available, such animal should be kept—quarters might be provided for him in the horse-stable, or in the cellar under the southern wing. There is no provision for young cattle, as none are supposed to be reared. Indeed, the plan has been arranged simply in view of the ordinary wants of a milk farmer. I by no means present it as a model plan, but as one offering a great many conveniences—securing great economy of labour—great compactness, and opportunity for full and free examination of all the animals."

Cheese Factory Movements in Lobo.

We are glad to learn from the *London Advertiser*, that a number of the farmers in the township of Lobo are thoroughly stirred up in regard to the business of cheese-making on the factory system, and that already, considerable progress has been made toward stocking that part of the country with these important establishments. The following communication from a correspondent of the above-named journal, will be read with much interest and satisfaction by all who take an interest in the extension and prosperity of the dairy business:

'Last spring our enterprising citizen, J. W. Scott, proposed to start a cheese factory, and in order to bring the matter before the people and ascertain what amount of support he could get, he put up notices and called a meeting in his school-house, which a few of his neighbors attended, more from curiosity than anything else. After Mr. Scott had presented the matter to this meeting in its most favorable aspect, he went round to see what support he could get, and nineteen gallons of milk per day was all he could get promised him, which would be the amount obtained from about six cows. However, to his praise be it spoken, nothing daunted, Mr. Scott concluded to go on with his factory at least for one year, by way of experiment, and, when he started his factory on the first of May last, it was with the milk of thirty cows, principally his own. The cheese factory business with us at that time was so little understood that Mr. Scott became the butt of ridicule for engaging in such an enterprise. The boys gave him the nick-name of Cheese Factory; and some of his neighbors declared that rather than give their milk to Scott to make money out of them, they would feed it to their hogs. But the scheme worked well, and before two months had passed those very individuals who ridiculed the enterprise at its outset, went off and purchased more cows, and were found among Mr. Scott's best supporters; so that in a short time he had the milk of one hundred cows to manufacture from. This was not the only way in which the change of opinion showed itself. The report spread like wildfire, "Scott and those fellows who are furnishing milk for his factory are making money hand over fist," and in less than two months Tom, Dick and Harry, all over the township, were talking about starting cheese factories. That this would ruin the business both for himself and every one else Mr. Scott saw at a glance, and as Mr. William Charlton one of his supporters, was talking of start-

ing a factory in what he considered his territory, he thought it better for all parties to call a meeting and explain the matter fully to the people, and also to consider at what distances apart cheese factories ought to be located in order to make the business profitable to all. For this purpose Mr. Scott and Mr. Charlton called a meeting in the Temperance Hall, Duncrief, on Wednesday evening, 19th. Upon motion Mr. Roger Hedley was requested to take the chair and Mr. A. C. Attwood to act as secretary. Mr. Scott was called upon first to address the meeting, and in doing so he read the report of his factory for the season, which is as follows:

Average number of cows, 84; pounds of milk received, 293,250; pounds of cheese manufactured, 29,880; average number of pounds of cheese per cow, 355 5-7; average value of each cow's milk for the season, \$32.12; of his own cows, rating their milk at nine cents per gallon, \$38.55.

It must be borne in mind that the cheese making season is considered as lasting six months, so that when Mr. Scott struck an average he calculated for the full six months, though a large number of his cows did not furnish milk for more than five months. Had they furnished it for the full six months the averages would have been much greater. As a good many of Mr. Scott's supporters were present, he requested them to state how they were satisfied with him, and how the business payed them, when the following gentlemen, Messrs. E. Charlton, J. Scott, T. Douglas, J. Barnes, and G. Stonehouse, remarked that furnishing milk had proved more remunerative to them than they had expected, and that they were satisfied that there was no way on a farm of making money so rapidly as by furnishing milk to a cheese factory. Mr. Scott then stated to the meeting that in order to be able to conduct the business profitably, he should have at least three miles of undisputed territory on each side, from the fact that a factory required two set of bands: one for the day, the other for the night, and that the hands required to work up the milk of two hundred cows, could as well work up that of five hundred; and, again, that a person conducting a large factory could afford to hire help, and give his whole time to the management of the business, and thereby make a better article; and could sell it at a better advantage, since a large amount could be disposed of together. Again, he showed that milk could be drawn three miles at a cheaper rate than one mile; for, drawing a load of milk to a factory is something like rolling a snow ball, the farther it goes, the larger it becomes, and, as a matter of course, pays for the drawing better.

Mr. Donald Johnson, who is going to establish a factory near Lobo village, also made a few remarks. He fully concurred with Mr. Scott that cheese factories should be at least six miles apart. In fact the arguments he advanced could not be easily confuted. It was then moved by Mr. Young, P.M. of Lobo village, seconded by Mr. T. Caverhill, J.P., and carried, that in the opinion of this meeting cheese factories could not be profitably managed when nearer to each other than six miles. At this stage of the meeting the competitors began to feel rather cheery, and indeed for a time assumed quite a belligerent aspect towards each other. Had it not been that one was a Quaker and the other a Methodist, and both sensible men, it is hard to say how the matter would have ended. It is understood, however, that Mr. Charlton has consented to withdraw from the contest, and leave Mr. Scott in undisputed possession of the field.

