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## The Field.

### Familiar Talks on Agricultural Principles.

#### BONE MANURES.

ABOUT the year 1740, the value of bones as a fertilizer was discovered by accident. The cutlers of Sheffield, who use bones largely in the manufacture of handles for knives and forks, threw their bone refuse into heaps, which remained undisturbed for some time until they became putrified. One of these heaps was carted away as rubbish, and somehow or other came to be spread upon grass-land. The effect of it was most remarkable, so much so, that it could hardly be believed that it was owing to the bone refuse. People thought there must be some wonderful fertilizer beneath the surface, and they dug to find it. Not succeeding, they came to the conclusion that it was the cutlers' rubbish after all. Subsequent trials confirmed this view of things, and though at first this new manurial agent was not extensively used, it has now come to be regarded as one of the most valuable substances that can be applied to the soil. It was not until the year 1814 that machinery came to be set up for crushing bones. A Mr. Legard, of Ganton, on the Yorkshire Wolds, is reputed to have been the first manufacturer of bone manure, and from imperfect beginnings, bone-crushing machinery has been improved and steam power applied, until the preparation of this fertilizer is now an extensive, profitable, and established trade.

The chief value of bones arises from their furnishing that scarce and useful substance, phosphate of lime. They also supply a rich animal matter. The following analysis of the bones of an ox may be taken as an exhibit of their average constituents:—

Cartilage.....	33.3 per cent.
Phosphate of Lime .....	55.35
Fluate of Lime .....	3.0
Carbonate of Lime.....	3.85
Phosphate of Magnesia.....	3.05
Soda and a small portion of common salt .....	2.45

Thus it will be seen that bones consist wholly of material that is useful for plant food; while they are especially valuable on account of their containing so large a proportion of animal matter and phosphate of lime.

Bones are prepared for use by boiling, crushing or dissolving. The boiling process extracts the gelatine and fatty matter, which while it lessens their fertilizing qualities, makes them yield more quickly to the action of air and moisture, so that their influence is at once brought to bear on the growing crop. The breaking or crushing process makes bones more soluble in water, and hence the finer they are ground the more speedily and perceptibly they act. But from the fact that crushed bone requires time to be thoroughly incorporated with the soil, its effects are very durable,

and a field well dressed with this manure shows the effect of the application for years. The dissolving process is usually accomplished by the use of sulphuric acid. This destroys the mechanical structure of the bones, and renders them so thoroughly soluble, that they become at once available for plant-food. Sulphuric acid is itself a valuable fertilizer, and enters largely into the composition of certain plants. It also acts on other fertilizing substances in the soil, so as to make them available for the nourishment of the growing crop. Superphosphate of lime, as it is called, is a preparation of bone manure by the addition of sulphuric acid. This fertilizer, when made upon honour, is of great value, and well worthy the attention of the farmer. He should know, however, that there is a great chance for adulteration in making it, and that superphosphate differs very considerably in their value. In England, some humiliating exposures have been made of frauds committed from time to time, in the manufacture and sale of this material. An agricultural writer in that country observes that makers and vendors of this article "take advantage of that patent weakness of all farmers for cheap bargains," and consequently do not hesitate to use all manner of rubbish in the manufacture of superphosphate, so as to undersell their more conscientious rivals. Gypsum is largely used in the adulteration of superphosphate. Bone-dust is also liable to be adulterated, so that it is of great importance to have some guarantee of its genuineness, either in the character of the manufacturer, or the application of some test for the detection of worthless admixtures. It is not difficult to analyze bone-dust, and an ordinary farmer may soon learn how to do it.

But the cheapest method of providing bone manure, and the surest way of having it genuine, is to prepare it yourself. There is no great difficulty or occult art about this. Various processes have been prescribed, most of them of a very simple character. One was given in our issue of June 1, 1866, under the heading of "Turnip Cultivation," by means of which, at a cost merely nominal, any farmer may annually supply himself with such a quantity of bone as would, in the course of a few years, raise the character of an ordinarily-sized farm to a respectable point of productiveness. Another very practicable method is to break a quantity of bones with a hammer, and mix them with sulphuric acid diluted with three or four times its bulk of water. This is to be thoroughly mixed and left a day or two at rest. It should then be stirred daily until it is reduced to paste, when it may either be diluted with water, and applied to the land in a liquid state, or mixed with a large quantity of earth, soot, sawdust, or powdered charcoal. If diluted with water, one barrel of the pasty mass may be mixed with one hundred barrels of water, and sprinkled on the land from a water-cart or by scoops. An English work on "Scientific Farming" suggests the following methods: "Let us suppose a farmer

to require bones for his turnip crop in the spring; let him lay in his stock of bone-dust, say 2 cwt. per acre, in the December previous. Let him mix these in a shed or any covered place, with the same weight of salt, and to this add 20 bushels of finely-sifted coal ashes, and water them with gas-liquor, or liquid manure from his tank, if he have one, and turn them over every week or ten days. The quantity of liquor to use should be as much as they will absorb. This process, repeated for three months, will reduce them to a proper state, and, by the time they are required for use, he will have, at least so far as bones are concerned, a sufficient supply to procure him an excellent crop." Another mode is the following: "In a large square tub, say 5 feet wide by 2 feet 6 inches broad, and 2 feet deep (lined with lead), the bones should be spread evenly, and upon them should be poured half their weight of water, if hot all the better; after steeping for 24 hours, then pour on the same quantity of acid, viz., half the weight of the bones. These should now remain 36 hours at least, and be stirred at intervals during the time, when they should be taken out and mixed with ashes to such an extent as will make them sufficiently dry for drilling. The more they are stirred while under acid the better, and the more thoroughly they are mixed with the ashes the better also; as by so doing, the whole mass becomes more thoroughly incorporated." We do not see why a barrel will not do as well as the expensive lead-lined box spoken of above. In all the foregoing processes that include sulphuric acid, it is well to remember that this chemical substance requires to be "handled with care." Bones broken with a hammer, and mixed with an equal quantity of earth or ashes, will heat and decompose so as to be in a state fit for use in turnip drills. We imagine that most Canadian farmers who can be persuaded to use bones at all, will do so in that way which requires least trouble, and either by purchasing crushed bones, or resorting to some simple method like that last named, will avoid slower processes that require time, patience and labour. Everyone who has a piece of land under cultivation should see to it that it has from time to time a dosing of bones, in one form or another.

### Noxious Weeds.

The old adage, that "What is everybody's business is nobody's business," has lately been constantly recurring to our mind, as we witnessed with pain and sorrow the luxuriant crops of Canada thistles rapidly coming to maturity in various parts of the Province. As everybody knows very well, an Act was passed in the Legislature last year for the prevention of the spread of Canada Thistles, and all landholders are bound in various pains and penalties to cut down and destroy any of these vile weeds which may chance to encumber their property; the

Overseers of Highways, or Pathmasters as they are familiarly termed, are also enjoined to carry out the provisions of the Act on the public roads within their respective districts, and are invested with summary powers for putting the law in force wherever the holders of property disregard its injunctions. What, however, is the result? Not, alas! What sanguine legislators expected, — not what honest and energetic farmers hoped for, — not what Utopian dreamers believed and predicted; but simply, with one or two praiseworthy exceptions, NOTHING AT ALL! Here and there, where a farmer is hard working and understands his business, the fields are free from weeds, because he knows it is for his own best interests to keep them so. Here and there a diligent pathmaster who is not afraid of hurting the feelings of his neighbours, has cleared the road-sides, and obliged those about him to do the same for their farms. But, unfortunately, the lazy, the careless, the improvident are the rule, while the laborious, the careful, the understanding, are the exception. And hence follows, what we have been so sorely grieved to see, both in the neighbourhood of Toronto and elsewhere, fields of grain ripening for the harvest under the genial season that a beneficent Providence has again vouchsafed to us, but so obscured by the purple bloom of the hateful thistle as almost to prevent the recognition of the crop that had been sown, road-sides, too, and railway slopes covered with the same noxious weed, and preparing ere long to spread far and wide the seeds that will produce a manifold larger crop next year. We are not exaggerating; would that the case permitted our doing so, we are but telling the simple truth.

But not only do we wish to wage an exterminating war against the Canada thistles, there are other noxious weeds almost as pernicious, and fully as abundant as they. Look at the roadsides for hundreds of miles throughout the country, and you will see the borders white with, we may say, thousands of acres in the aggregate of that disgusting weed commonly called the Wild Chamomile, or May weed, the *Marula cotula* of botanists. Not only is this weed disagreeable from its sickening odour, and an eyesore from the general aspect of untidiness it gives our beautiful country, but it is also rapidly becoming a nuisance to the gardener and the farmer, invading their fields and beds, and growing up everywhere with pertinacious celerity. There is further to be found on the borders of all our roads and streets, and in every waste piece of ground or common, an abundance of the troublesome Bur-weed, or Hound's tongue (*Cynoglossum officinale*, Linn.) At this season of the year, a man or woman can hardly take a walk for any distance along our public highways, much less across neglected fields or commons, without bringing back quantities of the nutlets or burs adhering to their garments. And the nuisance they are to cattle and sheep is beyond comparison, we have frequently seen cows with their heads and necks one mass of burs, and sheep whose fleeces could hardly be distinguished from the same cause. These things, surely, ought not so to be.

There are many other noxious weeds that we might mention, which are more or less restricted to particular sections of the country; such, for instance, as the Wild Mustard, or Charlock, which is so abundant in the Counties of Northumberland and Durham. On many a farm—shame be it to the occupiers that we should have to say it,—whole fields are perfectly yellow with the blossoms of this pernicious weed, and worse than all, they have presented this brilliant but at the same time most melancholy aspect every summer for nearly twenty years! We know that there are many excellent farmers in that part of the country, but it is evident that there are many slovenly ones also, or such a state of things would never have been suffered so long. Charlock is no doubt a difficult weed to exterminate, but still it can be got rid of by a determined effort. Summer fallow a field in which it is abundant, and every time it comes above the surface plough it well under; about six ploughings during the season will be sufficient, and you will have for the next year a crop well-tilled and perfectly clean piece of ground. To get rid of the weed is well worth the labour, and the loss of one year's crop.

But our limited space would not permit us to enumerate all the weeds whose presence in our fields is a nuisance and a shame to us. We have mentioned some of the chief of these enemies, whose office no doubt it is to make us fulfil the sentence passed upon Adam in the beginning, and earn our bread by the sweat of our brow. Let us now consider briefly what can be done to obviate, or at all events lessen the evil. In the first place, we would urge upon each municipality in the country to see that the law is firmly and rigorously carried out within its own jurisdiction without respect of persons; and that it obliges its own pathmasters to perform the duty that devolves upon them implicitly and carefully. This of itself would be quite sufficient, and would speedily effect a vast decrease in the quantity of noxious weeds, for we think the law should be extended to many other plants besides Canada thistles. But we fear that this remedy, as heretofore so in the future also, will prove inoperative in very many cases, and simply for this reason because the judicial tribunal of the Council is composed of the very offenders themselves. All action is then, of course hopeless. However, if no interference can be made with private property, let every city, town and village corporation in Canada employ the poor despicable old men, some of whom are objects of charity in every place, in cutting down all the weeds along the road-sides, and on the public property; thus they will provide easy work for those who would otherwise be almost destitute, and at the same time abate the prevalent nuisance to a considerable extent. The country municipalities might also do the same. Again, let our farmers understand thoroughly, and as one of the veriest rudiments of agriculture, that it is much more expensive and infinitely less profitable to raise weeds than to keep their land clear of them. What we want is determined and united action; not one man here and there doing his duty, while his neighbours on either side do their best to render his efforts useless; but each and everyone striving as well as he can to keep his own land clean and proper and thus the whole community mutually benefiting and assisting each other. Let, in fine, what is "everybody's business" be attended to by everybody, and not left to the tender mercies of the mythical "nobody," who ought long ago to have been completely overwhelmed with the amount of work thrown upon him.

### Tricks of Seed Merchants.

We copy the following suggestive article from the editorial columns of the *Mark Lane Express*. We are not in a position to assert that such scandalous practices are attempted in this Province; but, whether or no, the article will well repay an attentive perusal.

Every farmer is aware of the value of good seed, but few are familiar with the frauds practiced by some seedsmen, in order to obtain a dishonourable profit. We shall here confine our remarks on this subject to the seeds—as the various species of turnip, cabbage and cauliflower—the most easily tampered with, there being other seeds of the same tribe (*Brassicæ*) much inferior in value, but so similar that it is impossible for a common observer to detect these, or, in fact, to perceive the difference between such and the genuine seed. Thus, rape-seed may be purchased at about half the price of turnip seed from the grower, and may be mixed without the least fear of detection. Charlock also may be obtained still cheaper than rape, and although smaller than many species of the turnip, may be equally employed in adulteration with impunity. The temptation, therefore, to substitute these for the genuine seed is too strong to be resisted, and the consequence is that the sale of spurious seeds has become a regular though secret trade; and we have known wholesale seedsmen who would deliver turnip seed mixed in any proportion required, with from fifty to eighty per cent. of good seed, the price being regulated by the proportion.

But if the mixture were sold without any precaution, it would, in its growth, tell tales, and lead to detection. The dealer in the O. O. seed, as it is called in the trade, finds means to destroy its vegetating power, either by hot water, dry heat, or a chemical preparation. All these means have, we believe, been used, but the latter is now the most approved and common method. In any case, however, the seed becomes innoxious because impotent; and as much more seed is generally sown than is required

to produce a crop, unless the seedsmen is too covetous, the fraud escapes detection, although the farmer may fancy that the plant is "too thin." But there are so many other casualties—the fly, for example—that will destroy the turnip plant in the first stages of its existence, that this circumstance is ascribed to anything rather than adulteration of the seed, and thus the fraud is not suspected.

Mr. Buckland has done good service by the exposure of this nefarious practice in his recent work on "Science and Practice in Farm Cultivation." In order to bring to the proof the fact and the extent of adulteration of turnip seed (and cabbage seed is equally liable to it), he instituted a series of experiments upon different samples obtained from seedsmen, the results of which are given at full length in the work. Thus in one case of ten sorts of good turnip, out of a hundred seeds of each sort, an average of 92 came up, the lowest being 81, and the highest Sutton's improved Green Globe 98 per cent. These seeds were of the growths of 1850 and 1860, in which latter year they were sown. But in order to show the effect of keeping the seed too long, he sowed some of the same in 1862, when the result was very different, as the following statement will show.

Name and date of Seed.	Came up in 1860.	Came up in 1862.
1. Mousetail, 1859 .....	96	46
2. White Globe, 1859 .....	86	44
3. Nimble Green Round, 1859 .....	96	94
4. Lincolnshire Red Globe, 1860 .....	90	58
5. Yellow Tankard, 1859 .....	82	62
6. Smart Mousetail 1860 .....	98	92
7. Green topped Stone, 1860 .....	84	88
8. Sutton's Imperial Green Globe, 1860 .....	98	80
9. Green topped Scotch, 1860 .....	90	86
10. Early Six Weeks, 1860 .....	90	70
Average grown .....	92	72
Ditto failed .....	8	28

"Thus, by keeping the seeds two years, they sustained a loss averaging 20 per cent., but in one case of 50 and in another of 42 per cent. Be it observed, however, that there is no charge of adulteration in these samples, the experimenter considering them good seeds, and not containing more than a natural proportion of defective seeds, although the deficiency in No. 2 was 14 and in No. 7 16 per cent. It should also be observed that the seeds in the first year came up at intervals between seven and eleven days.

In four other experiments the averages that came up were respectively 68, 77, and 70; the first being from nine to fifteen days, the second from ten to seventeen days (with one exception), the third from four to eleven days, and the fourth from four to eight days. These four parcels of seeds, of ten kinds each, were "market samples," and of course the year of their harvesting could not be ascertained. Every precaution was taken to preserve the vegetative power of the seeds, and to favour their growing by keeping the temperature of the house at the proper range, say between 60 and 70 degrees Fahr.

The axiom laid down by the Professor is, that "all well-grown well-preserved seeds should be capable of germinating to the extent of at least 90 per cent., but that seeds in general, and more especially turnip seeds, as usually delivered to the farmer, are generally incapable of germinating to the extent of from 25 to 30 per cent., and frequently more even."

Professor Buckland endeavoured to procure a sample of the O. O. seed, or killed seed. But although he could have been supplied with some bushels of it, as if for sale, no one could procure a sample of it, a suspicion being at once excited that it was wanted for experimenting. A letter is inserted in the work, addressed to Messrs. Sutton and Sons, of Reading, from some person at Southampton, offering an invention for killing the seeds of Rape and charlock expeditiously and effectually without any danger of detection. Mr. Sutton had the curiosity to call on the fellow, and found it was a genuine affair, but instead of ordering one of the machines, he sent the letter to Professor Buckland, who, on writing to the inventor was promised a machine if the money was sent first; but having apparently felt the undesirable nature of paying in advance, he declined the risk.

Mr. Buckland recommends farmers to make trial of all seeds before purchasing, by sowing a given number and noticing how many of them vegetate, and in what time. Above all, he cautions growers to purchase their seeds from men only of character and long standing, or who are known for integrity and uprightness in their dealings."

## The Peck of Wheat Per Acre.

The following communication from Ald. J. J. Mechi is at present going the rounds of the "old country" papers.

Year by year I become more and more convinced of the immense damage done in the British farmer by an over-sowing of seed. The question is one much less important as a saving of seed than as a preventive of damage to and diminution of the growing crop. I have proved this by a simple experiment, and every farmer can, at a small cost, bring to his own mind a proof of the proper quantity of seed to be sown according to his soil, climate, and circumstances.

This is the third year that I have tried the experiment of half a peck on half an acre, in the middle of a field where my usual quantity of four pecks is sown. The former results have been recorded—the peck an acre has yielded 7 quarters 2 bushels per acre of fine wheat, and was the best yield on the field.

The experiments have been perfectly fair ones, the wheat being all put in at one time, and under the same circumstances in every respect except quantity. The thin-sown was dibbled in one kernel in a hole about 6 inches by 4. The rest of the field was this year drilled with 4 pecks per acre. The experiments for three years have been on clover lea, once mowed for hay, and then folded with sheep, eating cake, &c.