With reference to the preparations we are making for another season, we expect to have five factories in full blast by the first of May next; and, if so, the cheese factory field in Lobo will be fully occupied. As before stated, Mr. Donald Johnston, near Lobo village, is making arrangements for a good spread, and judging from the appearance of the man and his locality, he will prove successful. Mr. James Zaritz is also making extensive preparations. He lives on the 8th concession, near our celebrated oil well. We hope the oil will not injure the quality of his cheese, and have no doubt but that his Quaker friends will come to the conclusion that cheese factories are more remunerative than oil wells. Mr. J. W. Scott is also preparing to enlarge his establishment. He proposes to spend \$800 or \$1,000 on buildings, etc., and we have no doubt he will receive good support. We also understand that in our own superannuated little town, Komoka, a number of our modern Trojans have got cheese on the brain; and propose to lay aside the habiliments of war, and turn their drill shed into a cheese factory.

A factory is also to be started by Mr. T. B. Scott on the town line between London and Lobo, five miles north of Melrose, and as your correspondent is more particularly connected with this factory than any other, and as perhaps it will be interesting to some of your readers in other townships to know how a cheese factory is managed, I will take the liberty of explaining how Mr. Scott proposes to conduct his. In the first place, he intends to erect a building of

dimensions suitable for working up the milk of several hundred cows, and furnish all the vats, hoops, presses, &c.; but as he has had no experience in cheese-making himself, he proposes to leave the whole affair for one year or a term of years to some foreman of a thorough good cheese factory from Oxford. He also proposes to call a meeting in the early part of this winter of those who intend to support the factory, and to have the meeting appoint a chairman, secretary and treasurer for the company, also a board of directors, whose duty it shall be to provide for the driving of the milk to the factory and the cheese to market. Mr. T. B. Scott's factory will be ~~about~~ ten miles from London, six from Mr. Johnson's factory, seven from Mr. Zaritz's, five from Mr. J. W. Scott's, and seven from one to be started by Messrs. McIntosh and Hughes, on the corner of the thirteenth concession of London and proof line."

Cheese Factory in the County of Perth.

We are glad to learn that Mr. Geo. Hamilton of the township of Hibbert, is erecting a cheese factory, large enough to manufacture into cheese the milk of five or six hundred cows. He expects to have the establishment in operation by the first of next May. This is a move in the right direction, and will, we hope, be well supported by the farmers in the neighborhood, to the female members of whose families especially it will prove a great boon. These institutions have succeeded so admirably in the United States, and also, wherever they have been introduced in our own province, and the advantages they afford in the saving of labor, the superior excellence of the manufactured article, and the higher price it commands, have now been so fully tested and proved that we have no doubt they will rapidly become general amongst ourselves. We heartily wish Mr. Hamilton success in his enterprise, and congratulate the farmers of Hibbert township in the opportunity afforded them of sharing in the benefits of a system which has so much to recommend it, and against which no valid objection, so far as we are aware, can be urged.

Brewers' Grains for Milch Cows.

Mr. X. A. Williard, in the *Utica Herald*, says that the value of brewers' grains for milch cows depends entirely on their cost in particular localities, when compared with other kinds of food. They increase the quantity rather than improve the quality of the milk, and when other kinds of food are given, combined with the grain to make up those qualities which are lacking, they may be used with good results. Cows, however, which are fed largely on brewers' grains, are weakened in constitution, and hence it becomes an imperative necessity to find some highly nutritious food in conjunction with them, if regard be had to the health of the animal, to say nothing of adding to the inferior quality of milk resulting from their use. Experiments show that distillers' grains do not contain substances yielding an abundant supply of caseine, but are better adapted for butter and sugar of milk. They may be regarded as useful in keeping up a flow of milk, and where this is sought, they will be found perhaps more valuable than their nutritive qualities would seem to warrant. Cows are sometimes disposed to run to fat, and fail in milk, when fed on highly nourishing food. In such cases, a moderate supply of brewers' grains will be found to correct the difficulty, and thus they prove really valuable. The art of feeding to effect certain results, is not very closely studied by our farmers. By understanding the nature of foods and their economic use, one man will reach the same result at much less expense than he who has no definite idea of the material in his hands, beyond placing it before his stock. The question of foods is at all times an important one, and especially to those who are looking to the most profit from their use.

How to CURE A KICKING COW.—Procure a leather strap about three feet long, with two buckles on it, having them placed the nearest to one end, each to buckle opposite ways; buckle the short end around the fore leg just above the foot; bend the knee so the foot will touch the leg close to the body; pass the long end of the strap around the leg and buckle it. Then sit down on a stool, place your knee against her hind leg, and you have her in position where she cannot kick to harm you.