The thin-sown came up with single points, and looked all the winter and early spring like a bare fallow, especially at a distance on the hill side it looked as though the four stetches had not been sown. So very wet and unfavourable were the winter and spring, that we thought this third year the thin-sown could not come to a crop. But slowly and surely it advanced and has at length become the best crop on the field, undistinguishable from the rest except by its superior height and the largeness of the ears. It will of course be tested by threshing. I have no doubt it will, as on former occasions, yield more weight of straw as well as more corn than the rest of the field. I expect it will give about 5 quarters per acre. This is not a good yielding year on our stiff non-calcareous soils. It has astonished many who have watched its progress, and made many converts. Thin sowers must be content to hear from all who see their thin sown crops during the early stages of their growth that they must prove a failure. These three years' experiments have given me perfect confidence in thin sowing under like circumstances; and I shall practice it gradually on a more extended scale as a safe and profitable investment. I think the proper term for thin sowing should be sufficient sowing.

I will endeavour by illustration to show how really unreasonable and injurious our general quantity sown must be. According to Mr. Caird and general estimates the quantity of grain sown (wheat, oats, barley &c.) equal one-ninth of the produce, so that we get (taking the whole kingdom), 9 kernels for each one sown. An average ear, of wheat, barley, and oats would have forty kernels, therefore we only get a fifth of an ear for each kernel!

Now I will defy any one who puts into the soil a perfect kernel of grain to produce so little as nine grains, or about one fifth part of an ear. The probability is, especially in the case of wheat, that if a space of three to five inches intervenes between that and the next kernel, the increase will be from 200 to 300 instead of nine. Many of mine have produced 600; how is it then that we arrive at the present miserable return of nine for one? Those who observe Nature's operations will soon receive a reply. By our system of two to four bushels per acre the kernels are crowded together, the young fibre are pushed forth, and fight with each other for the small available portion of soil. The result is many wounds, many deaths, and plenty of cripples among the few survivors, whose diminutive development gives evidence of the severity of the deadly struggle. The crop that came up thick as a grass field soon becomes thin and weakly. The reverse of all this takes place with thin sowing, as the roots ramify and extend without meeting hungry and numerous competitors.

Baron Liebig justly says that the greatest enemy that a wheat plant can have is another wheat plant. This alone is a sufficient explanation. Many farmers say "we don't like a thin wheat crop;" drawing their conclusions from the cases where the crop had become thin in consequence of over-crowding. So far as my experience goes, the grains are finer in size and quality, the straw more brilliant and glassy, and more free from blight or mildew than the thick-sown. There is more weight of straw per acre.

But see what benefits the young grass or clover plants derive from thin sowing. They thrive having air and light, in the thin-sown, while the thick-sown and poor, soft-strawed laid crop smothers and destroys them.

A neighbour of mine who farms well, got so angry at losing his clover plant among his oats that he was determined to have a clover crop at the cost of his oats, so he only sowed one bushel instead of four, and to his great surprise (but not to mine) he had the best crop of oats he ever grew, and an ample clover plant besides. Of course, in speaking of thin sowing I assume that the drill is used and the seed thus properly deposited.

I use the blower to my seed corn so as to have only heavy perfect seeds 9 10ths of which at least will vegetate.

It is really distressing to be told, as I have been lately, that "we always sow broadcast 7 bushels of oats per acre and 4 bushel of wheat." Supposing forty animals were placed in a luxuriant pasture, which would keep in good condition ten animals for three months, at first all would go well, but long before the three months had elapsed there be plenty of deaths and a few cripples left. So it is with thick sowing."

## Italian Ray-Grass.

The separate cultivation of ray-grass has been in use as a foddering plant in England for upwards of two centuries, as it appears from "Woldridge's Husbandry," first edition, to have been cultivated prior to 1677; besides which, red clover, spurry (*Spergularia arvensis*), trefol, and nonch were the only plants then cultivated as artificial grasses.

Ireland was never backward in adopting improved husbandry, which generally may be attributed to the return of gentlemen of rank from service in the army abroad, who brought home much information, from time to time, as to the farming practices in the Netherlands, Germany, and other countries, whence the introduction of turnips, transplanting rape in the autumn, lucerne, &c., all of which are to be found in the early proceedings of the Dublin Society. Common rye-grass (*Lolium perenne*) is a native plant, and found more or less in all natural pastures or meadows; but the first account we have of its being cultivated as a separate crop in Ireland is to be found in a paper read before the Dublin Society on the 25th of November, 1731, soon after its formation, by Captain Stothard, as practiced by him at Malherlin, in the county Down, with a computation of the profits of an acre for five years successively, and ordered to be registered.

In this paper Captain Stothard says that "he has had particular advantages from the use of ray-grass, which is this: "That whereas before he came into the use of it he lost every year some sheep by the rot and other distempers, and such sheep as did not die of the rot and were in good order yet had their livers tainted; but since the time he had fed his sheep with the ray-grass, which was the last five years, though the ray-grass was the least part of their feeding yet it has this effect, that he hath not lost one sheep these five years past by the rot, or any other distemper, nor have their livers been the least tainted, but all proved very sound; and he finds upon inquiry, that sheep are nowhere, that he could hear of, subject to the rot where they have ray-grass for part of their food." We have given the above extract from the manuscript copy of Captain Stothard's excellent paper, to show that the beginnings of the Royal Dublin Society all tended to the advancement of agriculture, several members contributing excellent papers the first year of its existence, amongst which we find another from the same gentleman on the cultivation of clover.

Since those times several improved varieties of ray-grass have been introduced, such as Pacey's, Russel's, Whitworth's, Stickney's, &c. but of late years the Italian ray-grass has been introduced, which in a great measure supersedes all the others in its use of alternate husbandry, yielding the quickest and heaviest crops when properly treated, both as a sowing and hay crop.

The Italian ray-grass is by some botanists regarded as a distinct species, and by others as a marked variety of the common perennial ray-grass, and is itself divided into two varieties—one more upright than the other, and of a paler colour, the pales of the plants having a long awn which distinguishes the Italian from all other ray-grasses; the other kind has a more fibrous root, the colour darker, a spreading stem, and with awns comparatively shorter. This latter variety is regarded as the true sort by the most intelligent cultivators, as it produces the most luxuriant and heaviest crops. This question is pretty well set at rest by the following report of Mr. Rodwell, of Alderton Park:—

"Having observed, in the growth of my crop reported on in the Royal Agricultural Society's *Journal* in the year 1841, some plants that were, as I supposed, not genuine, that is, not of the pale colour nor producing with long awns, I determined, upon a fresh importation of seed direct from Italy, from which I have since tested the properties of the two varieties, both of which I have since cultivated with great care and attention; and I am now fully convinced, from every comparison I have made, not only of the different kinds of plants in different fields, but of both kinds in the same fields, and in every case have satisfactory proof that the best grass—namely, that which is the most productive and the most nutritive for all cattle—is the plant which spreads upon the ground, is dark-coloured, and being the produce of seed with short awn; and my conclusion has been more fully confirmed during the past week by testing the varieties, both in weight and bulk, finding that the dark-coloured plants from the seed of the short-awned grass exceed both in weight and bulk the pale-coloured plants by more than 30 per cent. It will be also worthy the observation of those who intend to cultivate this grass that if intended as a biennial or a perennial grass, in that case the dark-coloured is much preferable to the pale-coloured grass, the former branching and becoming thicker, and the latter spindling up, and thus becoming thinner in plant every succeeding year."

Either sort has a stronger braid, broader and more abundant foliage, and longer spikes than any of the other sorts of ray-grass, and are preferred by cattle, either as soil or hay, and to the farmer is more valuable for one year's grass than any other sort, in its early maturity and bulk of produce.

But from the rapidity of its growth, it is not so well suited for mixture with any other sorts, except that in small quantity, it may be sown in permanent pastures, to give shelter to the more tardy and more permanent grasses, and give an early bite to the ewes in spring, for which it is admirably adapted; but this very rapidity of growth renders it unsuitable to sow as a soiling crop with corn in the spring, for it grows so strong that it injures the corn crop, though it improves the straw as fodder; besides, it exhausts itself the season it is sown, and does not produce so early or so well the following one. On this account it should not be sown as a soiling crop till the autumn, when the corn crop is removed; but the better practice, when designed for an early soiling crop, and to cut repeatedly, is to sow it immediately after the removal of early potatoes: the land is then in the highest state of cultivation to receive the seed, being rich and thoroughly pulverised; the seed braided freely, becomes strong and luxuriant, and so well established in the ground that no amount of frost can throw it out.

Managed in this way, it produces, in some seasons, an 18 or 20 inch cutting so early as the middle of March; in others, such as the present, it may not come in for another month, and with a top-dressing of a little rich compost, or liquid manure, after each cutting, three, and sometimes four, and even five.—*Mark Lane Express.*

**PRODUCTIVE FARM.**—The *Mt. Morris Union* states that on the Ogden farm, located on the Genesee flats, fifty acres of fine wheat are being harvested, while there are 100 acres of oats with barley and corn to match. The net receipts of the farm for 1865 were \$8,015. A few days since 55 steers were from this farm for the sum of \$4,125. The farm consists of 450 acres of the best farming land in the Genesee Valley.

**A NEW FARM YEARLY.**—The *Rural Advertiser*, for June, in remarking on the various fertilizers used by farmers says there is one unfailing source of supply within reach of every farmer. This is found in deep ploughing and a proper pulverization of the soil. In other words, "depth of soil beneath their crops and fertilizing atmospheric gases above them." By ploughing an inch deeper every year, a new farm, so to speak, is obtained. Of course there is a limit to this, but the trouble generally is, that but few persevere till they reach it.

**PROFITABLE FARMING.**—What zealous young farmers should ever bear in mind, is that it is not expensive manuring alone, nor thorough culture alone, nor drainage, nor any other one or two things combined, that can ensure success, but knowledge of and thorough training to their business, and then enlightened, courageous and liberal expenditure. Such expenditure would embrace all the processes necessary to productive cropping, and permanent improvement of the land. This we call "high farming." It is that sort of farming which has always been most productive of results in able hands, and will be especially so in the future of Maryland and Southern State agriculture. If it fail, it will not be that the system is wrong, but because of want of skill in its application.—*Ag. Ed. Balt. Sun.*



Stock Department.

Wild Cattle.

HISTORY and tradition are alike silent on the original or Paradisian breeds of cattle. The sacred narrative reveals nothing as to the effect produced upon races during the antediluvian world. We gather, however, from its inspired pages that from very early periods of the world's history, a high degree of importance has been attached to the herd of the field. In Egypt—at one time the most civilized country of the earth—divine honours were paid to oxen, and they had their priests and their obsequies. Even where a more enlightened faith prevailed, they were among the first religious sacrifices offered to God, and the first accepted. The herdsman, too, as well as the shepherd, was a patriarchal king, and his riches chiefly consisted of cattle.

Much has been said and written in our times about the improvement of breed, but if, as some profound thinkers aver, cattle were originally created perfect, in the widest sense of the term, in the sunny realms of Paradise, a great amount of deterioration must have taken place before improvement was practicable. On this hypothesis, the "curse" must have fallen upon cattle as upon all other products of the soil, and, as the domestic companions of our fallen race, a thousand misfortunes must have befallen them. If originally created perfect, they were then incapable of improvement. The subject is altogether too vast for human solution. We will, therefore, for the present, at least, leave it, and confine ourselves to the subject of our present article.

In Britain, there are, as most of our readers are aware, several very distinct tribes of animals, differing in their features and characteristics in many very important points. Some are domesticated and even companionable; others are as shy and untamable in their nature as the wild deer or bison of the forests. It is, as we have already hinted, impossible to determine what existing breed, if any, had the honour of being the primeval race. Of the wild ox, however, it is almost certain that one remnant, at least, survives in the wild cattle of Chillingham Park, Northumberland, England, the property of the Earl of Tankerville. The accompanying illustration gives a very accurate representation of these fine animals, and their origin, character, and habits form the subject of the present article.

In the first place, we must premise that our information respecting their origin is very scanty. On this point, we cannot supply more satisfactory evidence than that adduced by a late Lord Tankerville, in a communication to the Society of Arts, bearing date June 8, 1838. His lordship then said. "I remember an old gardener, who died many years ago, at the age of perhaps 80 or more, who used to tell of what his father had told him as happening to him when a boy, relative to these wild cattle, which were then spoken of as wild cattle, and with the same sort of curiosity as exists with respect to them at the

present day. . . . The probability is that they were the ancient breed of the island, inclosed long since within the boundary of the park."

Sir Walter Scott—no mean antiquary—supposes that they are the descendants of those which inhabited the great Caledonian forest extending from the Tweed to Glasgow, at the two extremities of which, Chillingham and Hamilton, they are found. His lines in the ballad of "Cadyon Castle" describe them pretty accurately as they are to be seen at the present day.

"Mightiest of all the beasts of chase,  
That roam in woody Caledon,  
Crushing the forest in his race,  
The mountain bull comes thundering on.

"Fierce on the hunter's quiver'd band  
He rolls his eye of swarthy glow,  
Spurns with black hoof and horns the sand,  
And tosses high his mane of now."

Chillingham park is a very ancient enclosure; and documents are in existence which prove that the castle and church were built about the year 1220.

It has been said by some writers that a similar breed is found at some other places in Britain—Lynn Park, Cheshire; Hamilton Castle, Scotland; and Chartley Park. We have had an opportunity of comparing the Hamilton cattle with the Chillingham



breed, and could discover little or no resemblance either in appearance, in habit, or in disposition. "Those at Chartley Park, on the contrary," writes Lord Tankerville, "closely resemble ours in every particular, in their colour,—with some small difference in that of their ears,—their size, general appearance, as well as their habits. This was a very ancient park, belonging formerly Devereux Earl of Essex, who built the bridge over the Trent, to communicate with his chase at Cannock and Beaudesert, then belonging to him; and the belief is, that these cattle had been there from time immemorial."

Respecting the habits of the Chillingham breed the description of the writer just quoted, is so graphic that we cannot do better than reproduce it:—"They have, in the first place, pre-eminently all the characteristics of wild animals, with some peculiarities that are sometimes very curious and amusing. They hide their young, feed in the night, basking or sleeping during the day. They are fierce when pressed, but, generally speaking, they are very timorous, moving off on the appearance of any one, even at a great distance. Yet this varies very much in different

seasons of the year, and according to the manner in which they are approached. In summer, I have been for several weeks at a time without getting sight of them, they on the slightest appearance of any one, retiring into a wood, which serves them as a sanctuary. On the other hand, in winter, when coming down for food to the inner park, and being in constant contact with people, they will let you almost come among them, particularly if on horseback. But then they have also a thousand peculiarities. They will be feeding sometimes quietly, when if any one appears suddenly near them, particularly coming down the wind, they will be struck with a sudden panic and gallop off, running one over the other, and never stopping till they get into their sanctuary. It is observable of them, as of red deer, that they have a peculiar faculty of taking advantage of the irregularities of the ground, so that on being disturbed, they may traverse the whole park, and yet you hardly get sight of them. Their usual mode of retreat is, to get up slowly, set off in a walk, then a trot, and seldom begin to gallop till they have put the ground between you and them in the manner just described."

"In form they are beautifully shaped, short legs, straight back, horns of a very fine texture, thin skin, so that some of the bulls appear of a cream color, and they have a peculiar cry, more like that of a wild beast than that of ordinary cattle. With all the marks of high breeding, they have also some of its defects: they are bad breeders, and are much subject to the rash, a complaint common to animals bred in and, in which is unquestionably the case with these as long as we have any record of them."

"When they come down into the lower part of the park, which they do at stated hours, they move, like a regiment of cavalry, in single files, the bulls leading the van, as, in retreat, it is the bulls that bring up the rear." To this able description of Lord Tankerville, we will briefly add the impression created on our own mind by frequent opportunities of observing these

animals:—  
In respect of symmetry, they appear almost perfect. They are of a pure white colour, and their horns are of a fine crescent shape, characteristics which render them, when moving in a body, a very imposing sight. The eyes, eye-lashes, and tips of the horns alone, are black; the muzzle is brown, the inside of the ears red or brown, and all the rest of the animal white. Even the bulls have no manes, but only a little coarse hair upon the neck. Supremacy among the males is obtained by fierce contests for the mastery; and if, by accident, a bull gets separated from the herd for a day or two, his settled relation seems to be forgotten; for, on his rejoining the herd, a fight ensues, and the conflict continues until the previous amicable understanding is re-established.  
On comparing the previous description of the Chillingham cattle with those given by Boethius and Leslie of the wild Caledonian cattle, we cannot but be struck by their generally close correspondence. Making some allowance for hyperbole in the old historians, with the exception of the mane, the resemblance between the Chillingham and Old Cale-

donian cattle is almost complete at every point. Even this difference may probably be accounted for by a long continued course of in-and-in breeding. In expectations of this nature, when data are so scanty, we can scarcely expect to arrive at absolute certainty, but sufficient has, we think, been advanced to justify the hypothesis that the cattle we have herewith illustrated, are the genuine remains of the ancient cattle of the British Islands.

### Water for Stock.

In a recent issue of *The Farmer* (Scottish) the Editor writes as follows, on the above subject:—

"A friend of ours who takes an interest in such matters has been lately measuring the water consumed daily by his cattle, and as every drop must be pumped for them, the quantity used has been easily ascertained. The result of his observations is, that the thirty-six he has grazing in two adjoining fields consume daily upwards of 900 gallons of water. Now, bearing this fact in mind, what can be the state of cattle or sheep carried by railway, and confined in trucks for twenty-four, forty-eight, or it may be fifty-six hours, and even more, without getting a drop of water all the time, besides the terrible shaking which cattle experience during the journey, and the fatigue caused by their being unable to lie down? Is it possible that animals treated in this way can be healthy, or their flesh, if fat, in a wholesome state to be used as human food? Railway cattle traffic is a matter in which the public at large, not less than farmers and graziers, are deeply concerned. If it had been the case of a cab-horse or a coster-monger's donkey at work with a galled shoulder, the Society for the Prevention of Cruelty to Animals would be down upon the owner at once, and quite right; but railway folk, we suspect, are too high game to fly at, and in this way an amount of cruelty is perpetrated—unintentionally, we candidly believe, in most cases—of which few have any adequate idea."

*The Farmer* "hits the nail on the head" in the foregoing remarks. It is impossible to preserve the health of either man or beast without an adequate supply of wholesome water. With man as with the brute creation, the susceptibility to the contagion of infectious diseases is considerably increased where the supply of water is neither sufficient in quantity nor pure in quality. The germs of disease find in the unhealthy system of animals—rendered so from the want of an essential element of health—a congenial home in which they become rapidly and fatally developed.

In view of this important fact we earnestly counsel our Canadian breeders to see to it—and that at once—that they have an ample supply of water in their fields. If they can provide it by natural springs, or by drainage, so much the better. But in either case, it is necessarily to take care that it is abundant and pure, not stagnating in dirty holes. If it is necessary to provide a supply artificially, it should never be forgotten that the troughs should never be allowed to remain empty for even half an hour. Care in this respect, will be abundantly repaid either as respects the dairy, the showyard, or the market.

**COLTS RUBBING THEIR TAILS.**—Colts sometimes rub their tails when in apparent health, and when by the most careful examination we can detect neither lousiness, eruptions, nor any unnatural or unhealthy appearance of the skin whatever. In such cases, and when the colt rubs only the tail and the neighbouring parts, we must look for some other cause for the itching, and in nine cases out of ten it will be found to be caused by the thread or pin worm lodged in the rectum, and for this Dr. Dadd recommends an injection of salt in solution. This, no doubt, would afford temporary relief. Salt, when fed in sufficient quantities to domestic animals, is believed to be not only a preventive of worms, but also of many other diseases—the opinion of some writers to the contrary notwithstanding. My method of feeding salt in winter is, to make a strong brine, put it on the poorest hay, and fodder the cattle and sheep with it twice a week. To horses give the salt clear. I don't like the plan of keeping salt lying by stock, as in that way they sometimes get cloyed.—*Ex.*

### Water for Sheep.

UNFORTUNATELY animals have not the power of speech, or they would tell us their wants and their feelings, and so prevent much loss and damage. The proper supply of water to our animals, either in their food or directly, is a matter of much importance, and greatly dependent, as to quantity, on a variety of circumstances. It requires no conjuror to show that milk-giving animals require much more water or succulent food than growing or fattening animals. I have had from 24 to 30 quarts per day of milk from a large shorthorn cow in full milk, and this is, of course, nearly all water. Such an animal must require a proportional quantity of water to supply this and the additional vapour given off in respiration, perspiration, and evacuation. The same remark applies to a ewe in full milk, or other breeding animals. The normal quantity of water in grass at a particular season may be taken as a proper ordinary supply, and no doubt the instinct of the milk-giving animal would lead it to avail itself of the extra wetted or bedewed grass immediately before sunrise, or at all events before the dew had been dispersed. The per centage of water in natural grasses varies according to the period of their flowering. Those that flower early in the spring contain most water. According to Way's admirable treatise on grasses in the Royal Agricultural Society's *Journal* vol. ii., page 533, those that flowered

	Contains of water Per cent.
In May,.....	79
Early in June,.....	72
Late in June,.....	66
Early in July,.....	62

The average of the four periods being 70 per cent. of water, or 7 lb. or pints of water to 3 lb. of dry food. Nature has therefore provided us with a tolerable safe scale, having regard also to the dew of the morning for milk-giving animals, or an extra supply of water.

Now, we must never forget that on the modern principle of feeding with cake, corn, or other dry substances, we deviate from a natural course, and must therefore restore the equilibrium by supplies of water, even where animals are on grass; and we should also, when too much rain falls, have regard to correcting the excess of moisture by proportions of dry food.

Again, in the hot dry months of July, August, and September it is irrational and injurious not to provide a proper supply of water for your sheep as well as cattle; great and unprofitable omissions are too common in this matter of water for sheep. Early this spring (in April) my ewes with lambs were upon Italian rye-grass, and as the lambs increased in size I saw that there was a loss of flesh in the ewes. As there were frequent showers, we thought it could not be for want of water, but we tried it and found at once that the absence of water was the cause of their loss in condition. They were having cake, corn, and hay-chaff, in addition to the grass.

When fattening sheep are on clover in a hot July and August, having cake in addition, they will drink very much water, and will not thrive without it. I am not sure that some farmers are not in danger, under Mr. Martin's Act, in very hot weather.

With fresh-drawn turnips or mangolds, or turnips with tops in the fields, we have an excessive supply of moisture, about 88 to 90 per cent.

A singular case of living without water occurred a few years since in the parish of Cressing Temple, about ten miles from my farm. A horse that was treading barley in the body of the barn was left there all night, and was nowhere to be found next morning although diligent search was made for him. This was in harvest time. On the Christmas morning following the ploughmen heard a neighing in the barn and for the first time it occurred to them that although the bay was well filled with barley the horse had slipped down between the boarded side of the barn and the barley, which, being unthrashed, closed over him. So it was, for on cutting a way through they found the horse as plump and as sleek as a mole. He had eaten his way and cleared a considerable space. The foolish ploughmen, concluding that he must be very thirsty, most indiscreetly allowed him to go down to the pond and drink his fill, which resulted in his death.

This may appear to some a very doubtful story, but we need not so much wonder when it is known that dry or market grain contains 11 per cent. of water, and the straw nearly 12 per cent., so that with every 88 lb. or pints of dry corn, the horse had 11 to 12 lb. or pints of water. The case I have quoted is well known and authenticated.—*J. J. Mechi, Tipster, July 9.*

### Stinting Young Pigs.

A FARMER cannot make a greater mistake than to starve or even stint a young animal. But it is very common. If I were buying young pigs I would give double the price for a litter at two months old that had been well fed and gradually weaned than I would for a litter that had been neglected. As I told you last month, I bought two litters of young pigs. One litter was half Suffolk and quarter Chester White, the other was "Native." Both litters had received ordinary treatment—that is they were half starved! I paid nearly as much again for the half-bred Suffolks as for the others, for the sake of the experiment. I fed both litters alike, giving them sour milk and a little corn meal. So far, the "Natives" are decidedly ahead. My own half-bred Suffolks, that were fed with rich food from the day they were born, Pearl, the butcher, pronounced "the best pigs he ever saw," and he offered me 12 cents per lb. dressed weight. Not wishing them I offered to take \$30 a piece for them, and he took me up! I have not yet learned how much they dressed, but I have no doubt the whole litter will average 250 lbs. dressed weight. They were not eight months old! I think it would not be easy to make a litter of common pigs do as well. The reason that the half-bred Suffolks I bought do not thrive as well as the Natives is undoubtedly owing to their not having good feed while young. The Natives will stand neglect and starvation better than a well-bred pig. But feed them well from the start, and the latter will thrive the best. The reason why so many people get disgusted with thoroughbred stock is, that they do not feed high. The remark that "the breed goes in at the mouth" is partly true. No amount of breeding will enable an animal to make flesh out of air, or fat out of water. All that good breeding can really do is to lessen the amount of offal, and enable the animal to extract the largest amount of meat and fat from the food consumed.—*Harris's "Walks and Talks."*

**EXTRAORDINARY CALF.**—The *Highland Democrat* tells of a calf in the village of Pheekill, which weighed, when six hours old, 136 pounds. It is a brother of a celebrated steer of that village, from the same mother, weighing 2,600 pounds, and about three years old. The mother is what is called a Swiss cow, and the father an imported pure Durham of Henry Ward Beecher's herd.

**THE MULE AND HENNY.**—The mule is a hybrid produce of an ass with a mare, having a large, clumsy head, long erect ears, a short mane, and a thin tail. The henny is the hybrid produce between the ass and a stallion, the head is long and thin, the ears are like those of a horse, the mane is short, and the tail is well filled with hair. The henny is much less common than the mule, because, being less hardy and useful than the other, he is never cultivated.—*Mason.*

**CATTLE BREEDS.**—Ezra Marsh, of Shelburn, Vt., gives his opinion in the *Rural New Yorker* on the comparative value of different kinds of cows for dairy purposes, and for beef. He says:—"I have milked from 75 to 110 cows, for the last few years, composed of about one-half high grade and pure Durham; the others natives and grades of the other breeds named. I find the Durham so far exceed the native and other breeds in milking qualities, and when fattened the difference is still more apparent, especially when compared with the natives."

**OX YOKES.**—A Farmer recently asked through the columns of the *Country Gentleman* for directions how to make a good ox yoke of a medium size. An answer was given through the same medium to this effect: The yoke should be four feet four inches long—The sweep in the center being upward instead of downward as in the common ox yoke. The staple to pass through this center sweep horizontally instead of vertically—throwing the pressure of the draft upon the top of the neck and shoulders of the ox instead of the wind pipe, as the downward sweep of the yoke and a vertical insertion of the staple tend to do. We have never seen a yoke made as proposed, but the principle of construction seems to be the true one. For logging and timber purposes, however, we think that a considerable diminution in the length of the yoke would be an improvement. For quickly repeated heavy drafts with a chain, as in clearing new land and moving timber, the oxen should not be widely sundered by the yoke as they derive greater steadiness when their bodies closely approximate each other. For ploughing or drawing the cart or waggon the long yoke is certainly the best. The horizontal insertion of the staple into the yoke, seems philosophically correct, and no doubt will prove to be so in practice.

**The Dairy.**

**Good yield of Butter.**

To the Editor of THE CANADA FARMER.

Sir, - I purpose giving you the results of one weeks experiment in testing the milk and butter capabilities of a very choice cow, of which I am very proud to declare myself the rightful owner. You, I doubt not (and your readers too) will pardon the vanity manifested by an amateur when he attempts to vie with the man whose undivided attention is devoted to the business of farming. I do not mean that his errors should be excused, his vanity only

Considering the number, and respectability of dairy establishments springing up in the country, and the attention latterly paid to breeding cows for dairy purposes, it is quite possible you may yet be supplied with like experiments the results of which may equal those I now submit for your consideration. Indeed I have since heard of one or two instances which have nearly equalled these results, but I expect to hear of none that exceed them. If there are any such instances I hope to see them reported in your valuable paper. It would not only have the wholesome effect of eradicating that vanity you may again be asked to excuse—but were the blood, or breeding, and general characteristics of the animal described, it would serve a much more important purpose as a guide to the attainments of those qualities in an animal which are so desirable in this important branch of farming.

Well, to my purpose—on the 25th of June one week after calving I directed the cow to be milked thrice daily, at 5 o'clock a.m. 12 o'clock noon and at 7 o'clock p.m., which was faithfully done, each milking being carefully weighed and the milk and cream kept in a separate place previously prepared for it. The record stands as follows.

	Morning Weights.	Noon Weights.	Evening Weights.	Total Daily.
Monday	23 lbs.	13 1/2 lbs.	16 lbs.	52 1/2 lbs.
Tuesday	20 "	16 "	16 1/2 "	52 1/2 "
Wednesday	21 "	16 "	17 1/2 "	54 1/2 "
Thursday	21 "	17 1/2 "	17 1/2 "	56 "
Friday	20 "	16 "	16 1/2 "	52 1/2 "
Saturday	21 1/2 "	18 "	18 1/2 "	58 1/2 "
Sunday	21 "	16 "	14 "	51 "

374 1/2, divided by 7 equals 53 1/2 lbs., Daily Average.

The cow is a large grade cow bred from an Ayrshire and Canadian dam, and sired by a thoroughbred shorthorn Durham. Shape—head and neck long and thin—smooth about the shoulders—fine in the limbs—hind quarters deep and long though thin in the ham, prominent in the hips and termination of spine. Udder—large and quarters very distinct. Colours—though red or wine coloured about the head and neck, is principally white—being mixed red and white upon the sides—the hind quarters, udder, and limbs entirely white. Condition at calving was that of good beef (having been wintered upon the best of hay and roots,) has lost flesh rapidly though in excellent pasture which is principally native grass—with a sprinkling of white clover. No grain or other feed was given her while making the above experiment.

A gentleman acquainted with the above facts has made me the generous offer of \$90 for my cow which I have not accepted though somewhat tempted to.

Yours &c.  
DR. J. B. LUNDY  
Sheffield  
North Wentworth.

**Effects of Good Feed on Milch Cows.**

Our cows give fully one-third more butter this year than last, due solely to good feeding and warm quarters in the winter. They were cows I bought with the farm. They looked well, but proved to be poor milkers. They had been suffered to go dry about the 1st of November, under the impression that milking them in the winter would seriously injure them the coming summer. And I have no doubt that there is considerable truth in this idea, provided the cows in the winter have nothing but corn stalks and straw, and are not stabled. But if they are fed liberally, they may be milked not only without injury, but with positive advantage. It favours the habit of secreting milk. Till within six weeks or two months of calving, a good cow, with plenty of rich food, can give four or five quarts of milk per day, and will still be able to secure milk enough for the calf. She will eat and assimilate more food, and will get the habit of secreting more milk. I believe there is no

better way of restoring the milking qualities of cows that have degenerated from poor management. I gave my cows three quarts each of cornmeal a day, and an abundant supply of corn stalks and straw. Instead of letting them go dry in November, I kept them stabled in cold weather, and they gave more milk, or rather they made more butter, after we commenced to feed grain in November and December, than they did in August and September. I milked some of them till within six weeks of calving. This is perhaps too much—ten weeks would be better. The cows, after we stopped milking, fleshed up rapidly and many were the predictions that the corn meal would spoil them for milk. But it did not. They give more milk than ever before, and it is certainly very much richer. The prospects now are that for the year commencing the 1st of last November till the 1st of next November they will give as much again butter as they ever gave in a year before. So much for good feeding in winter. We weigh every pound of butter made, and I feel confident that this opinion will prove correct. I have not yet fed meal this summer, but shall do so the moment there is any indications of a falling off in butter. In fact, I should feed meal now if I had my buildings conveniently arranged for the purpose. I have not the slightest doubt that it would pay to give each cow two quarts of corn and pea meal a day. If twenty bushels of corn a year will double, or even add one-third to, the amount of butter and cheese made by a cow, it is easy to figure whether it is profitable or not. I do not say they will not eat as much grass and fodder as if they were not fed meal. The more food they will eat the better, provided it is turned into butter and cheese. — Harris's "Watts and Talks."

**A BIG CHEESE.**—A correspondent of the Globe sends a description of a cheese—the largest, he says, ever made in this or any other country made by Messrs. Henry & Harris, Esqs., proprietor, of the Ingersoll cheese factory. It measures six feet eight inches in breadth, and three feet in thickness; the milk used in its manufacture weighed 57 tons, and was furnished by 800 cows; the weight of the cheese itself is three and a-half tons. For the sole use of this king of cheeses a house has been built, sixteen feet by eight feet, very substantial, and so constructed that the cheese can be turned over in three and a half minutes. Every precaution is taken to guard against an attack of the Fenians (dies). When the cheese is dry it will be put into a new dress which is being prepared for it—a galvanized gauze apparel. From its present appearance it is thought that it will not require "hoops" to preserve its form. Though more than a month old its shape is perfect. It is proposed to take it to Toronto next month for the Provincial Exhibition.

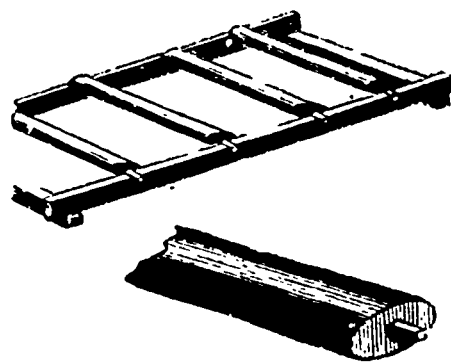
**Poultry Yard.**

An old lady who went into the poultry business some time since under the expectation that she could make a fortune by selling eggs, has quitted it in disgust, because, as she says, "the hens'll never lay when eggs are dear, but always begin as soon as they get cheap."

**Hints about Hen Roosts.**

In the treatment of our domestic animals, there is no guide so reliable as nature. If we keep our eyes open and observe the habits and inclinations of our dumb dependents, we will gain insights into their natures so that we may be able to do much for their health and comfort. The following hints about hen roosts illustrate and suggest this idea. N. of Green Bay, Wisconsin, sends the following communication to the American Agriculturist:—"In some of the more northern latitudes, where the mercury falls to zero, and below, it is difficult to preserve poultry from freezing their feet, and I shall be glad if my experience in preventing it will be of any value to others. If you will observe the habits of poultry during the year, it will be noticed that in warm weather they prefer to roost on poles, the edges of fences, boards, etc.; while in cold weather they seek out flat places, where their toes may be kept up among the feathers. The favourite place which my fowls found in the winter, was the top of an unfinished harness room where they found the flat surface of a 2 x 4 scantling, with its broadest side up. In the summer, they go back to the roosting poles, which are probably cooler. I have devised a plan to accommodate them winter

and summer, which I have tried to make plain by the accompanying rude sketches. Scantlings, 2 x 4, are made into oval shape as



HEN ROOSTS.

shown enlarged, with a pin in each end, so that they will turn on the supports. A number of them are then fitted in inclined supports, as is shown, and can be adjusted with their broadest or narrowest surfaces uppermost. In this way the careful and humane poultry keeper may give his fowls, without trouble, such roosts as they prefer through the varying seasons and secure them against frozen feet in the severest weather.

The plan of inclined supports for the roosts seems to be the most economical as regards room. Each row of fowls is a little behind and a little above the one in front, and they are out of the way of each other. The past is the first winter during which my fowls have not frozen their feet more or less, though the mercury has been as low as 28° below zero."

**Veterinary Department.**

**Grease in Horses.**

Grease is the term applied to a certain diseased condition of the skin of the legs of the horse, and more especially of the hind ones. In the early stage, it is supposed to consist in inflammation of the sweat glands, soon followed by an offensive oily discharge, and in inveterate cases both the hair follicles and glands become destroyed.

It is a well known fact that certain breeds of horses are very much predisposed to this abnormal state of the legs, and these animals are especially liable to grease which have coarse heavy legs. Although certain animals are predisposed to grease, we find that uncleanness is the great exciting cause of this affection. It is brought on from allowing horses to stand in filthy and badly drained and ventilated stables. In the fall of the year, it is often caused by washing the legs with cold water, and not carefully drying them afterwards. In other cases, it is the result of keeping horses in very high condition, and not giving them sufficient exercise to keep the skin in a healthy condition.