Canadian Horticulture.

An editorial of ours on "Horticultural Enterprise in Canada and the United States", which appeared in THE CANADA FARMER of April 16 1866 was copied into the *Collage Gardener and Journal of Horticulture*, an able and valuable British publication; and having crossed and re-crossed the Atlantic, at length met the eye of Mr John Paxton, Gardener, Woodfield, Quebec, Canada East, who considered that Canada in general, and particularly Lower Canada, had not received justice at our hands in the said editorial. Accordingly after mature deliberation that gentleman despatched a communication to the British journal above-named, which duly appeared in a recent number, and in which the reputation of Canadian horticulturists is defended with much zeal but little discrimination. We append the communication in full, and accompany it with a few remarks.

"I noticed in *The Journal of Horticulture* for the last week in July, an article entitled "Horticultural Progress in the United States and Canada," taken from THE CANADA FARMER. Now, with all due respect for that periodical, I beg to dissent in no small degree from the writer of the article in question. I readily admit that much remains to be done before we can attain perfection in horticulture; but to give such pre-eminence to the Americans for their taste in floriculture is what we of Lower Canada cannot allow, and that because they choose to print some flaming advertisement about some novelty, which (thanks to *The Journal of Horticulture* for our information), is probably, if worth anything, already in Canada. As an instance, the *Cyanophyllum magnificum* was advertised in the American catalogues at the enormous sum of \$26, or a trifle over £5 sterling, while we Canadians very quietly imported it from England for the modest sum of 3s. 6d. Doubtless, in a pomological point of view, they are our superiors, which seems to be the sum total of the aforesaid writer's idea of horticulture. Their climate and season are extremely favourable for fruit-growing, neither of which advantages do we possess, having only five months in which to perform all our out-door operations, the other seven bearing a strong resemblance to the same months in the Arctic regions. Moreover, when we consider that not more than twenty years have elapsed since horticulture was mooted in this locality by a stranger visiting Quebec for the first time, it would scarcely be credited; and I safely say now, that as regards taste in floral display, the ancient capital yields to none on this side of the Atlantic. The great number of prizes annually awarded to us will amply testify to the quality, and many of the leading English and French nurserymen can tell of the large orders of new plants, &c., which they forward to us.

"Had the writer confined his remarks to Upper Canada, there would have been a fair amount of truth in his statements. If he ever stood in the magnificent Crystal Palace where the Montreal Horticultural Society held their annual Exhibition in 1862, and again in the spacious Victoria Skating Rink in 1866, he might there judge whether progress was perceptible. He might there have seen Dahlias and Hollyhocks which would have been no discredit to a Regent's Park or Crystal Palace Show. Black Hamburg, Alicante, Lady Downe's, and Muscat of Alexandria Grapes, which might have graced a royal board; Peaches, Nectarines, Apples, Pears, Plums, and Figs of the first water. With regard to vegetables there was left nothing more to be desired. Upwards of one thousand greenhouse and stove plants were there, their healthy appearance giving abundant evidence of careful and superior cultivation. Among the stove plants might have been seen superb specimens of the newest Begonias, Caladiums, Gynogramma chrysophylla, Pteris tricolor, Cyanophyllums, Dracenas, Cycads, Marantas, and many other new and interesting plants.

Did he ever visit the greenhouses of Quebec or Montreal during the winter and spring months? If he did he must have failed to notice the dense masses of bloom which the pines and well grown Camellias, Azaleas, Acacias, &c., among which may be found

almost as fine specimens as can be met with in England, notwithstanding that the thermometer often descends to 36° below zero.

Again, if he had walked through the various flower gardens in our neighbourhood, and seen the taste displayed in planting, and the excellent quality of the bedding stuff (thanks again to the *The Journal of Horticulture* for keeping us up to the scratch in this respect) he might have exclaimed with J. Jay Smith, editor of the *American Horticulturist*, who visited Quebec in 1849 for the express purpose of noting the progress of horticulture there, "Well, well, we had no conception of this; why, one can almost fancy oneself translated to some stately well-kept domain in England." And were that gentleman to visit Quebec now, he might pass a still higher encomium, inasmuch as many of our places have undergone a thorough renovation since that time, to meet the requirements of the present improved system of bedding out. We can count almost all of the newest bedding Pelargoniums in our collections, including Mrs. Pollock and Sunset, many of the new Roses, Verbenas, Petunias, Pansies, Dahlias, Hollyhocks (albeit the very cream of the catalogues), Coleus, which by the way grows to immense bushes with us when planted out, Centaurea, Cerastium, &c.

I fear that I have trespassed on your space, yet I cannot look on these few rambling remarks in any other light than as an act of justice to the gentlemen of Lower Canada, who vie with each other in a spirit of friendly rivalry in the adornment of their conservatories and grounds, as well as to the English people, who might otherwise remain in ignorance of the true state of things here; and I doubt much if brother Jonathan could not take a wrinkle from the bullfrogs without losing caste."

Mr. Paxton professes to "dissent in no small degree" from our article. The chief point of dissent seems to be that we "gave such pre-eminence to the Americans for their taste in floriculture, and that because they choose to print some flaming advertisement about some novelty," &c. Now we did not assign pre-eminence to our American neighbours "for their taste in floriculture," merely, but for their "horticultural progress" in all departments, and the proof we gave of their progress was not "some flaming advertisement," but the citation of real and valuable additions to our garden treasures, especially in small fruits, and the manifestation of rural taste by the population in general. Of the floral and fruit novelties advertised in the United States, we said, "while, of course, many of them are mere pretenders to excellency, and trumpeted forth for money-making purposes, it cannot be gainsayed that we have obtained some valuable horticultural acquisitions from our neighbours across the lines." Unless Mr. Paxton means to assert that American nurserymen advertise only humbugs and cheats, and is further prepared to deny that we have received any horticultural acquisitions from the United States, he cannot "dissent" from our representations in the smallest degree.

Mr. Paxton admits that the Americans are "our superiors in a pomological point of view," and in connection with this admission, does us the injustice to say that pomology seems to be the sum total "of our idea of horticulture." The article he has undertaken to set right, affords abundant evidence that our "idea of horticulture" is not by any means so limited as he seeks to make out, for we advocated the purchase of ornamental plants, shrubs, &c., and eulogized the disposition to collect and plant about one's home the lovely and valuable creations of God, - the flowers and fruits that declare His glory and show forth His handy-work. Were our critic as diligent a reader of the CANADA FARMER as we are glad to find that he is of the *Journal of Horticulture*, he would know very well that our views and tastes are quite as broad and general as any "gardener" need desire. His admission of the pomological superiority of the Americans is qualified by a reference to the greater mildness of their climate. Strange to say, however, his defence of Canada is chiefly based on the successful raising of tropical productions in green-houses, while we purposely cited hardy products which even in this country can be grown in the open air.

Mr. Paxton indignantly says, "Had the writer confined his remarks to Upper Canada, there would have been a fair amount of truth in his statements. Now

we do not hesitate to say that our statements are far more true of Lower than of Upper Canada. We spoke not of exceptional and rare instances in which wealth combines with taste to get up costly structures of glass and fill them with the rare productions of tropical regions, and of which we can present as many and as eminent ones in Upper Canada as our friend in Lower Canada can produce; but we spoke of the population at large, and chiefly of "rural homes." Behind-hand as our population is in this respect, it is far in advance of the farming communities of Eastern Canada. Has Mr. Paxton ever travelled in the United States? If he has, he must have been struck with the taste of the inhabitants as manifested in the planting of shade trees, and the attention given to flowers and fruits. Many uncouth and unattractive homes can be found on the other side of the lines; but we have considerable progress to make before we equal our American neighbours in the respects indicated.

We have said nothing to disparage the skill of Canadian gardeners or the enterpriso of the rich gentlemen who employ them. Nor have we overlooked the fact that there are in the neighbourhood of all our cities and large towns, multitudes of beautifully-kept places. We are not familiar with the environs of Quebec, and have never walked through the flower gardens that adorn them, but if they excel those of Montreal, Toronto, and Hamilton, they are well worth going far to see. All honour say we to those who are achieving the brilliant results about which our critic says so much, but we are not only desirous that a few wealthy people here and there should have their green-houses, gardens, and pleasure-grounds, but that the people at large should cultivate ornamental plants and trees, lay out gardens and stock them with flowers and fruits. And Mr. Paxton would act a more patriotic part in co-operating with us in the endeavour to stir up the rural population of Canada to more horticultural taste and enterprise than in writing letters across the Atlantic of such a character as the one we have re-produced and reviewed, "Emulation is a noble passion," and every one who is conversant with the two countries feels that there is considerable room for its indulgence on our part in reference to the horticultural progress which is being made in the United States.

The Tilden Tomato.

From all accounts it would appear that this new variety of the tomato, is particularly worthy the attention of those who find the season rather short for bringing the ordinary kinds to full ripeness. In many parts of Canada, the early fall frosts are apt to cut off the plant just before the point has begun to change colour, which is very discouraging. The Tilden variety is the earliest known, and would therefore seem to be particularly suited to sowing in Canadian gardens. A correspondent of the *Country Gentleman* writes as follows respecting this variety:

"I procured a paper of the seed from a reliable seedsman in this city, (Philadelphia) and sowed them, with the Feejee and Cook's Favorite, in a hot-bed, and set them all out in the open ground at the same time, when large enough to remove, and the proper season had arrived. The Tilden came to bearing ripe tomatoes, fit for the table, two weeks sooner than the others; the fruit was of medium size, well formed and solid, and of good eating quality. They bore profusely all the season, and continued in bearing longer than the others. They are certainly an earlier variety than any others with which I am acquainted, and herein is their chief recommendation. I have raised the Feejees for a number of years, and like them better for table use than any other kind."