Grease is a disease easily detected. On the first attack, there is generally more or less swelling of the legs, which if not speedily relieved, a discharge takes place, the hair falls partly off, the skin is reddened and inflamed, which can be plainly seen, especially in a white heel. The parts are exceedingly painful and hot, and in many cases the least pressure of the hand will make the horse twitch up his leg and continue to hold it up for some time. In other cases, when made to move about in his stall, or when taken out of his stable in the morning, he will keep twitching up his legs as if he was affected with springhalt. Exercise appears to relieve the pain for a time, as after being walked for ten or fifteen minutes he goes quite free. As the disease advances, the skin cracks and the discharge increases, becoming more and more purulent and offensive, the swelling increases, not being confined to the heels, but involving the front of the fetlock joint, and in some cases extending upwards to the hock. The cracked condition of the legs and heels undergoes a change of structure and fungoid granulations spring up similar in form to a bunch of grapes, this is called in veterinary phraseology, the "grapp stage," which may vary considerably in structure. At one time it is very granular,

and bleeds readily when touched. In other instances it loses its vascularity, and becomes hard and horny; from between the crovices of the grapes an ichorous glary discharge continues.

In the treatment of grease without cleanliness, all medicinal remedies are useless. The parts must be kept perfectly clean, and the general comfort of the animal attended to. The heels should be washed with soap and water every day, and afterwards thoroughly dried. If the patient is in high condition, a full dose of purgative medicine should be given, and restricted to a cooling diet, as carrots, bran, &c., or, in summer, green food is preferable. The following lotion may also be applied daily:—Chloride of zinc, thirty grains, dissolved in a pint of water. In inveterate or old standing cases, the hair must be cut off, and the parts poulticed with linseed meal poultices, to which may be added charcoal, yeast, or bleaching powder. After the removal of the poultices, dust the parts over with oxide of zinc powder, or apply an ointment composed of sulphate of zinc, one part to ten parts of lard, as in other skin diseases. Small doses of Fowler's solution of arsenic is generally attended with beneficial results.

### Lameness in Horses.

#### INJURIES OF THE SUSPENSARY LIGAMENT.

At the fetlock the canon bones form an angle of about 135 degs. with the pastern bones—an arrangement which greatly obviates concussion. But although elasticity and freedom of gait are thus attained, this bending of the limb proves a source of weakness. In compensation, however, the fetlock is strengthened by the attachment of the two sesamoid or pulley bones. Standing out prominently from the point of the fetlock, these bones also afford a mechanical advantage to the flexor tendons and ligaments which pass from the upper parts of the limb to the pastern and foot. To ensure this mechanical advantage the fetlocks of horses should be well formed. When viewed laterally, they should appear flat and prominent, but free from unnatural fulness or puffness. The pastern bones should be of sufficient length to obviate jar, but not so long as to induce weakness. In animals intended for heavy draught, less springiness and elasticity of step and greater strength are required, and hence in them short pasterns are preferable.

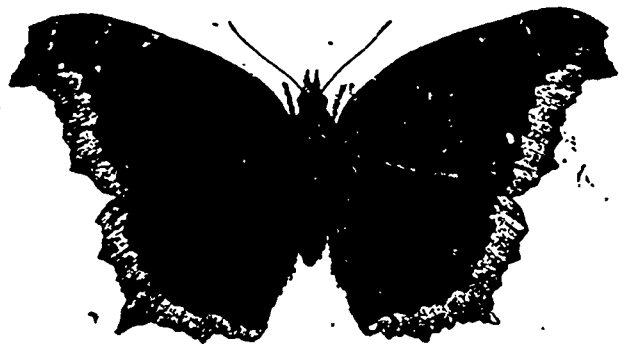
Amongst the structures concerned in progression, few are more important than the suspensary ligament—a stout fibrous chord which is fixed into the back of the canon bones just below the knee and hock, and occupies the hollow between the two splint bones, lying between the canon bone in front and the tendons behind. Towards the under third of the canon bone the suspensary ligament divides into two parts, each of which is inserted into the corresponding sesamoid bone, and passing forward round the pastern joins the tendon of the extensor pedis. It is possessed of a certain degree of elasticity, is especially developed in well-bred horses with flat lathy limbs, and contributes, with the lengthened pasterns, to that springiness and elegance of movement so desirable in all horses used for pleasure or for fast work. On this stout elastic ligament the weight of the body falls at every step. The insensible elastic ligament is put upon the stretch before the tendons, thus greatly saving them from strain and injury. But in thus saving other structures, the suspensary ligament itself is apt to suffer. This usually occurs during violent fast-work, as in hunting or racing; often it takes place in the final effort of the race; in the tired horse towards the close of a hard day's hunting; or in young colts training for the turf, and subjected to severe exertion whilst their structures are soft and uncondensed. It is most common in one or both fore limbs, but occasionally it happens behind. Sometimes the injury occurs just before the middle of the canon bone; sometimes before the bifurcation, when either one or both the divisions may be lacerated, and the tenderness and swelling will appear immediately above the fetlock. Sometimes the ligament is torn entirely through, when the urgent symptoms appear suddenly and the fetlock comes to the ground at every step, and in common phrase the animal is "broken down." More frequently, however, only a few fibres of the ligament are lacerated, when the symptoms come on more gradually. Even under the most favourable circumstances, injuries of the suspensary ligament are troublesome, and are apt to leave weakness, and tendency to recur. The heat, tenderness, and swelling, are usually greater than in corresponding injuries of the tendons, and the pain and swelling lie more anterior and nearer to the bone.

Strains of the suspensary ligament require the same treatment as strains of other parts—namely, perfect rest, and the soothing action of hot fomentations or poultices. The horse, whilst standing or moving, constantly bears weight on his suspensary ligaments; they are continuously on the stretch; the repair of their torn fibres is therefore tardy and imperfect, unless the irritating weight be removed by placing the animal in slings. Accordingly, in all serious strains, and still more in cases of break-down, the patient should at once be slung, and remain in slings for periods varying from ten to twenty days. Where the ligament is torn through, splints and bandages may be requisite to retain the parts in their natural position. The limb should be covered with a succession of poultices of well-boiled linseed meal, or oatmeal and bran kept constantly soft and hot by pouring in warm water at intervals of 20 or 30 minutes, and changing the poultice entirely every five or six hours. Poultice thus attended to often appear preferable to hot fomentations, which are seldom kept up with sufficient diligence or continuance. When the tenderness abates, and the patient can put his damaged limb to the ground without wincing, the slings may be disused, and the poulticing and fomentations superseded by cold wet bandages. It is often advantageous to make the horse stand in a pool or stream, with the cooling water up to his knees, for half an hour several times daily. In a month or six weeks from the infliction of the injury, and when the tenderness and swelling have been reduced, it is desirable to blister or fire the limb, and allow the patient several months' rest in a box or small paddock. When a horse has been broken down, or has had repeated strains of his suspensary ligaments, he will not stand fast work on the road, he is only serviceable for slow work on the farm or for breeding purposes.—N. B. *Agriculturist*.

### Entomology.

#### Insects Infesting the Willow.

With the exception of the oak, there is probably no tree or shrub in this country which affords sustenance to so many and such diverse species of insects as the willow. Of this circumstance we have lately been reminded by the receipt of a letter and several specimens of caterpillars from Mr. John Calcott, of Lambeth, Township of Westminster, C. W. The caterpillars sent us are of three different kinds, and respectively turn into two kinds of butterflies, and a saw-fly.



1. The caterpillars of the first butterfly are those of the well-known and extremely abundant Camberwell Beauty (*Vanessa antiopa*, Linn.); specimens of which, in its larval and imago states, we have selected for illustration by our excellent artist. These caterpillars first make their appearance about the beginning of June, another brood, or probably more than one, coming out during the summer. They are black, with minute dots of white; along the back there is a row of eight reddish-brown, or brick-red spots; and on each segment, except that next the head, there are six or seven stiff black compound spines, which give the insect a very formidable appearance as may be seen from our illustration.

When full grown they are nearly two inches in length. They usually feed in large numbers together on the exterior branches of willows,

stripping them completely of their leaves and causing very often the destruction of the branch; they also attack poplar, and, some say, elm trees; but we have never ourselves seen them on the latter. Their social habit renders their destruction comparatively easy; all that is necessary bring to cut off and burn the branch that is infested by them, and thus save the rest of the tree. When they have attained their full size, and completed their work of destruction, they descend the tree and crawl about in search of a fitting place for their chrysalis; the little projections afforded by buildings and fences are their favourite resort, especially the sides of clap-boarded houses or barns, where they may be often found in large numbers. The chrysalis is dark brown, with some prickly humps on the back, that portion beneath the thorax presenting the appearance of a græque human face. It is suspended by the tail to a little knot of silk, and hangs with its head downwards in a perfectly quiet state, except when a rude disturbance causes it to jerk itself about in an absurd manner, to the great amusement of children, who are generally well acquainted with it both in this and its butterfly state.

The butterfly comes forth in less than a fortnight after the caterpillar has entered upon its pupa state. The illustration given above, combined with its familiar appearance, renders any detailed description unnecessary; suffice it to say that the wings are a deep rich brown above, edged exteriorly with a row of beautiful light blue spots, followed by a rather broad cream-coloured margin; and that they expand about three or three and a half inches. Early in April, sometimes even on a warm sunny day in March, these lovely insects come forth from their winter quarters as the first harbingers of spring; for, like several others of the same family, the later broods are able to endure the frosts of winter, and thus perpetuate the species from one year to another. During almost every month of the summer too, and also late in the autumn, they may be seen flitting about our gardens and meadows, oftentimes in very great profusion; but though thus common in this country, in England they are one of the rarest and most prized butterflies, a guinea a piece being sometimes given by enthusiastic collectors for well-authenticated native specimens.

2. The second butterfly, whose caterpillar feeds on the willow, is the *Limnitis disippus*, Godart. It is

tawny yellow in colour, with black veins, and a black border spotted with white on all the wings; the forewings have, in addition a triangular black patch, enclosing some white spots, near the tip; and the hind wing a narrow curved black band. It measures about three inches across the expanded wings. This used to be rather an uncommon insect in Canada but during the last two years it has been very plentiful. At first sight, it very much resembles the common large reddish butterfly, the *Danaus archippus*, Fabr., but it may easily be distinguished by its smaller size, and the black band across the hind wings. The caterpillar, of which Mr. Calcott sent us a single specimen, is brownish variegated with white and pale green. The head is prickly, with a deep notch on the top; on the second segment there are two very odd-looking blunt horns, covered all over with prickles like those on the head; the 3 next segments are humped above, and the last three have each two short prickly tubercles. It is very unsocial, feeding in solitude, and hence does little or no appreciable damage to the poplar



and willow trees it inhabits. Its chrysalis like the caterpillar, is a singular object, being brownish or ashy-grey in colour with some portions whitish, and with the middle of the back forming a thin rounded projection, standing out edgewise like an exaggerated nose! The chrysalis from the autumn-feeding caterpillar remains all winter and produces the butterfly in the spring; these lay the eggs from which proceed the summer brood of larvæ, which in their turn, are transformed into butterflies about the end of August or beginning of September.

3. The remaining specimens sent us are false caterpillars of a saw-fly, which we have not before met with. They are blue black in colour, with a series of yellow spots on each side; about three quarters of an inch in length, and furnished with twenty-two legs. One of the specimens formed, during its journey to us, a tough blackish cocoon, the produce of which we look forward to with much interest. It will in all probability turn out to be a species of saw-fly of the genus *Allanthus* or *Nematix*. Our correspondent states that "these insects are very numerous and destructive to the leaves of the Welsh willows; they stick around the edge of the leaf, and will not leave it until it is all consumed; and when they have cleared one lot of willows, they go to the next. There are commonly from two to six or eight around a leaf." For their destruction we should recommend hand-picking, or watering with whale-oil soap suds or any other strong soap-suds.

Among the insects that feed upon the various species of willow, we may mention the beautiful Twin-eyed Sphinx (*Smerinthus geminatus*), the Fork-tail Moth (*Cerura borealis*), a large yellow saw-fly (*Cimbex ulmi?*), the Goldsmith beetle (*Arcoda lamigera*), the common May beetle (*Phyllophaga quercana*), the willow gall-gnat (*Cecidomyia salicis*), a plant-louse (*Aphis salicis*), and many others; all of which we have observed in various parts of Canada.

### Entomological Visit to the Cooksville Vineyard.

We lately had the pleasure of paying a visit to this establishment, which appears to be rapidly attaining success under the skilful management of Mr. De Courtenay. By a recent Act of Parliament the Company has become incorporated, and the distillation of brandy from the grape is permitted them free of excise duty. The great disadvantages under which they previously laboured having been thus removed, they will now undoubtedly go on and prosper, and we expect before very long to find the Cooksville wine celebrated and appreciated all over the country. Apart from inspecting the vineyard, and going over the establishment, the more immediate object of our visit was to look at it in an entomological point of view, and see whether the vines were affected by any of the numerous insects that commonly prey upon them. Our natural expectations were happily, however, disappointed; for after a close inspection of the vines we could discover no single insect of any consequence. The grasshoppers had made holes in a few leaves, just in the same manner as they are attacking everything else, and one or two leaf-miners had discoloured a few others; but the injury done was far too trifling to be appreciable. This healthy and unusual state of things is due to the careful pruning and good management of Mr. De Courtenay, which has effectually prevented any insect from getting a lodgment. This is very remarkable when it is remembered that the bearing vines cover an extent of twenty-five acres, and about as many more are planted out for bearing next year or the year after. We have never before seen vines in this country free from some of the caterpillars or beetles which usually make their abode and derive their sustenance from the grape, both in its wild and cultivated states.

**USEFUL INSECTS.**—The *Entomologist* says:—"We blame the house flies for annoying, and fail to see that in the larva state they have cleared away impurities around our dwellings, which might otherwise have bred cholera and typhus fever. We execrate the blood-thirsty mosquito, and forget that in the larva state she has purified the water, which would otherwise by its material effluvia, have generated agues and fevers. In all probability, when we rail at the *Tabanus* that torments our houses in the summer, we are railing at insects which in the larva state have added millions of dollars to the national wealth, by preying upon those most insidious and unmanageable of all the insect foes of the farmer—subterraneous, root-feeding larvæ."



### An Agricultural Tour Eastward.

To the Editor of THE CANADA FARMER.

Sir Having completed an agricultural tour through a large portion of the County of Renfrew, including the Townships of McNab, Horton, Adamston, Bromley, Ross, Westmeath, Stafford and Pembroke, I send you a few hastily written remarks in reference to this journey that may not be wholly devoid of interest to several of your readers.

It should be borne in mind that this is but a recently settled county, and has hitherto been more distinguished for its immense lumbering business than for its agricultural productiveness and advancement; and it is not till within a comparatively short time that the latter has received any marked degree of attention and encouragement. In most of the townships above named agricultural sojourns exist that are more or less flourishing. At this busy season, it is not practicable to get up large meetings, but in going through a township one has an opportunity of personal intercourse with the officers of societies and of a number of the more intelligent and enterprising farmers, and business men generally.

I am under especial obligations to Mr. J. L. McDougall and Mr. McLaren, the President and Secretary of the County Society, in assisting me through a large part of my journey, and to the officers of other societies, I am also indebted. In the Village of Renfrew the meeting was attended by about forty persons, who evinced much interest in the various topics embraced in the address and the conversation which ensued. I may be allowed to remark here that scholastic attainments are by no means infrequent, as many suppose, to the formation of ordinary habits of business. The President of the Renfrew County Society is a young man, who a few years ago, won the highest mathematical honours in our Provincial University, and now conducts with much care and efficiency an extensive business, embracing both agriculture and commerce.

There are large tracts of excellent land in many parts of this extensive county. McNab, Horton, and Westmeath are considered the best townships. The western and northern parts of the county are exceedingly rocky, and in some places the bare rock constitutes the surface, rendering cultivation forever impracticable. These areas, however considerable, mostly contain patches of good and sometimes deep soil, so as to admit at some future time, when population and markets justify, not only a limited cultivation, but extensive ranges of pasturage for sheep and cattle. Labour sustained by capital and directed by skill, will one day achieve wonders where all is now desolate and forbidding. As much of this section of country has abounded with pine, the lumberman has left the stumps, which, next to stones, are the greatest impediment to cultivation. Stump machines are occasionally employed, and fields here and there may be now seen, even on pine lands, that are free, or nearly so, from these obstructions. This process, however, will not likely be carried on for a long time to come, but upon lands of first quality.

There are no pure breeds either of cattle or sheep in this county. Some of the native animals are really good, but this majority is small, and of slow growth. Here and there, traces of Durham and Ayrshire blood may be observed, always attended with superior symmetry and greater size. Most of the sheep have a strain, more or less, of the Leicester, and admit of great improvement. I urged upon the people the importance of getting pure bred male animals, which, in a short time, would produce an astonishing change for the better. This suggestion, there is reason to hope, will not be wholly disregarded. There are some well bred pigs in the county, and the horses seem mostly adapted to their work, which in a rough, lumbering country is exceedingly

exhaustive. I felt surprised, in some instances, to find that so much had been done in so short a time. Well cleared farms and comfortable homesteads are to be found on the better class of soils; and even underdraining has been practiced to some extent. Stones are generally used for that purpose, but Mr. McDougall has a man on his estate who makes draining tiles by a machine, which, however, is not of the most approved construction. In some parts of the county, Horner & McNab for instance, the Perthshire iron plough is used on clear land. It is an excellent implement, on the Scotch swing principle, and costs when imported about \$10. The farmers find that deeper and more thorough cultivation, after the fields have been cleared of stumps and other obstructions, is invariably attended with beneficial results. In such situations mowing and reaping machines (generally the combined action) are often employed; but from the unevenness of the country the scythe, cradle, and sometimes the scythe all but exploded sickle, are usually in requisition.

Much of the soil of this country appears to be well adapted to pastoral purposes, and in my later course with the farmers this became a prominent subject of conversation. I never tasted better butter anywhere, and excellent cheese is made by Mrs. Forrest and Mrs. McLaren, of Hinton; and there is a pretty wide impression that this branch of industry might be profitably extended. But little barley is grown, what little I saw was good, and this cereal might be much increased with advantage. The same observation applies to turnips, mangolds and carrots, all of which appear to do well. Potatoes are raised extensively, and I never saw the crop anywhere so promising. For oats, pork, &c., there is a large and constant demand northward by the lumbermen. Agriculture is slowly advancing in that direction. I found Pembroke a nice flourishing little town, with adjacent fields well cleared and cultivated, bearing heavy crops. The trip up the Ottawa was fifty miles from this place to the head of steam navigation, I must not attempt to describe. Settlements are of course few and far between, but the scenery from the deep river is both grand and beautiful. People seeking coolness and seclusion during the hot weather, would find both to their heart's content in these magnificent wilds, which echo only to the noises made by the Indian and lumberman. The steamer on these waters is capacious, and affords all the necessary comforts of travelling, and at the end of the trip there is good and extensive hotel accommodation in a plain and inexpensive style. I learnt that oats, potatoes, &c., were grown to a small extent by the lumbermen 150 miles north of this point, where the territory of the Hudson's Bay Company commences.

I may just add that the crops generally are very good, never known better. Winter wheat in many places suffered from too much exposure, it is being gathered, but spring wheat, which is extensively cultivated, is magnificent, and I regret to say, in some places, it is considerably affected by the mildew. Warm and settled weather is now much needed; the late heavy rains have caused the crops to lodge where heavy. With such a change, the farmer's prospects in these parts would be of the most cheering character.

Yours &c.

GEO. BECKLAND.

Arnprior, Aug. 4th, 1866.

**BEE'S DESERTING THE HIVE.**—Mr. Samuel Dickson, of Cedar Hill, makes the following enquiry:—"Can you, through your valuable publication, give any information respecting the reason why a swarm of my bees has left the hive after being three days in it. They seemed to have begun to do well, leaving more than a pint of honey in it. The hive from which they swarmed was sheltered from the sun in a good beehouse, but the hive from which they have gone away was exposed to the sun. By giving all the information you can in your next issue you will much oblige me."

**Ans.**—Our correspondent has not given sufficient particulars of all the conditions of the swarm, to enable a satisfactory explanation to be given of the proceedings of the bees. Mr. J. H. Thomas, of Brooklyn, suggests the following:—"In all probability it was on account of the hive being exposed to the sun; as it is often the case that bees will forsake a hive that is greatly exposed and especially if the hive is new or newly painted. There are also other reasons for bees leaving a hive. Sometimes the loss of a queen, or an old musty, mouldy, or sour hive may cause them to leave. Second swarms may sometimes rush on of a hive when the young queen goes out to meet the drone. Again, they sometimes leave and no reason can be assigned for their so doing."

## Crops &c., in Prescott.

To the Editor of THE CANADA FARMER :

Sir,—Wet weather is the rule with us now. It is a very unfavourable season for hay-making. We had a cold and wet spring, which was succeeded by extra warm weather with frequent showers up to a week or so past, since which time we have had generally rainy weather accompanied by heavy thunder. This is making the hay-harvest backward, and with the unusual scarcity of help this season, work will be very slow among the farmers about this time. Hay is unusually heavy this season; so also is most other crops, thanks to the frequent rains with which we have been blessed. This remark however, will not hold good concerning wet and undrained soils. Neither has the season been so favourable for the corn crop as if it had been drier, especially during the months of May and June. But "what is good for one is bad for another," as the saying is, and I suppose we must abide by it. The extraordinary hot term of this last month has, however, worked wonders in the growth of this great cereal.

Weather has been favourable for the wheat crop—only the spring variety is, in any large amount, grown hereabouts. The mild is working to a very large extent in late sown fields. Early sown pieces have escaped the ravages of this pest, and are now about ripe for the harvest. Other crops give a very high promise of good yields. Taken as a whole, the prospect is that this season will, as the last, be a highly favourable one for the agriculturist. With fully or more than average crops, and the present good prices, farmers will have good returns, and trade and the country at large will prosper—an effect always consequent upon the fact of the former circumstance.

J. F. CASS.

L'Original, C. W., Aug. 2nd, 1866.

## The Thomas' Bee Hive.

"Thomas C. Hill," of Sydney, Cape Breton, writes as follows to the patentee concerning the above hives, under date "12th July, 1866:"

"I cannot tell you how delighted I am with your hive. The more I know of it the better I like it, and if it equals a low hive in producing surplus honey, I shall say at once that it is perfect. In every kind of hive that I have tried, I had only to try them to see their faults. In yours I can see no fault, nothing in which I could wish for improvement. When I first heard of it, I imagined that the depth of the combs would present a serious obstacle in the way of lifting them but, but now I would sooner examine two of yours than one Langstroth hive. I have no trouble now about stings. I never use gloves although I have a pair, and seldom a veil. I examined every comb in 15 of your hives the other morning before breakfast. I now have 26 of them in operation and hope next year to have 100. I am in hopes that before next spring it will be easier for me to import hives from you than it was last spring. Under confederation I think it likely that we will have a direct trade.—indeed I believe it has commenced already."

NOTE BY ED. C. F.—At the close of the letter from which the above extract is made, the writer speaks of having previously sent a communication for insertion in the CANADA FARMER. Not having received the communication referred to, we beg to say to Mr. Hill, who is we, understand, an experienced aparian, that we shall be glad if he will take the trouble to write us another letter, in place of the missing one.

ESSEX PIGS WANTED.—"A Subscriber" is anxious to obtain some Essex Pigs—male and female—in order to cross and improve his present stock. Breeders of this variety of pigs will do to advertise in our columns.

POTATO DIGGING MACHINE.—Mr. W. W. Kitchen, of Grimsby, writes as follows:—"Mr. E. Hamill, of London, C. W., enquires in THE CANADA FARMER of July 16th if there are any potato diggers made in Canada; if so, where they are to be got, and what price." Potato diggers are manufactured for sale at Mr. Samuel Morse's foundry, Milton, C. W. Price about \$25 each. One man and team is supposed to dig ten acres of potatoes in a day. A machine has been used in this neighbourhood, and gave good satisfaction. One will be on exhibition at the Provincial Fair in Toronto, this fall."

POLITICAL NEWSPAPERS versus FARMERS.—"J. F. Cass," of L'Original, C. W., writes on this subject as follows:—"No mere opinion of the newspaper press concerning the condition of the crops is of any weight compared with the reports of the farmers from all parts of the country. Who ever saw a city newspaper report anything adverse to the old stereotyped phrase 'full average crops' He is a 'croaker' who would report anything having a bearing in a contrary direction. They work for the reduction of the price of the products of the farm, not for ascertaining the real state of their growth and the prospects of their yield. They work against the farmers interest in favour of the non-producers, and, at the same time, labour under the pleasing garb of making themselves appear as the farmers friends—as witness the denunciations by the political press of the new retaliatory tariff, taxing corn and other coarse grains from entering Canada from the States. But enough: this fact is too apparent to admit of contradiction."

Then let the farmers have a journal that will look after their interests, one that will ever be alive ever-thing pertaining to their profession. And let there be a department in it containing notes from farmers, from all parts of the country, concerning the weather, as to what effect it will have upon the crops; and the state of the crops themselves, the prospects of the probable yield, &c. The farmers of Canada have their FARMER. Now it remains with them, to a great extent, whether it shall come up to this standard. They are to say whether we are to have a faithful record about the weather and the crops, one in which all parts of the country will be represented, and which will be taken as authority everywhere. Such a work was commenced in some of the earlier issues of this paper, but there seems to be now no special department devoted to it. We are sure several farmers could be found in every county of Upper Canada who would send notes concerning the state of the weather and the crops, say once a month, for publication in the CANADA FARMER. These notes could be so condensed and put into form by the editor to suit the requirements of the paper, and would for a summary, relating to the subject, at once be of the greatest interest and value to farmers and to the country at large."

ANS.—As readers who have carefully examined our pages are aware, we have repeatedly and warmly invited practical communications from the cultivators of the soil themselves. If this journal is adequately to fulfil its mission, its pages must be better patronized by contributions from farmers. Agricultural journals in the United States experience no difficulty in filling a large portion of their columns with such correspondence. We again repeat that we shall be particularly gratified by farmers "in every county of Upper Canada" sending us brief, practical, and reliable notes not only on the crop prospects of their neighbourhood, but also on their own farming experiences.

## The Canada Farmer.

TORONTO, UPPER CANADA, AUGUST 15, 1866

## Great Implement Trial at Auburn, N. Y.

ON the 10th of last month, a most important trial of implements, under the auspices of the New York State Agricultural Society, commenced at Auburn. We were present the three first days, and had ample opportunities to investigate the principles upon which the various implements were to be tested, to observe the preliminary proceedings, to watch the actual trial of a number of the mowing machines, and to inspect a variety of useful farm tools that were on exhibition. Our decided impression from all we saw and heard, was that the most valuable results might be expected from the competition among agricultural machinists, for which an opportunity had thus been furnished by the New York Society.

The programme of the trial invited manufacturers to subject every description of farm implements to a fair but searching ordeal. But while quite a number of miscellaneous implements were entered, the occasion resolved itself very much into a grand trial of the principal mowing and reaping machines. In these there is very brisk competition among our

neighbours across the lines, and as the demand for them is extensive, it is a matter of some moment for a manufacturer to acquire the reputation of making a first-class article. Between 70 and 80 mowers and reapers were entered in the several classes specified, the chief of which were single machines, combined machines, hand-rakers, self-rakers, one-horse machines, droppers, &c. A most elaborate enumeration of "points" to be considered by the judges, prescribed the principles on which the awards are to be made. A perusal of this document cannot fail to convince anyone of the minuteness and thoroughness with which every part of the important implements to which it relates, have been studied by inventors, manufacturers and users of them in the United States. The length and thickness of the grass and grain cut; the names of the weeds intermingled with the crop, their proportions, average length, and toughness of stalk; the total amount of grass and grain per acre ascertained both by measurement and weight; the evenness of the cut; the condition in which the grass and grain are left; the length of stubble, and whether it is clean cut or torn off; the closeness with which the machine works up to stones, stumps and other obstacles, were among the "points" in relation to the work done. As to the machines, weight; price; extras furnished; material employed; workmanship displayed; metal used for journal bearings; heating of the parts; draft; speed; facilities for oiling; portability and compactness; contrivances for security and comfort of driver; temper of cutting-knife; whether sickle-edged or smooth-edged, were among the "points" to be carefully weighed. No. 40 was to represent the best work that can be done; No. 30 the best work that can be done with a hand-scythe or cradle; No. 20 inferior to any work a respectable farmer would tolerate; the gradation of work to be expressed by numbers intermediate to these. When all the points minutely specified are duly considered, the judges are to make up their verdict by replying to the following questions:—

(a.) Which is the cheapest machine. (b.) The most simple in its construction. (c.) The most durable. (d.) Which requires the least power. (e.) Which has the least side draught. (This will be determined by its capacity to perform a given amount of work, in a workmanlike manner, in a given time, in the most economical way.) (f.) Which does the most work in the least time. (g.) Which does the best work. (h.) Which is managed with the most facility. In determining the last question, they will consider—(i.) Which is the most portable when in operation, or otherwise. (j.) The arrangement for throwing in or out of gear. (k.) Accessibility of parts for convenience of oiling, tightening nuts, &c. (l.) Convenience and safety of the driver. (m.) Readiness with which the machine may be brought into perfect operation from a dead stand, and quality of work with slow motion. (n.) Time and room occupied in turning and avoiding abrasion of the turf. (o.) Adaptation to uneven surfaces, cutting at different heights, and to cutting different kinds of grass."

When the judges have determined these questions they will proceed to decide which of the machines is best adapted to the use of the farmer, by having the greatest number of merits and the fewest defects.

We mention these particulars, not as an exhaustive account of the principles laid down for the guidance of the judges, but as evidencing the thoroughness of the trial, and as furnishing an example which may be of use in future competitions under the auspices of our own Society.

The mowing machines were tested in a clover field on the farm of Mr. W. S. Leach, in the Town of Aurelius, four miles from Auburn. The crop was a moderately heavy one, but in a very prostrate and tangled condition. A heavy growth of the large coarse weed known as *Eriogon Strigosum* was mixed with the clover. Obviously a machine that would do good work in such a field might be relied on to perform its allotted task anywhere. It must be confessed that the test was a severe one. Nevertheless the machines bore it bravely. Those whose performance we saw, certainly did their work well. While we must own that all was good, there was of course also better and best; but as we noticed only part of the competition, we shall not anticipate the judges' award by any verdict of ours. Each machine cut an acre. There were no mishaps, and very few delays from

logging or derangement. A great difference was perceptible in the noise made by the various machines, some running almost noiselessly, and others making a great clatter. Other things being equal, we should certainly prefer a noiseless machine to one always going clack, clack, like a garrulous tongue; and we suspect there is defect of construction, and want of smooth working in the several parts where there is so much noise. Nearly all the machines had two wheels, the one-wheel principle of construction having been generally discarded by manufacturers. Among those we saw tested, two especially attracted our attention. One was an iron machine, named the "Clipper," invented by R. Dutton, of Brooklyn. Its mechanism was very beautiful, and it worked with much ease and precision. It is a very compact machine. The draft is not from the pole, but from an iron rod below, which would seem to have some decided advantages. The other was the "Eureka" Mower, manufactured by J. D. Wilber, of Poughkeepsie. It avoids the disadvantages of side-draft, by having the horses directly in front, one horse walking in the uncut grass, and the other, by means of a wide whistle-tree, walking outside. The grass trodden over seemed to be cut as easily as the rest. The "Eureka" did its work well and quickly. It cuts a swath rather more than six feet wide. The acre plots were 82½ feet in width. The "Eureka" cut its plot in 13 swaths, while the other machines required from 19 to 23. The dynamometer test had not been applied, and we are curious to know how a machine cutting a wide swath with the motive power directly in front compares as to the force required to work it, with machines making a narrower cut with a side-pull. In all, forty-nine mowers were tried, and from the nearly equal excellence of the work done by several of them, we imagine the judges will find it no easy matter to make their award. We learn from our exchanges that the dynamometer test came off after the mowing, and was a tedious, lengthy affair, consuming some days. On the 16th ult., the trial of reapers commenced, continuing two days. Thirty-two machines competed. They were not all of so totally different machines, nor indeed were the forty-nine mowers. In some instances the same machine was tried more than once under a diversified arrangement. The leading point of interest in regard to the reapers was that of self-raking. A number of devices to accomplish this have been put to the test, and we have little doubt that self-raking will yet come to be so satisfactorily done as to dispense with the additional weight and cost of an extra hand to clear the reaper platform of its accumulations. We shall await with much interest the report of the judges, and shall take care to advise our readers of the results arrived at. We earnestly hope that Canadian, as well as United States implement-makers and users, will derive substantial benefit from the thorough scrutiny which the New York State Society has been at the pains and expense to secure. After the trial of mowers and reapers, that of horse-rakes and forks, hay tedders, threshing machines, and feed cutters was to be proceeded with. The grounds of the Cayuga County Agricultural Society, half a mile out of Auburn, were used as head-quarters during the trial. Here were officers' and committee rooms; buildings permanent and temporary; also tents for the exhibition of implements and machinery, of which a pretty good collection invited the inspection of visitors.

## Rural Economy of the Netherlands.

(Continued from page 231)

We resume our notice of the copious and interesting report of M. Lavalege, with the following extract: "On the other side of the Zuyder Zee, that great gulf hollowed out by the tempests of the twelfth century, extends the 'green region' of Friesland. In Holland, cheese is the staple production; in Friesland, butter. The cheese made from the churned milk is considered only as accessory. It is in butter making that the Friesland farmer displays that perfect cleanliness which characterizes him. The Friesland butter is so firm in quality, that in the London market, to which it is largely exported, it sells at an exceptional price. The quantity of butter taken to the various provincial markets reached in 1860, 140,000 cwts., which, at the average price of £5, would realize £700,000. The domestic animals of Friesland are celebrated. The cows are as good as those of Holland; and the introduction of Durham bulls will produce a cross breed, which is expected to yield more cream from a smaller quantity of milk, and to fatten more readily. The black Friesland horses, with small lively heads and swan like necks, are capital trotters. In fact, the agricultural productions of Friesland are little inferior to those of Holland, but the farmers are

generally less wealthy. There are not so many proprietors among them, and the length of lease being only seven years on an average, the rise of rents is continual."

A source of manure is so peculiar to this country as to deserve special notice. Along the coasts are to be seen numerous little hillocks from 13 feet to 20 feet in height, which were formed by the hand of man during the pre-historic period. These were places of refuge for man and beast during extraordinary high tides, and their commingled ingredients constitute a valuable fertilizer, which has been extensively used for that purpose.

North of Friesland, including the province of Over-Yssel, the land becomes inferior, the surface quite level, abounding in peat, with numerous small lakes and ponds.

"The earth, drowned in water all round, looks like a sea of mud. Towards autumn, numberless herds enliven these green solitudes; but up to the middle of July the only things that are to be seen are the various water fowl and sea gulls. These amphibious tracts exhibit many ingenious methods of cultivation. All sorts of marsh plants grow here with great luxuriance; and they are collected to make manure. The reeds furnish cheap and excellent covering for roofs; rushes are used to make mats, which serve as carpets for the humble dwellings, and are also exported to England. By such means a tolerable revenue is obtained from the swamps. This is also the land of floating islands, which originate in the accumulation of vegetable debris on the surface of the lakes, and in time become firm enough to carry cows. There are certain spots of drier and firmer land, and the delta formed at the mouths of the Yssel rivals in richness the best portions of Holland and Friesland."

The province of Zealand, adjoining the borders of Belgium, consists of several islands, formed by the windings of the Scheldt, and is about equally divided between arable and pasture. Cattle, flax, rape, wheat, and beans are the principal crops. Notwithstanding the humidity of the climate, madder has been successfully cultivated in this section from a very early period; an average of which may be estimated at 12 or 15 cwt. per acre, worth about £27 sterling. Farms are small, ranging from 10 to 60 or 70 acres, and the cultivation and management evince great industry, skill and perseverance.

In the Zealand coat-of-arms a lion is represented lifting himself by a bold attempt above the waves that were ready to engulf him. The motto is, *Luctor eturgo*—"I strive and rise above water." The device is true in a double sense, both as applied to the battle which these islands may be said to wage against the ocean, and to the heroic struggle by which they established their independence. Zealand cut through its dykes and gloriously let in the flood rather than submit to the yoke of Philip II.; and it had afterwards to reconstruct, with great labour, what its patriotism had destroyed in one day.