The largest seed garden in the world is said to be situated on the Delaware river, at Bloomsdale, Pa., occupying six hundred acres, and belongs to David Landroth & Son, of Philadelphia, and is under the personal supervision of the senior member of the firm.

The French method for preserving grapes the year round is by picking the bunches just before they are thoroughly ripe, and dipping them in lime-water having the consistency of thin cream. The lime coating keeps out the air and checks any tendency to decay. When grapes thus prepared are wanted for the table they are placed for a moment in hot water, and the lime will be removed.—*Farmer (Scottish)*.

GRAFTING GRAPE VINES.—Cut your grafts in the fall, put them in a cellar or any place they will keep fresh until wanted. If one has a grape house, the eyes of the vines begin to swell in the first week in April; by the last of May or the first week in June the vines will be in full leaf; then is the time to engraft, as they will not bleed. Then head down the vines you want to engraft, and perform the operation the same as on the apple or pear. This is the whole secret.—*Correspondent Gardener's Monthly*.

A NEW GRAPE.—*Hovey's Magazine* says that at the late Exhibition of the Massachusetts Horticultural Society, clusters of a new seedling white grape were exhibited, which originated in Hartford, Ct., eight years ago; a handsome sprightly grape, having the good qualities of the Hartford Prolific, including its earliness, and hardly distinguishable from the Rebecca when in its best condition. If this character is maintained we shall certainly hear from this grape again; but if not it will easily fall back into its natural position in the niche of oblivion.

LEMON FRUIT TREES.—F. K. Phoenix, Bloomington, Ill., writes to *The Horticulturist* as follows:—"A neighbour amateur has this year grown about a bushel of most delicious Imperial Gage Plums on one tree, passed to him some three years since by a brother, who said, 'No use for him to try to grow plums!' After it was planted out one year the family wood-pile was corded up under and about it, and after the fruit had set, and so long as any fears of curculio were entertained, a plentiful supply of air-slacked lime dust was scattered over the top every week, or twice a week. Last year it had a peck, and this year a bushel or so, and here you have the whole story."

The writer says he is a profound believer in the efficacy of a similar course of treatment, so far as dusting with lime, &c., not merely for curculio, but for the whole herd of insects, mildew, and fungi generally.

PLANT EVERGREENS.—A young planter was once ridiculed by his neighbours for setting out what they chose to call a "Cedar Swamp" around his residence. They changed their sentiments a few years afterwards when they discovered that nearly one-half of the fuel, otherwise required, was saved by the shelter from bleak winds which these evergreens afforded in winter, and that they were something more than "only good to look at." Country residents may do much towards comfort and economy by planting strong growing evergreens on the windward side of their houses. Another important use is the shelter which may be given to cattle yards; and still another is to furnish a supply of evergreen boughs for the various purposes of protection, to be used early in winter. Every farm should have a small plantation for this purpose, of which the limbs may be cut at regular intervals. These boughs are not only useful for covering ornamental shrubs and plants, but strawberry beds and prostrated grape-vines and raspberries. They also make an excellent covering for cabbages, placed in heaps and with about six or eight inches of the boughs laid compactly over them, with the tops downward so as to throw off the water. This will prevent the rotting so often caused by burying cabbages in the common way.—*Country Gentleman*.

AN ELEPHANT SMELLING A BOUQUET.—The elephant is known to be endowed with an exquisite sense of smell. The interior of its trunk is lined with an immense olfactory nerve, by which the animal is able to detect the faintest odors at a great distance. An English exchange contains the following illustration of the huge animal's fondness for sweet smells, and we may add its considerate politeness: "The large elephant at the Jardin des Plantes, Paris, was as usual occupied on Wednesday in taking up with that appendage the pieces of bread and cakes offered to him by the public, when all of a sudden he drew in his trunk, and continued to follow along the railings of his enclosure, with evident pleasure, a lady who was carrying in her hand a bouquet of orange flowers. That person, having remarked the movements of the elephant, held the bouquet within its reach, and the animal immediately seized the flowers, and having inspired with great avidity the perfume for a few moments, again put forth its trunk, and restored the bouquet to the lady. To the elephant the orange flower is the most delicious of all odors, and travelers state that in Japan these animals may be frequently seen to bury their trunks in the foliage of those trees to enjoy the perfume."

The Household.

Dishes From the Remains of Pork.

The following directions, from an admirable work by Alexis Soyer, will no doubt be acceptable in the farmer's household during the pig-killing season, and may help the good wife to furnish a palatable dish from scraps of pork that would otherwise come to table in less inviting form, and give a little variety in the usual round of winter diet.—Put two spoonfuls of chopped onions into a stewpan, with a wine glass of vinegar, two cloves and a blade of mace; reduce to half, take out the spice, add half a pint of broth or water, cut some pork previously cooked into thin small slices, season well upon a dish with pepper and salt, shake a good teaspoonful of flour over, mix all together, and put into the stewpan; let simmer gently ten minutes, pour out upon your dish, and serve with slices of gherkins in it; a little mustard may be added, if approved of.