The province of Groningen, lying at the other extremity of the Low Countries, is well cultivated and highly productive. Land in fee simple will average £80 an acre, and the farming class, on the whole, are exceedingly industrious and intelligent, many of them having accumulated much wealth. In this population, as is more or less the case in the Netherlands generally, we do not find that inequality of condition, constituting grades or classes, which so strongly marks most European populations. Groningen presents a purely agricultural population, governing itself with a liberal profusion of the comforts and even luxuries of life so where more widely and equally diffused.

The only houses are those of the farmers, and they are all alike. The buildings are unequalled. Between the road and the dwelling house is the garden, planted with ornamental and exotic trees, with a lawn laid out in flower beds. At the background is the kitchen garden, filled with fruit trees and a variety of vegetables. The extent of the facade, the numerous windows, the embroidered curtains, the furniture in American oak, the piano, the capital library, all proclaim easy circumstances, and the habits which result therefrom. Behind the dwelling-house is a great building, lofty and long like a church, containing stables, cattle, horses, barns, &c., all under one roof. On entering you find a room sufficient to store the crops of 250 acres, a collection of the most improved tillage implements, sixty cows perhaps in one row, and twenty splendid black horses,

the pride of their owner. The cultivation of arable land prevails, as in Zealand, and it is as well understood in England. On the clay a crop of 42 to 55 bushels per acre of beans, 55 to 66 bushels of barley, and 77 to 88 bushels of oats is not uncommon. To give an idea of the number of cattle reared, we may cite the parish of Aduard, with not more than 2,000 inhabitants, which exported, in 1860, 359 milking cows, 420 fat oxen, 78 heifers, 86 horses, 1254 sheep, and 700 cwts. of butter, and it does as much every year."

M. de Lavelege ascribes much of the prosperity of the inhabitants of Groningen to the custom of tenancy which prevails in the country, called the *becken regt*, or hereditary tenancy, and consists of the right of permanent occupation, on payment of a fixed annual sum which the landlord cannot increase. Under this kind of tenancy, holdings cannot be divided, and farms pass on from one generation to another in the order of family descent. Since the value of agricultural produce has much increased by a free market being opened in England, some wealthy cultivators have sub-let their farms on lease at a much increased rate, a practice which our author thinks will, if persevered in, finally subvert the ancient system of tenancy, which has worked so well for the great body of the people.

The means of diffusing useful information, and of advancing morals and civilization, have, in this sphere of action, proved anything but inefficient. Nowhere, perhaps, is intelligence so generally diffused as in these countries. Most of the farmers are accustomed to engage in theological debates. Many of them belong to the *Mennonites*, who are the Quakers of Holland.

"One day," says M. de Lavelege, "I remarked four fine farms one after the other. I asked the landlord of an inn at which I was stopping to whom they belonged." "To Quakers," was his answer; "they are wealthy, each is worth not less than £26,000 (three to one)." "I have heard the remark that there are no poor among the members of that fraternity; is that the case here?" "Yes," says mine host, "they have only a single poor person among them, and when he dies there won't be one!"

Sovereign manners, work and mutual assistance, have banished want from these little communities, where every one is known, all are cared for, and each one helps the other. What a lesson do these cheering facts read to older and larger communities; and how clearly do they indicate the intimate relation that exists between man's spiritual welfare and his social and physical well-being.

To be Continued.

## The Provincial Exhibition.

There is every indication that the approaching exhibition will show the same steady improvement over the last that each succeeding exhibition has done over the one immediately preceding. The reports from all quarters give encouragement to expect a plentiful harvest in every section of the western Province, and, as a general estimate, it is expected that the yield is fully up to the average. Where the Fall wheat was not entirely blasted by the unfavourable spring, there is every assurance of a fair crop; and where the injury has been fatal, the farmer has replaced his first unproductive sowing by spring grains which now promise well. The prize list for the exhibition has been issued, and the changes introduced demand some attention. The prizes amount to over \$12,000, which is slightly in excess of the amount last year. An important alteration has been made in the rules for competitors by the announcement that entries are open to all, and, consequently, competition is invited from the entire world. The advancement made in this respect is, in itself, demonstrative of the strides the country is making in the acquiring of material wealth. About six years ago the first change in this direction was introduced by opening the live stock classes for universal competition, then the grain prizes were put in the free list, and now in the Arts and Manufacture Department the prizes are open to every competitor. The change substantiates the fact that Canadian manufacturers are, like Canadian farmers, gradually getting out of

leading strings and not afraid of any outside competition; and although it may be the case that for a few years the change will be against us, and a few prizes may be taken out of the country, our mechanics will gain in experience fully as much as they lose pecuniarily by the change. Diplomas alone were formerly awarded to meritorious articles of foreign production. The Prince of Wales prize of \$60 is this year given to the best stallion for agricultural purposes of any age. The Fergus cup, presented by the Hon. A. J. Fergusson Blair, for the best grade heifer; and the Canada Company's prize of \$100 for the best sample of fall wheat, also reappear on the prize list. The principal change in classification has been made in the sheep classes, which have been considerably reduced. We have now only two classes of long woolled—the Leicester and Cotswolds; two of medium—the Southdown, and Shropshire and Hampshire downs; and one of fine woolled instead of three last year. The change has incorporated the Spanish, French and Saxon Merinos in one class, in consequence of the meagre shows in these classes not warranting the separation of the different fine wools. Poultry has been better classified than formerly and several sections added. Bramahpootas are separated from Cochon China fowl, and a prize given for each. A new name, the Creve-cœur fowl, is added; and a special prize of a silver medal for the pair of fowls of any breed most distinctly exhibiting the excellencies of the breed to which they belong, is offered by Mr. Allan McLean Howard, of Toronto. In seed a section has been added to give encouragement to the culture of the Riga flax seed. A prize of \$20 is offered for the best ten bushels from the seed imported by Government in the beginning of the season. About four hundred bushels of the seed was sold in Upper Canada, and a respectable show should certainly be made. With a view to the encouragement of cheese manufacture and the keeping of dairies, a prize of \$30 is offered for the best three factory cheeses, with proportionate amount for second and third. This branch of agricultural industry is now obtaining favourable attention among the farmers, especially in Oxford, Elgin, and other places west, and proving highly remunerative. It is in excellent time to foster it by a prize such as that offered. In the arts and manufactures department, the greatest perceptible change is in class 39, the fine arts. The system of making professionals and amateurs compete together in oil and water colour paintings, having in the past produced much annoyance to the board and dissatisfaction among the exhibitors, a professional list of original paintings in oils, water colours and crayons, is made up and prizes offered, and a separate list is made up for copies by professionals. The same arrangement is made for amateurs. The new arrangement will have the effect of classifying these different branches of the same profession in a manner likely to produce more satisfaction to all. The Exhibition will open this year on the 24th September, or one week later than last year.

## Agricultural Intelligence.

### An Excellent Idea.

The Executive Committee of the Michigan State Agricultural Society, at its last winter meeting, offered the following premiums on farms:

1. For the best improved and most profitable farm of not less than 160 acres in area, a premium of \$160.
2. For the best improved and most profitable farm of not less than 80 acres, and not over 160 acres, a premium of \$75.

These prizes are to be awarded at the Annual Meeting to be held in Adrian next month. The entries were required to be made with the Secretary at his office in Detroit on or before the 15th of July. The examination of the farms is to have reference to the following points, which are laid down for the guidance of the judges:—

1. The condition of the surface with regard to its economical division into fields, its improvement, the fences, and the system of cultivation practiced.
2. The farm house, and grounds, orchards, farm buildings, yards and arrangements for taking care of the stock and crops, incident to the particular system of culture practiced.
3. The amount of drainage, if such work was necessary, and the improvement caused by open or by under-drains.
4. The quantity and quality of the live stock maintained.
5. The amount and condition of the crops for the last, past, and present yrs.
6. The returns obtained by the system pursued, with the aggregate amount of stock and crop kept and obtained per acre.

WOOL IN ONTO. The *Ohio Farmer* states that the wool house of Messrs Bur, Rose & Co., Cleveland, O., had gathered, up to the 7th inst., 760,000 lbs. of wool, at prices ranging from 60 to 62 cts. per pound.

SHROPSHIRE LAMB. A correspondent of the *Country Gentleman* writes that journal, as follows:—"Having noticed the weights of various lambs in the *Country Gentleman*, I thought I would try one of my Shropshires to-day, and found his weight to be 72 lbs. He is just three months old."

THE HARVEST IN WATERLOO.—The *Galt Reporter* remarks that the wheat harvest in that section has fairly commenced, and the steady clatter of reaping machines can be heard in almost any part of the Township of Dumfries. The grain this season is difficult to cut on account of being so badly beaten down, and many fields that are usually reaped with the machine will this year have to be cut by hand. Taken altogether, however, the crop may generally be set down as superior to what was expected in the early part of the season.

## The Household.

### Homedale Farm.

#### HAYING AND HARVESTING.

SOMEHOW or other, many farmers fall into an easy-going, slipshod habit. Instead of being before-hand with their work, they are usually behind-hand with it. Their work drives them instead of their driving it. They always manage to be "a little late" with the various operations of the farm. They are "a little late" with their ploughing, and hence their seed is not put into the ground until the season is pretty far on. They are "a little late" in cutting their grass and grain, and so do not get it housed in the best condition. They are "a little late" in preparing for winter, and in consequence are caught with their stock exposed, and perhaps their turnips in or on the ground. They are "a little late" with their winter teaming, and therefore lose the best of the sleighing. In short as the result of this unfortunate habit, they are always working at a disadvantage, and generally do things in a hurry.

Mr. Perley had been schooled into promptitude and push when a merchant, and he found these qualities of great value on the farm as well as in the counting house. Indeed he was wont to remark that if every farmer could have two or three years business drill in the city, it would do him immense good, in the way of sharpening his wits and making him energetic and prompt in his movements. He could see no good reason why the man who tills the soil should be droung and sluggish in his ways any more than the city merchant, well knowing that at certain seasons even a day or two's delay may have to be a disastrous affair. Mr. Perley's observations and agricultural reading had convinced him that promptness and energy, valuable at any time, were especially necessary at the period of harvest. He was also a thorough convert to the opinion that grass and grain should be cut early, and believed that great loss often resulted from their becoming too ripe. In harmony with these views of things, he was particular to have everything in readiness for prompt and timely action. He bought a good combined Mower and Reaper, and took care to have it in perfect gear, every nut tightened, and all the bearings well oiled before haying began. The necessary forks and rakes were on hand. A hay sweep, horse-rake, and horse pitchfork were also provided. His hay crop the first year was not large, for having as yet but little stock, and no home-made manure, he determined to plough under considerable of the green clover as a means of enriching the land. The mowing machine was set at work so soon as the grass and clover were fairly in bloom. One of his neighbours who happened to be passing just as they were commencing to cut a fine field of timothy and clover, with the seeding down of which the former owner, Mr. Turnbarry had taken great pains, took occasion to express surprise at their

beginning so soon. Mr. Perley replied as follows:—"Early in its growth, grass is watery; as it approaches blossoming sweet nourishing juice is secreted; after blossoming this nutritious juice goes to perfect the seed, the stalk becomes hard, fibrous, and woody. The best time therefore to cut grass is just when the principal part of it is in flower. A crop of grass does not exhaust the land so much if cut before the seed forms. Early cut grass makes better hay,—stock will eat it more greedily,—it also goes further, because there is more nutriment in it. Besides there is a better chance for a second growth, either for mowing again or for late fall pasture." Mr. Perley's neighbour could not but acknowledge that there was force in these reasons, but he thought it would not be so easy to cure hay when it was cut in such a green condition. Mr. Perley answered him that the best agriculturists in the world now practiced the early cutting of clover and the grasses, and there was no difficulty in curing them sufficiently, especially where a machine called the "hay-tedder" could be had. This implement by continually turning and shaking the newly cut grass or clover, causes it to dry evenly, quickly and with but little waste of nutritious qualities. It was his intention if possible to procure a tedder before another season. Meantime he believed that the extra expense of a little more turning and shaking by hand would be abundantly repaid by the improved quality and the enhanced value of the hay.

Beyond romping in the hay-field and on the mow in the barn, the young Perleys had not much to do with the haying. They watched the mower with much interest, and wondered to see what clean and quick work it made. On such level land as the Burford plains, mowing and reaping machines have every advantage, and display their labour-saving qualities to perfection. Charlie rode on horseback to his heart's content when the horse-rake and hay-sweep were in use, and was tempted to think it a toil rather than a pleasure, although he supposed at one time he could never tire at that sort of thing! Georgie stood sentry at the gateways now and then. Lucy helped her mamma to make up a lot of hay-caps with the sewing-machine, but as the weather fortunately proved fine, there was no occasion to use them, and they were stored away until next season. All enjoyed the smell of the new-made hay very much, and were pleased to find that the country is the place not only for fresh but fragrant air. They were struck with the contrast between life in the city and life on a farm in this respect. In the city it is a great thing to be free from foul stenches and reeking odours, while in the country, you are not only free from these, but are often regaled with the most delicious fragrance.

Mr. Perley was equally prompt in harvesting his grain. So soon as the berry was out of the milk and would bear moderate pressure between the thumb-nail and finger without breaking, the reaping-machine was set going. He had occasion several times to explain and defend going so early into the harvest-field. The general opinion among his neighbours was that he was fully a week too soon. He on the other hand thought they were a week too late. He argued that too wait until a grain-field is entirely ripe is to incur much risk and loss. The kernels are not so plump, and full, the weight per bushel is less, and there is danger from shelling out. Moreover early cut straw is of better quality than that which is left until quite ripe. His neighbours doubted if the grain would fill out thoroughly,—feared it would shrivel and not be a good sample for the market, and that it would be difficult to get the straw properly cured. They found, however, that in these respects they were mistaken. The kernels did fill out, and they did not shrivel. The straw cured well, and instead of being hard and brittle, was quite soft and pliant, seeming to have considerable juice in it. He was fortunate too about weather, and got in his wheat without a drop of wet falling on it, while his neighbours who were behind-hand were overtaking with some soaking showers. One of his arguments for early harvesting was that it gives a longer choice of the weather. It is favourable for beginning at the earliest safe moment, you may get through with the job before a change occurs; or if the weather is unfavourable and threatening at the earliest period, you may postpone a little without so much risk. On the whole his neighbours were inclined to think he was in the right, and that they had been too tardy about their haying and harvesting. They were for the most part observant, intelligent people, and though at first somewhat prejudiced against Mr. Perley as a "gentleman farmer" and a "book-farmer," they found he had good reasons for whatever he did, and could teach that sage individual, "the oldest inhabitant" a thing or two.

(To be continued.)



Canadian Natural History.

The Crow.

(Corvus.)

THESE birds are found in almost every quarter of the globe. Over twenty species are described, some of which remain stationary, while others migrate from place to place with the changes of the seasons. In the present article we have illustrated, and propose briefly to describe two of these numerous species.

THE AMERICAN CROW (*Corvus Americanus*, Audubon) was first separated from the European species by the distinguished ornithologist whose name is associated with it; and there can be no question but that the two species are entirely distinct.

The Crow is so well known to even that mythical person, "every schoolboy," that it requires no description. Generally and most unjustly persecuted, almost every man, and certainly every boy feels that he has rendered an important service to agriculture by the slaughter of one of these wary, black birds. Thousands are mercilessly killed every year by the use of guns, traps, poisoned grain, and by the ruthless hands of young urchins who rifle the nests, and Herod-like slaughter the innocents in their infancy.

It is impossible to deny that the bird is at times unavoidably somewhat of a brigand. When pressed by hunger, the instinct of self-preservation goads the bird to commit an occasional theft, and even sometimes to devour the young of other birds. We grant further that our black friend with the hoarse "Caw, Caw," at times, pulls up a considerable number of green corn blades that he digs up potato "sets" and scatters the fragments of the disintegrated bulb about the ground in a somewhat slovenly and provoking manner; and that further he not infrequently bores a turnip so full of holes that the pines away and die. But what then of this feathered friend must live somehow, and in spite of his occasional and necessitous villainies he is yet the most useful and beneficial friend to agriculture that the farmer knows. Hear the Crow's counsel. If he roots up the corn, it is not so much to de-

vour the young blade as it is to extinguish that terrible pest of the farmer—the wire-worm—and other destructive insect pests, which lurk at the roots of young plants and infallibly sap their vitality. In like manner, potato "sets" are attacked by numerous insect enemies, and it is to destroy these that the long, hard beak of our 'cute friend is transformed, for the time being, into a "Potato-digging-Machine." He also occasionally roots

Again, how industriously the Crow gathers up the worms and grubs exposed by the plough. In this important and valuable service to the whole community, the keen eye and ready bill of this useful bird is employed from morning till night. Some faint perception of the extent and character of the bird's operations may be gathered from the following extract from Mr. Simeon's "Stray notes on Fishing and Natural History."