The remains of salt pork, though very palatable cold, if required hot may be cut into large thin slices, and placed in a buttered frying-pan, with a little broth, or merely fried in the butter, and served with a purée of winter peas, made by boiling half a pint of peas until tender (tied up in a cloth); when done, put them into a stewpan with two ounces of butter; season with pepper and salt, add a gill of milk or cream, pour into the dish and lay the pork over.

It may also be cut in thin slices and put into a soup plate, and pour some catsup or Harvey's sauce over it, and let it remain for half an hour; butter the inside of a pudding basin, and lay some of the remains of peas pudding round it, then place in the pork, cover it with some of the pudding, put it in a saucepan with a little water to get hot, for about half an hour, and then turn it out and serve. Should you not have quite pork enough, you may make it up with a little sausage meat, or any other kind of meat.

Miss Jumpidge says that cream may be frozen by simply putting it into a glass vessel, and then putting the whole in an old bachelor's bosom.

SEASONING FOR SAUSAGES.—The following will be found palatable and good.

5	Tablespoonfuls of	sifted sage.
3	"	" salt.
2	"	" black pepper;

This will season ten pounds of chopped meat.

POTATOE PIE.—Cut up your meat and potatoe into slices, season with pepper and salt, fill the dish and pour water in fat-gravy. For the paste, a pound of lard or suet to two of flour, rub them together, mix into a paste with water, stirring with a fork; roll the paste half an inch thick, bake it moderately quickly for an hour and a half.

THE VIRTUES OF BORAX.—The excellent washerwomen of Holland and Belgium, who "get up" their linen so beautifully white, use refined borax as a washing powder, instead of soda, in the proportion of one large handful of powder to about ten gallons of boiling water. They save in soap nearly one-half. All the large washing establishments adopt the same mode. For laces, cambrics, &c., an extra quantity of the powder is used; for crinolines, requiring to be made stiff, a strong solution is necessary. Borax being a neutral salt, does not in the slightest degree injure the texture of the linen. Its effect is to soften the hardest water, and, therefore, it should be kept on every toilet table. To the taste it is rather sweet; it is used for cleaning the hair, is an excellent dentrifice, and in hot countries it is used, in combination with tartaric acid and bi-carbonate of soda, as a cooling beverage. Good tea cannot be made with hard water. All water may be made soft by adding a teaspoonful of borax powder to an ordinary-sized kettle of water, in which it should boil. The saving in the quantity of tea used will be at least one-fifth. *Druggists' Circular*.

Miscellaneous.

An Anti-Book Farmer.

The following sharp thrusts and plain truths are from Rev. Henry Ward Beecher's "Plain Talks to Farmers":

"He plows three inches deep, lest he should turn up the poison that, in his estimation, lies below; his wheat land is ploughed so as to keep as much water on it as possible; he sows two bushels to the acre, and reaps ten, so that it takes a fifth of his crop to seed his ground; his corn land never has any help from him, but bears just what it pleases, which is from thirty to thirty-five bushels per acre by measurement, though he brags that it is fifty or sixty. His hogs, if not remarkable for fattening qualities, would beat old Eclipse at a quarter-race; and were the man not prejudiced against deep plowing, his hogs would work his ground with their big saunts better than he does with his jack-knife plow. His meadow lands yield him from three-quarters of a ton to a whole ton of hay, which is regularly spoiled in curing, regularly left out for a month, and very irregularly stacked up, and left for the cattle to pull out at their pleasure, and half eat and half trample under foot. His horses would excite the avarice of an anatomist in search of osteological specimens; and returning from their pasture, they are walking herbariums, bearing specimens in their mane and tail of every weed that bears a burr or cockle. But, O, the cows! If held up on a bright day to the sun, don't you think they would be semi-transparent? But he tells us that good milkers are always poor! His cows get what Providence sends them, and very little beside; except in winter—then they have half a peck of corn on ears thrown to them, and they afford lively specimens of animated corn and cob crushers—but never mind, they yield on an average, three quarts of milk a day! and that yields varieties of butter quite astonishing.

His farm never grows any better; in many respects it gets annually worse. After ten year's work on a good soil, while his neighbours have grown rich, he is just where he started, only his house is dirtier, his fences more tottering, his soil poorer, his pride and ignorance greater.

Unquestionably, there are two sides to this question, and both of them extreme, and therefore both of them deficient in science and in common sense. If men were made according to our notions, there should not be a silly one alive, but it is otherwise ordered, and there is no department of human life in which we do not find the weak and foolish men. This is true of farming as of any other calling.

WHAT AN AXE DID.—The other day I was holding a man by the hand—a hand as firm in its outer texture as leather, and his sunburnt face was as inflexible as parchment; he was pouring forth a tirade of contempt on those who complain that they get nothing to do, as an excuse for becoming loafers. Said I, "Jeff, what do you work at?" "Why," said he, "I bought me an axe three years ago that cost me two dollars. That was all the money I had. I went to chopping wood by the cord. I have done nothing else, and have earned more than \$600; drank no grog, paid no doctor, have bought me a little farm, and shall be married next week to a girl who has earned \$200 since she was eighteen. My old axe I shall keep in the drawer, and buy me a new one to cut my wood with." After I left him, I thought to myself, "that axe and no grog." These are two things that make a man in the world. How small a capital that axe—how sure of success with the motto, "No grog." And then a farm and a wife, the best of all.—*Western Rural*.

THE WILTSHIRE DIALECT.—The following dialogue actually took place a short time since, between a visiting examiner and a pupil in a school near Salisbury:—"Now, then, the first boy of the grammar-class." First boy: "Here I be, zir." Examiner: "Well, my good boy, can you tell me what vowels are?" First boy: "Vowls, zir? Ees, of course I can." Examiner: "Tell me, then, what are vowels." First boy: "Vowls, zir! Why, vowls be chickens!"

A PUZZLE.—Archbishop Whately once puzzled a number of clever men in whose company he was by asking them this question, "How is it that white sheep eat more than black?" Some were not aware of the curious fact; others set to work and tried to give learned and long reasons; but all were anxious to know the real cause. After keeping them wondering for some time he said, "The reason is, because there are more of them."

Advertisements.

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OF CHOICE IMPLEMENTS AND IMPROVED MACHINERY.

CHAS. DAWBARN & Co.,

124 KING STREET EAST, TORONTO,

ARE now opening Agricultural Show Rooms in connection with their Great European Seed Store. Manufacturers are requested to send their addresses.

To Agricultural Societies & Others.

CAPTAIN BUFORD (by Glencoe).

THE undersigned offers for sale or to rent for the season 1867, the above thorough-bred stallion.

CAPTAIN BUFORD

Is a rich chestnut, stands 15 hands 3 inches, very powerful, a sure foal getter, has corks are of fine size, and he has the advantage of most thorough-bred horses in size, style, bone and speed.

For particulars apply to

JOSEPH GRAND,

Royal Horse Bazaar, Toronto.

v4-2-31

STOCK SALE!

ON Thursday, 24th Jan. Simon Beattie will sell by auction at Mr G Miller's, 10th con., Markham, the whole of his imported and thorough-bred stock, consisting of horses, cattle and sheep, and including the imported thorough-bred horse, "Promised Land," also Mare, Colt and Indian Pony; the splendid Bull Marion, Duke of Aldrich, bred by P. Alexander, Kentucky—besides Cows, Heifers, Leicester Rams and Ewes, and one Yorkshire Sow.

v4-2-11

GOOD FARM LANDS!

FOR SALE,

ON EASY TERMS AND WITH UNUSUAL ADVANTAGES

TO SETTLERS.

Apply to

C. J. BLOMFIELD,

Secretary Canadian Land and Emigration Company, Toronto Bank Building, Toronto.

v3-22-41

Great Sale of Blood Stock.

CATTLE, SHEEP AND HOGS.

I WILL sell at Public Auction, without reserve, on WEDNESDAY, 13th JANUARY, 1867, at my farm, 4 miles from Brampton Station, G. T. R., and 20 miles west of Toronto, the following Thorough-bred Stock, viz:—

- 12 Short-Horn Cows and Heifers.
8 Short-Horn Bulls, including "Baron Solway."
11 Galloway Cows and Heifers.
6 Galloway Bulls, including "Black Jack."
10 Leicester Ewes in Lamb.
8 Leicester Ewe Lambs.
1 Leicester Shearling Ram.
6 Leicester Ram Lambs.
1 Cheshire Boar, 2 years old.
6 Young Cheshire Sows.

This includes my entire herd of Galloways, which is unquestionably the best herd in America. The 7 yearling bulls by "Baron Solway" and "Baron Renfrew" are a lot of superior animals. The stock has not been pampered, or overfed, all are in fair breeding condition.

Catalogues with full pedigrees will be sent to any one making application.

Teams will meet the trains at Brampton on the day of sale and to evening before, to convey parties to the farm. Entertainment will be provided for those who wish to come the day previous to the sale.

TERMS.—All sums under \$40, cash, over that amount 9 months' credit will be given on approved notes, or a discount of 5 per cent. allowed for cash.

SALE TO COMMENCE AT HALF-PAST TWELVE.

JOHN SNELL,

Edmonton P.O., C.W.

Edmonton, Dec 1st, 1866.

v3-24-31

FEATHERS,

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THE subscribers will pay 45 cents per pound for good

LIVE GEESE FEATHERS

delivered at their Warerooms, Toronto.

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

v3-11-241

Markets.

Toronto Markets.

"CANADA FARMER" Office, Jan. 12, 1867.