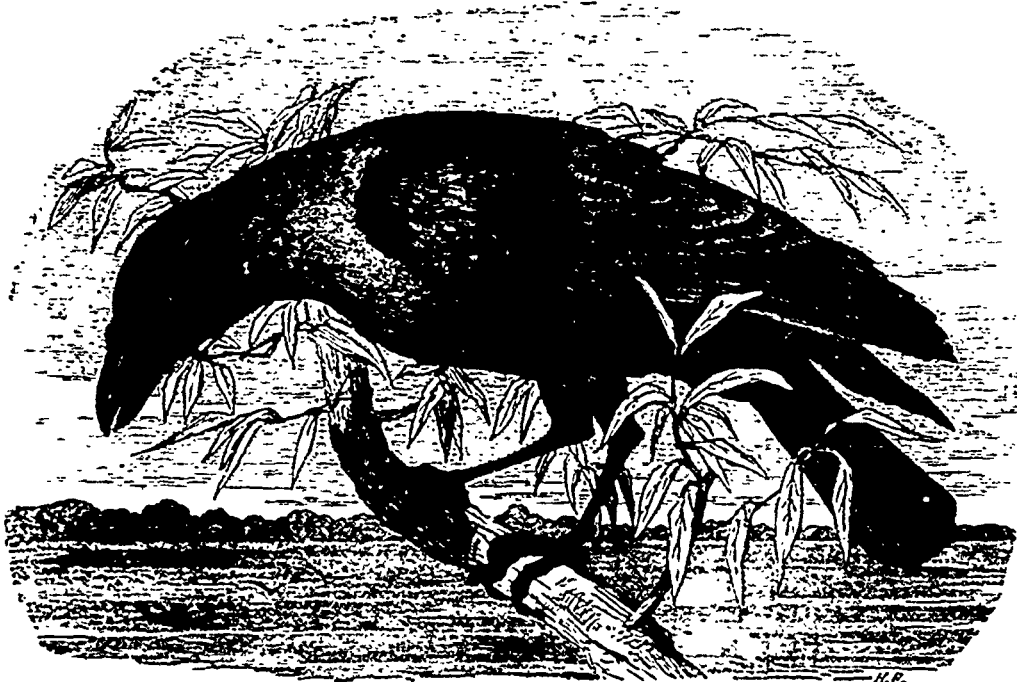
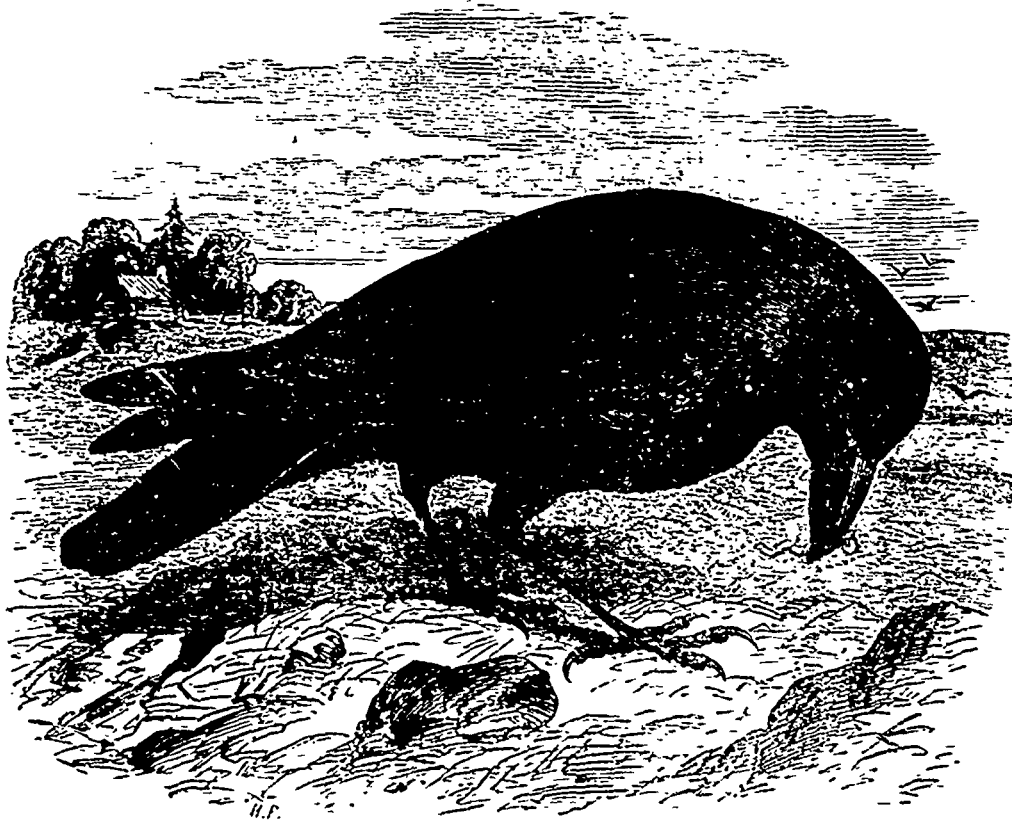
"I was walking one day," says that agreeable writer "with a gentleman on his home farm, when we observed the grass on about an acre of meadow land to be so completely rooted up and scarified that he took it for granted it had been done under the bailiff's direction to clear it from moss, and on arriving at the farm, enquired whether such was not the case. The answer was, however, 'Oh no, sir, we have not been at work there at all; it's the Crows done all that.' The mistake was a very natural one, for though I have often seen places where grass has been pulled up by Crows, yet I never saw such clean and wholesale work done by them as on this occasion. It could not apparently have been executed more systematically or perfectly by the most elaborate 'scarifier'

up grass, but then it is for the purpose of destroying the grub of the cock-chaffer beetle—that most destructive foe to grass lands. This rapacious creature lives for three years underground, is furnished with a huge stomach, a wonderful capacity of digestion, and a formidable cutting apparatus for obtaining its food and, by assisting in its extermination, the services of the Crow may be better imagined than described.

that Crockill and Ransome could turn out. On examining the spot afterwards, I found that the object of the rooks, researches had doubtless been a small white grub, numbers of which still remained in the ground a short distance below the surface. In the following spring I noticed that the part of the field where this had taken place was densely covered with cowslips, much more so than the rest of it. Possibly the roots of these plants may have been the

proper food for the grubs, and therefore selected by the parent insect as receptacles for her eggs."

The American Cyclopaedia further adds on the usefulness of this bird: "Though the Crow pulls up a few seeds of the germinating corn, his services to the agriculturist far outweigh his depredations; he daily devours insects, grubs, and worms, which but for him would devastate whole fields of young corn; he destroys innumerable mice, moles, and other small quadrupeds, every one of which commits ten times the mischief he does; he will eat snakes, frogs, lizards and other small reptiles, and also fruits, and vegetables.



Like many other birds of a black colour, as the blackbird and the starling, the Crow is sometimes found perfectly white. The sight of the bird is exquisitely keen, and it is by this sense and not that of smell that he is guided in his search of food, as well as in his avoidance of human enemies.

In our second illustration is figured the Fish Crow (*Corvus ossifragus*). This bird is about sixteen inches in length, and is very common in the maritime districts of this continent at all seasons. Our chief authority on the habits of this bird is Wilson from whose interesting description we extract the following: "I first met with this species on the sea-coast of Georgia and observed that they regularly retired to the interior as evening approached, and came down to the shore by the first appearance of day. Their voice first attracted my notice, being very different from that of the common Crow, more hoarse and guttural, uttered as if something stuck in their throat, and varied into several undulations as they flew along. Their manner of flying was also unlike the others, as they frequently sailed about without flapping their wings, something in the manner of the raven; and I soon perceived that their food and their mode of procuring it were also different, their favourite haunts being about the banks of the river, along which they usually sailed, dexterously snatching up with their claws dead fish or other garbage that floated on the surface."

The colour of the Fish Crow is deep steel blue, and their flight is long and protracted. They can disgorge their food like vultures, when wounded and attempting to escape. The female is smaller than the male, and the gloss on the plumage is less bright. They are useful scavengers, and perform many valuable services to humanity.

### British Cleanings.

**THE REASON WHY.**—A countryman visiting the famous convict prison at Dartmoor, observed that a gang of men were working on the moor, each wearing a ball and chain. He asked one of them why the ball was chained to his leg. "To keep people from stealing it," was the reply; "there are so many thieves about here."

**POTATOES.**—"We learn from the *Mark Lane Express* that the value of potatoes imported into the United Kingdom in 1854 was £17,467; in 1855, £10,196; in 1856, £19,222; in 1857, £175,091; in 1858, £337,821; in 1859, £101,038; in 1860, £136,576; in 1861, £112,347; in 1862, £333,842; in 1863, £241,129; in 1864, £142,986; and in 1865, £161,907."

**THE DEMAND FOR REAPING MACHINES.**—We learn from an English exchange that the demand for machines for harvesting corn is greater perhaps at the present moment than it has ever been known to be. All the makers, we are informed, are "overdone with orders." This state of things is partly due to the dearth of labour, and partly to the increased acreage of grass for hay, owing to the cattle plague.

**IMPORTS OF BONES.**—An English exchange says: "Baron Liebig, some time since, energetically protested against England's consuming such an enormous quantity of bones, but the imports last year amounted, nevertheless, to 74,307 tons, and in some years they have reached nearly 85,000 tons. They are principally used for manure and for charcoal for the sugar refiners."

**TO KEEP ICE.**—*Bell's Messenger* says:—"Make a double pocket of any kind of strong woollen cloth, no matter how coarse and faded it is. Have a space of two inches or so between the inner and outer pockets, and pack this space as full as possible with feathers. You have no need to use geese feathers; hen's feathers are just as good. With a pocket thus constructed and kept closely tied at the mouth, a few pounds of ice may be kept a week."

**NOVEL AND DANGEROUS WAGER.**—The *Elgin Courier's* Cromdale correspondent says:—"A servant lad in the employ of Mr. Rose, farmer, Dellifeure, laid a wager the other day against two of his fellow-servants, for half-a-crown each, that they would not stir for so many minutes a basin with a handful of snow and a handful of salt. The challenge was readily taken up by one of the men, named John Mackintosh, who succeeded in gaining the wager, but by the time the last minute was expired, his fingers got fixed in the ice. In a day or two he completely lost the use of his hand, and inflammation having set in, he suffered great agony, and had to apply to a doctor for relief. But for the timely relief afforded by the doctor, he would have lost the use of his arm for life. He is now in a fair way of recovery."

**STRANGE SAGACITY IN A PONY.**—A recent issue of the *Mark Lane Express* contains the following:—"I had a pony once which very frequently exhibited the following peculiarities: Whenever the pony had been turned out to graze, upon being fetched up and put into the carriage, it invariably turned lame after going a few yards; so lame, in fact, that frequently I had to turn back, not having the shame to drive an animal in such apparent pain. I say apparent, because no sooner had the pony been relieved of its harness than it used to canter round the field perfectly sound. The same pony when fetched from the stable would go perfectly well as long as it wished, but when I drove it in any direction contrary to its inclination it became lame directly; as soon as its head was turned homewards the lameness entirely disappeared."

**BRITISH COAL FIELDS.**—We learn from a British exchange that the Queen has appointed a commission "to investigate the probable quantity of coal contained in the coal-fields of the United Kingdom, and to report on the quantity of such coal which may be reasonably expected to be available for use; whether it is probable that coal exists, at workable depths, under the permian, new red sandstone, and other superincumbent strata; to enquire as to the quantity of coal consumed in the various branches of manufacture, for steam navigation, and for domestic purposes, as well as the quantity exported; and how far, and to what extent, such consumption and export may be expected to increase; and whether there is reason to believe that coal is wasted, either by bad working or by carelessness or neglect of proper appliances for its economical consumption."

**INSECT WAX.**—We clip the following paragraph from the *Farmer* (Scottish):—"The trade in this article in China is large. In 1864, from the single port of Hankow alone, 5,100 cwts. were exported. It is taken by the Chinese as medicine, but is principally used as stearine in the manufacture of candles. It is one of the most valuable of the many products of Sze-Chuen, being worth 60 and 70 taels per picul (133 lb.). The wax is deposited, for the protection of its eggs, by an insect which inhabits the trees on which the wax is secreted. The formation of the wax was a subject which occupied the especial attention of M. Simon, a French savant, who, a year or two ago, passed a considerable time in the interior, during which he is said to have traversed the greater portion of Sze-Chuen, and to have reached the eastern confines of Tibet. It is to be hoped the result of his researches into the products of the former fertile province will ere long be made public."

**LARGE PRICE FOR A CALF.**—We clip the following from the column of "Shorthorn Intelligence" in a recent issue of *Bell's Messenger*:—"Col. Kingscote, C.B., M.P., has incontestably shown his zeal as a shorthorn breeder and his partiality for the Bates sort of shorthorns, by buying at Wetherby Grange Captain Gunter's ten-weeks-old bull calf Third Duke of Clarence for 500 guineas. The calf is to go to Kingscote Park in less than a month from this time. Third Duke of Clarence is by Second Duke of Wharfedale (19649), and from Duchess the 80th by Grand Duke of Oxford (16181), her dam being Duchess the 72nd, and her granddam Duchess the 67th, by Fourth Duke of Oxford and Usurer respectively. Col. Kingscote's new purchase is a rich red roan, and is a very grand young animal. If Captain Gunter may claim congratulations as the seller at so large a price, congratulations are also due to Col. Kingscote as the possessor of a shorthorn at once so valuable and so good."

**WHICH IS MORE PROFITABLE—TWO-YEAR OLD OR FOUR-YEAR OLD CATTLE?**—A correspondent of the *Danforth Journal* writes:—"A paragraph lately appeared in the newspapers recommending, as profitable, the feeding of four or five-year old cattle of the old Aberdeenshire breed, and, after two years of full feeding, selling them at an average of £35 a-head at the London Christmas market, the weight of the above at that date being from 9 cwt. to 10 cwt. each. Now cattle of the above weight, and only half of the above age, but of a different breed, have been reared and fed in the parish of Oldmeldrum, and were sold in the month of April last, weighing upwards of 9 cwt. One of them having met with an accident, was slaughtered by Mr Morrison, fletcher in Oldmeldrum, and sent by him as dead meat to the London market, and sold there at the highest price of the day. The weight of beef returned was 133 stones and 6 lb. Smithfield weight, being upwards of 9½ cwts. The exact age of the animal was 24 months and three weeks. Some of the two-year old heifers were slaughtered by Mr Milne, fletcher in Aberdeen, and weighed upwards of 8 cwt. Whether will the aged or the young cattle pay the rearer of them the best?"

**CATTLE STATISTICS.**—Dr. Parr, lecturing on our live-stock, at the Agricultural Society's rooms, Hanover-square, London, is reported in the *Mark Lane Express* to have said that "we have now in our hands for the first time, an enumeration of the live stock of the United Kingdom." This is a mistake. The schedules sent out by the Board of Trade to be filled up by the farmers were thrown in the fire in many instances; in others, a beggarly account of empty stalls was sent in, five being substituted for twenty; in many others, the schedules were returned blank. "A burned child dreads the fire." Farmers, particularly the smaller ones, are a jealous and distrustful race; and they think that all papers of the kind referred to, when presented to them, are meant to entrap them in some way, and oblige them to pay more taxes. Hence great numbers refused to supply the information sought on the 5th of March last; and the so-called enumeration is, consequently, worthless.

**NON-EXPLOSIVE STEAM BOILER FOR FIXED ENGINES.**—"It affords us great satisfaction," says *Bell's Messenger*, "to announce that Mr. James Howard, after devoting much attention to the subject, has succeeded in making a perfectly non-explosive steam-boiler for fixed engines. A saving of fuel is also effected to an extent that will relieve us from all anxiety as to our supply of coal becoming exhausted within the time calculated upon by Mr. Jevons and Mr. J.S. Mill. We understand that the boiler has been in use for some months, and has been tested in such a manner as to establish beyond all doubt its efficiency and economy. We heartily congratulate Mr. Howard on his discovery, the value of which, whether we regard its bearing upon the saving of human life, and the prevention of suffering from those frightful accidents which are of such frequent occurrence, or the economy which it will effect in the use of one of the principal material sources of the greatness and prosperity of England, it is impossible to overestimate."

**SIX-STRIKED SALMON.**—The *Carlisle Journal* states that:—"Several hundreds of salmon and salmon trout were found upon Burgh Marsh, on the Cumberland shore of the Solway Firth, last week under very extraordinary circumstances. Many were lying dead upon the Marsh, where they had been left dry by the receding tide, and others were floating languidly about in the small pools of water on the shore in a sickly and dying state. As the coast-guardsmen had been exercising a close surveillance over the nets at Bownes and Port-Carlisle during the week, it was at first conjectured that these fish had been thrown out by fishermen who had been infringing the law by fishing at improper times. This supposition, however, proved incorrect; and the conjecture that they had been poisoned was also abandoned as absurd. Old fishermen of the district have now arrived at the conclusion that the salmon, in making their way up the shallow water near the estuaries of the rivers had been visited by something like a sunstroke, the weather having been hotter than had been experienced for many years. The fish were picked up by the inhabitants of the district, to whom they afforded many cheap and dainty meals."

**DIMINISHING PAIN.**—The *Pall-Mall Gazette* notices an important addition to the means of diminishing pain which has been made by an English physician, who has introduced a new method of producing local insensibility to the knife. "Chloroform robs the most terrible surgical procedures of the worst horrors which formerly surrounded them, and has even rendered possible some operations which could hardly have been attempted without it; but it has its own peril—the peril of death. Surgeons justly encourage their patients by reciting to them the statistics of fatal accidents under chloroform, which, incomplete though they be, demonstrate the extreme rarity of such misfortunes. It has, however, been observed by all authors who have collected these cases that a remarkable large proportion of recorded deaths have occurred where only minor operations have been contemplated. Hence a rapid and efficient means of producing local anaesthesia, and one free from any of the constitutional risks attending the administration of chloroform, is a boon of great price. Dr. B. W. Richardson effects his result by directing on the skin a finely divided spray of pure ether, using an ingenious modification of the spray tubes lately much in vogue as toys for diffusing perfumes. A rapid blanching of the skin and insensibility to pain follow in from about thirty seconds to two minutes. Upwards of a hundred operations have within the last few weeks been painlessly conducted under this method. It is only likely to be generally useful for superficial operations; but these are so often undergone at the cost of great terror and anguish through dread of the risks of chloroform, that the value of this invention must be very great."



### New Hybrid Seedling Raspberries.

Mr. Charles Arnold of Paris, has not only been experimenting upon grapes for some years past, with a view of originating one or more varieties adapted to this climate, but he has in like manner been trying his hand upon the raspberry. The horticultural world is already supplied with good raspberries, but unfortunately they are too tender for our stern winter. They require protection, and sometimes get killed out even when slightly covered. Mr. Arnold's object has been to produce a berry of good quality, that should brave the utmost vigours of our climate without any protection whatever. In this he believes he has been successful.