Flour.—The market has improved since our last report, a steady demand and speculative enquiry having sprung up, No. 1 superfine is worth from \$6 75 to \$6 85, at which prices the small quantities offering are eagerly bought up. A sale of extra took place at \$3 25; Superior is nominal there being no transaction in that grade.

Wheat.—Spring wheat has been in fair demand, and price have advanced. On the street market very little is offering, the latest sales of round lots reported were at from \$1 41 to \$1 43. No Fall wheat has been offering.

Oats.—Very little doing with very light receipts, selling on the street market at 50c.

Barley.—There has been nothing doing in round lots; prices on the street have advanced; selling at from 50c. to 55c; car loads prime would bring 53c.

Peas.—The receipts on the street are considerable, and prices have advanced. As high as 71c was paid on the street for prime samples; average samples would bring from 65c. to 67c.

Meal.—Oat meal \$4 60; cornmeal \$3 90 to \$4.

Dressed Hogs.—The receipts have been very large and the market is overstocked; round lots are difficult to sell as packers are all full stocked and cannot buy. Round lots offering at \$5 10 without buyers. On the street market \$5 30 was paid for very choice hogs, and from \$5 to \$5 20 for ordinary.

Flax Seed.—\$1 70 offered at the oil mills for No 1 seed per 56 lbs.

Provisions.—Pork and Beef are dull and prices unchanged. Dairy butter 14 1/2c to 16c; store packed 11c to 12 1/2c; eggs 18c to 20c; cheese 11c to 11 1/2c; lard 11c to 12c; mess pork \$16 to \$17; bacon 7c to 10c.

Poultry.—Chickens 30c to 35c; ducks 40c to 50c per pair; geese 40c to 65c each; turkeys 60c to \$1.

Potatoes.—Good 40c per bushel and scarce.

Live Stock.—The market is again fairly supplied, 1st class cattle sell at from \$6 to \$6 50 per 100 lbs dressed weight; 2nd class \$5 to \$5 50; and inferior \$4 to \$4 50, sheep \$3 to \$4 each; lambs \$2 60 to \$3 each.

Quehup Markets, Jan. 8.—Fall Wheat per bushel, \$1 60 \$1 75. Spring do., \$1 20 to \$1 35. Oats, 26c to 28c. Peas, 50c to 60c. Barley, 40c to 45c. Wool, per lb, 24c. Eggs, per doz, 13c to 14c. Butter, per lb, 12c to 13c.

Hamilton Markets.—Grain.—Fall Wheat, \$1 40 to \$1 50. Spring, \$1 35 to \$1 40. Barley, 45c to 48c. Oats, poorly supplied during the week, selling at from 39c to 40c. Peas, 65c to 70c. Pork; \$5 25 paid for heavy weights, and \$4 75 and \$5 for light. Butter, store packed, 12c to 13c. Good fresh, in rolls, 15c to 20c per lb. Straw scarce at \$7 to \$8 per ton.

London Markets, Jan. 8.—Fall Wheat—\$1 25 to \$1 65; spring wheat, \$1 35 to \$1 40. Barley—40c to 48c. Peas—64c to 66c. Oats—26c to 28c. Corn—56c to 60c. Buckwheat—40c. Rye—60c. Clover Seed—\$6 per 60 lbs. Dressed Hogs—Good, well-fatted small pork, 100 to 160 lbs, \$4 50 to \$4 75; 160 to 200 lbs \$4 75 to \$5, extra weights, \$5 to \$5 12 1/2. Butter—Prime dairy packed, 14c to 14 1/2c per lb, fresh in rolls, by the basket, 16c per lb. Eggs—16c to 18c per dozen.

New York Market, Jan 11.—Flour—Receipts, 5,010 barrels; market dull and 10c to 25c lower; sales 5,700 bbls. at \$9 05 to \$10 85 for super state, \$10 90 to \$11 85 for extra state; \$11 90 to \$12 65 for choice do; \$9 65 to \$10 85 for super western; \$10 80 to \$12 10 for common to medium extra western; \$12 16 to \$14 25 for choice do. Rye Flour—quiet; sales 250 barrels at \$9 75 to \$8. Wheat—dull and 2c to 3c lower, sales, 10,700 bush. including mixed Milwaukee at \$2 25; and No. 2 do at \$2 35. Rye—quiet and drooping; western held at \$1 25 with buyers at \$1 23; sales, 16,000 bushels western at \$1 27. Barley—dull. Corn—Receipts, 4,185 bushels; market dull and drooping; small sales of western mixed \$1 19 to \$1 20 in store. Oats—Dull and 1c lower; small sales at 65c for Chicago and Milwaukee; 69c to 70c for State.

LATEST MARKETS.

Flour—Closed quiet. Wheat—Closed 2c to 3c lower and dull. Corn—Closed dull and drooping. Pork—Closed heavy; new mess \$19 60 to \$20 75; old mess, \$19 12 to \$19 25. Lard—Closed heavy at 11 1/2c to 12 1/2c for old, and 12 1/2c to 12 3/4c for new.

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