The *modus operandi* has been as follows: The native White-Cap raspberry was first crossed with the Belle de Fontenay. For the information of those who do not understand the process, we may explain, that the anthers of the White-Cap were cut out and the pollen of the Belle de Fontenay dusted on the pistils of the White-Cap. The seed of the berries that came of this union was planted, and several hundred plants grown from it. Of the seedlings thus obtained, only three showed any symptoms of being impregnated with the Belle de Fontenay. Those three were very imperfect, yet they distinctly showed the beneficial result of the crossing. Consequently they were selected for future improvement. They were crossed again with the Belle de Fontenay and White Marvel of Four Seasons. The seed of the fruit thus obtained was planted. The three plants obtained by the first crossing produced red berries, but after the second crossing, some came white, some red, and some of intermediate shades. Among the seedlings from the second cross, are several plants of much promise. We accepted an invitation from Mr. Arnold to visit his grounds when the raspberries were in full fruit, so that we had an opportunity to inspect and taste the new seedlings. They all appear to be abundant bearers, the fruit being of medium size, and the plants very stocky and vigorous. The excessive rain we have had the present season diminished the flavour of all raspberries, but notwithstanding this drawback, we became satisfied that at least four of the new seedlings were meritorious in point of quality. There were two especially, one white and the other red, which we thought very highly of. Others might not be of our opinion for the excellence of a raspberry, if it be of a decent size, is wholly a matter of taste, but we have little doubt that our two favourites will prove decided acquisitions to our list of small fruits. All the plants submitted to our inspection have proved perfectly hardy, having passed through the last winter, which was unusually severe, without the slightest protection, and that in one of the most bleak and exposed situations in the province of Canada. Anything that can endure the ordeal of the Paris heights on which Mr. Arnold's nursery is located, may be safely regarded hardy enough to do well in every part of Canada. It is another excellency of these raspberries that they all show a perpetual character; bearing at different times throughout the season. Mr. Arnold deserves much praise for his patient and persevering endeavours to improve our small fruits. We hope he may live to reap a substantial reward for his efforts in this direction.

Before concluding, we may mention that the new hybrid grape, originated by Mr. Arnold, which was described and illustrated in our pages last November, was looking extremely thrifty at the time of our visit, and was laden with fruit which promises fully to equal, if not surpass the sample from which our engraving was taken. We feel strongly inclined when the fruit is ripe, to present our readers with an engraving of the vine as it appears with the grape clusters upon it.

### Cineraria Culture.

BY GEO. VALE.

(Continued from page 221.)

First of all, let me correct a typographical error which has somehow crept into the last line of my previous article on this subject. For "five months," the reader will please substitute *five minutes*.

The restoration of the plants to the green-house or pits, ought to take place as soon as sharp frosts are expected—generally about the middle to the end of October. The plants should previously be cleaned of all dead and decaying leaves, which the concentrated air of the houses would soon reduce to a state of decomposition.

It is no objection to turn them out carefully on the hand, picking out any worms that may have found a lodgement, and, at the same time, examine the drainage, and see that it is perfect. If any of the plants show signs of decay, reduce the original ball of earth as much as possible, potting in fresh soil and smaller pots, and in a few weeks, generally, they will quite recover.

Wash the pots thoroughly outside, and have an eye to cleanliness in the first start, which may, perchance, save a good deal of trouble afterwards. Arrange the plants on the shelves, or in front, or near the light, in a neat manner, giving plenty of room for the now rapidly expanding foliage, and a free circulation of air. Great care ought to be taken that the temperature never rises too high so as to make the leaves wilt—a most essential point in the preservation of health of the Cineraria. Experience has taught me that by being placed in too warm an atmosphere, and subjected to considerable variations, the plants do not flourish for a long time. The Cineraria delights in a humid atmosphere, which is continually revived by the access which is given to the exterior air, care being taken that the thermometer keeps above freezing. Particular care ought to be taken that the plants do not suffer for want of water. Few plants will tell the tale of thirst quicker than the Cineraria. The foliage begins to lose its lively green, the edge of the leaves being slightly curled, and otherwise the plant assumes a miserable appearance, and ultimately becomes more fit for the rubbish heap than a place in a well kept green-house. The same results will follow, or nearly so, if the plants are "gloated" with too much water and had drainage. Attend carefully to two things—viz, air at all times when practicable, and water immediately when required. By following up these rules, the plants will not fail to do well, and moreover will not be so subject to the *green fly*. Upon the very first appearance of this pest, however, fumigate immediately with tobacco smoke, or if it is not convenient to fumigate, the same application spoken of in my former article, page 221, will suffice. In the course of the winter, many of the plants may be put into large pots, if large specimens are wanted. This potting ought to take place before the formation of the flower stems. It is of little or no use to pot them after that, as the roots somewhat change their functions, and soon lose their vitality, so to speak.

After blooming, the Cineraria sensibly loses its vigour. Their season of repose arrives, and to attempt to re-excite in them fresh activity of vegetation, which they so lately exhibited, will only prove destructive to the plant and be a waste of time. All that can be required of them for the present is the production of suckers from the neck, to ensure the preservation of the variety for the next season. A good plan is to cut the ball of earth transversely through the middle with a knife placing them again into a large pot, filling up the space with fresh mould. They will not suffer any inconvenience by this method. The plants will throw up suckers all around the base, which, in time, may be removed and propagated in the usual way in pans or boxes, with about one inch of pure sand on the top of the mould, placing over them a bell glass, to prevent the quick evaporation of the moisture.

### On Variability in the Pear Tree.

The following extract, from a translation in the *Journal of the Royal Horticultural Society*, of an essay by that famous French pomologist, M. Joseph Decaisne, will be read with considerable interest by many, seeing that the subject treated of by such an eminent authority has led to a good deal of discussion since the time when Mr. Andrew Knight, a similarly distinguished fruit improver, first promulgated somewhat different opinions regarding the degeneracy or dying out of old varieties:—

"Does grafting, as some maintain, modify the character of varieties? For my part I do not think so: I have never at least observed anything to confirm this opinion. Duhamel, for example, remarked a century ago that the Imperial Oak-leaved Pear (a curious variation of foliage which I might have indicated before) had never more than three cells in the ovary instead of five. This is the case still; the fruit has only three cells, notwithstanding it has been propagated by grafting only, since the time of Duhamel. Many other facts of the same nature might be brought forward in support of the inability of the graft to modify the characters of varieties,—those, for example, which the flavour of fruits, so remarkably different from each other, affords.

It is, then, an error against which it is well to protest—viz, the belief that the degeneration of our races of fruit-trees is a consequence of the constant practice of grafting for their propagation. Not a single authentic fact can be adduced in its favour; those which have been alleged depend on entirely different causes, amongst which we must place in the first line, that of climates, or of soils incompatible with the peculiar exigencies of the variety, and very frequently also bad cultivation, or the abuse of pruning so frequent in our days, which would fail to pass for perfection. Our old pears, so justly esteemed one or two centuries ago, are still the same as when they were more in request; they ripen at the same seasons, and keep also as perfectly. It suffices, in fact, to quote the Epargne, Crassane, St. Germain, Doyenné, Chaumontel, Winter Bon Chretien, and Easter Beurre, known now as the Doyenné d'Hiver, to be convinced that our old varieties have lost nothing of their good qualities. If we neglect them, it is not because they have degenerated, it is only because the nurserymen are interested in sending out their novelties. This degenerating of old races, accepted without opposition, is in reality nothing more than one of those works of industrial acuteness so easily excused in our days.

Is it then more true, as Van Mons has asserted, and as most pomologists believe, that the seeds of good kinds of fruit produce crabs with harsh fruit, reverting to what are supposed to be the specific types? I do not hesitate to affirm the contrary; and I defy anyone to quote a single example of a fruit of any quality impregnated with the pollen of its own flower, or of others of the same race, whose seeds have given rise to a crab. If a variety of merit is impregnated by a variety with harsh fruit, there will certainly spring from its seeds new varieties, which for the greater part, if not altogether, will be inferior in quality; there may even be found some whose fruit shall be as bad as that of the wild plant which has furnished the pollen; but this degeneration, if we may give it the name, is nothing more than the consequence of an ill-assorted crossing. We may consider it certain that every distinguished variety of pear-tree, and I may say of all our fruit-trees, if it is fecundated by itself alone, will give birth to good fruit; it may and will probably differ, sometimes by one character, sometimes by another, from the mother variety, but no one will assume the characters of the wilding, any more than our Cantaloup melons, resume, by sowing, the form, size, and taste of the little wild melons of India, or our cauliflowers or cabbages revert to any of the wild kinds, so different in habit and quality, which grow on the cliffs of the ocean and Mediterranean.

### On the Selection of Flowers.

We frequently meet with amateurs who feel disappointed with flowers, which they had carefully selected from numerous varieties they had heard highly extolled for unsurpassing excellence; and thus they felt discouraged in adding to the further embellishment of their flower-garden, greenhouse, or conservatory. Without detracting from the properties of flowers, as described by Glenn, attention to which has given such an impetus to floriculture in the perfecting of form and substance, among flowers that are at present so much prized—our remarks have reference to colours simply when properly arranged,

not as we find them presented before the public in current coin throughout the modern practice of flower-gardening, where colours, being displayed in groups, or arranged in the form of ribbon borders, combine in one view, as an effort to produce harmonious effect.

Colours may be considered harmonizing as they pass from deep pink to blush, as observed among various roses, or from buff to fawn, as among the hollyhocks. Colours of equal depth of shade are met with, as among variegated foliage, and in the flowers of the *Lilium auratum*, of recent introduction. Colours may be considered contrasting and complementary, such as purple and gold, red and green, &c., which leaves no room for the exercise of taste, the presence of the one determining that of the other. Colours that are simply contrasting present a wider range for the exercise of taste, which it would be arbitrary to define and enforce by minor details. If practical men thus prefer to group and arrange their plants upon some understood principles, we simply contend for the same liberty in selecting individual plants for individual effect as specimens for the greenhouse or conservatory. If we take up the cinerarias, or example, as being in flower at this season, although our remarks refer with equal force to the varieties of other species, this favourite flower—and a very beautiful flower it is when well-selected and well-grown—we cannot fail to admire the dark disc or centre as a rule of excellence when surrounded by white or light-coloured petals, presented by such a contrast a very striking flower among many other varieties. However, we find the colours of the petals darker round this dark centre, until the effect of the disc is lost in a dark self. When this dark rule of excellence is virtually extinguished, we are thus at a loss to know why light-coloured discs are not as necessary to contrast dark-coloured petals, as dark discs are a necessity, not only for light, but also for dark petals. If contrast is necessary for the one, why is it considered unnecessary for the other? We have been forcibly struck with the appearance of a seedling, raised in this neighbourhood, of a free growing habit, with bright magenta petals surrounding a golden yellow disc or centre, which, according to opinions held by professional judges, would be consigned to the limbo of oblivion for daring to appear before them without a black eye or disc; when by persons of ordinary taste, unlearned in the dogmas of the school, it is much admired, in its fashionable dress of gold and magenta, as contrasting colours, being a step in the right direction.—*C. Howe, File, in the Farmer.*

**The Lansingburg Apple.**

This long keeper was shown at the recent meeting of the Ohio Pomological Society, at Columbus. The history of the fruit is involved in obscurity. The name would indicate its origin in Rensselaer county, N. Y., but it is only found in a few western collections. The tree is exceedingly vigorous, hardy, healthy, and quite productive; form upright and rather branching making a thick top; young branches almost thorny. The fruit is of medium size, globular cylindrical, unequal or somewhat angular. The surface is smooth of a deep green, bronzed dull red, until ripe, when the ground colour becomes a rich yellow, and the shading, which is seldom in stripes, assumes a brilliant carmine, making a fine contrast, and presenting a very attractive appearance through the polished surface. The dots are grey and slightly indented; on a light ground they appear black, and have green bases. The basin is abrupt, deep, and folded or plaited; the eye small and closed. The cavity is acute, irregular, rough smutchy, or russet; stem short, inclined, knobby; core, small, rather open; seeds, numerous, large, brown; flesh, yellow, breaking, firm, not very juicy; sub acid, rich. March to June. This variety is valuable for its fine keeping qualities, and beautiful appearance in the spring and early summer, when it is very saleable at fancy prices. It sustains very little loss in keeping, as it neither shrivels nor decays.—*Dr. JOHN A. WARDEN, in Ohio Farmer.*

**SOAP SUDS FOR ROSE BUSHES.**—Seeing an enquiry in the *Rural* as to whether soap-suds are detrimental to rose bushes, I thought I would give you a little of my experience. I have about twenty varieties of roses, climbing and others, and have always practiced watering them suds from the wash, and have often heard the remark, "Why, how thriving your roses look; mine are all eaten up by the worms and bugs." I do not know to what else to attribute it except the soap-suds.—*S. A. WHITTLESEY, in Rural New Yorker.*

**Growing Grapevines from Eyes for Vineyard Planting.**

There are two different methods I practice in this country, after many laborious experiments, valuable time and cost. The first plan is the out-of-door propagation of the readier and more willing kinds. For these I procure well-ripened wood, as late as possible in the autumn, before the severe frost sets in, cut it into single eyes and plant them without delay in rows on a bed crossways in the open ground (rather exposed than sheltered,) which is five to six feet wide, and in length according to the quantity of vine eyes, and prepared with the best possible soil as generally used for that purpose. After planting them I give a cover of two inches of half well-seasoned loam, and half coarse sand well mixed, and do not water them, but let the soil be tolerably damp in good working order. After two weeks planting or more, if the weather permits, it not being wet, I cover the bed three feet with half decayed horse-manure, mixed with half fallen leaves, and lastly, lay the whole bed three feet with the same material, no frost or moisture being able to penetrate,—not even 20 below zero. In the beginning of April I remove the lining and covering, and place over the beds frames with sashes, and in a very short time the eyes make their appearance; by degrees I give air when the weather requires it. As the plants grow I raise the frames, and ultimately remove sashes and frames altogether, and leave them to the open air without disturbing or transplanting. The more obstinate kinds I raise in-doors with and without bottom heat, in sand beds only, three to four inches deep; the eyes being covered half an inch. I have now two beds in full operation—one cold, one warm: the cold bed is arranged on the front platform of a greenhouse, 100 feet long; the warm bed is in a half lean-to propagating house also 100 feet long, now filled with a second crop.

Of these latter I likewise procure the wood and cut it up as above, but instead of planting the eyes at once on the beds, I for two months place them in barrels between layers of moist sand. About the middle of February I plant them on these beds in-doors, and as soon as struck, plant them in well-prepared pits and treat them as the out-of-door eyes. This is the mechanical part of that business and my method here, and if the watchful eye of the experienced propagator but assists, final success is unavoidable.—*C. Grunberg, in Gardener's Monthly.*

**Poetry.**

**The Rose and the Grave.**

(AFTER VICTOR HUGO)

A GRAVE once whispered to a rose  
Which on its bosom sweetly grew,  
"The night winds hush thee to repose,  
And weep upon thee tears of dew,  
Such gifts are sent thee from above;  
What dost thou with them, flower of love?"

Fast let me ask thee, holy grave,  
The sunset tinted rose replied,  
"Here, where the yew-trees sadly wave,  
Salt tears are shed for one who died,  
'Till that day that has no end,  
What dost thou with thy gift, old friend?"

The modest flower gave answer first:  
"Oh, think not I was born to die!  
The winds which kiss these lips attend  
Steal with their fragrance to the sky;  
Though here I fade, my happy fate  
Is still to bloom at heaven's gate."

Then said the grave, "They bring no gift,  
No treasure rests beneath the sod;  
From off my heart bright angels lift  
On purple wings, sweet souls to God,  
Where clad in sinner robes they slug,  
Before the Everlasting King."

—*The Quiver.*

**Advertisements.**

**DOWN'S FARMERS' FRIEND.**

WE have a supply of this valuable **ENGLISH WHEAT DRESSING**, for the prevention of SMUT, GRUB and other diseases, and recommend it to the farmers of Canada.

Price 50 cents per package—sufficient for six acres.  
Address **GOLDSMITH & Co.**  
St. Catharines, C. W.

**GOLDEN DWARF PEACH.**



THE Subscribers call public attention to the above Dwarf Peach, it is as hardy as an apple tree. The fruit and plant are very ornamental, and is especially worthy of cultivation in Canada. Send for a circular giving full particulars to Miller & Co., Seedling Store P.O., Chester Co., Penn. v3-16-11



**BRADFORD FOUNDRY.**

THE undersigned having for several years been doing business in the County of Simcoe and surrounding country in selling ploughs and agricultural implements, by means of pedlars, and on long credit, and believing that a safer and more advantageous business for both parties could be done for cash, has in forming on credit the good paying customer has invariably to pay the large profit to provide for losses, by bad ones, and expense of peddling, collecting, &c. takes the opportunity of introducing his many friends and customers that his new manufacturing and selling ploughs very much lower than ever he has before done, giving to the farmer what is usually given to the pedlar, collector, &c., which will be a saving of one third, viz.

No. 3 Plough, Steel Mould Board, \$15, formerly \$19.

with steel land side, \$14 50.

No. 5, 6 and 12, same price.

No. 3 plough was exhibited at ten agricultural shows last year, and from the ten shows took seven first and two second prizes.

The same plough was used at four ploughing matches within the last twelve months competing against some of the best iron Scotch ploughs in the country, and was always successful in taking the first prize at each match. The above plough is a soil plough, and Nos. 5, 6, and 12 are general purpose ploughs.

Persons remitting money in registered letters for any article of the subscriber's manufacture, may consider the money at his risk, or they can purchase at a slight advance from his local agents through the country.

Persons ordering ploughs are requested to be careful to give the number of the plough, and to state what kind of beam they wish metal or wood.

**L. BUTTERFIELD.**  
Brimstone, July 20, 1866 v3-15-11\*

**MORETON LODGE, near Guelph, C. W.**

**SEVENTH ANNUAL SALE**

OF  
PURE BRED SHORT-HORNED AND HEREFORD  
CATTLE, COTESWOLD, SOUTHDOWN, AND  
LEICESTER SHEEP, BERKSHIRE AND  
SMALL WHITE BREED OF PIGS.

**MR. W. S. G. KNOWLES** has received instructions from Mr. Fredk. W. Stone to sell BY AUCTION, at **MORTON LODGE,**  
**On Thursday, the 13th day of September next,**

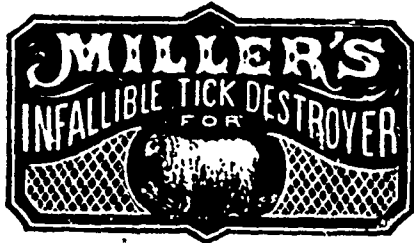
Without Reserve, a number of very promising young Hereford and Short-horned Cattle, fifty pure bred Coteswold, Southdown, and Leicester Rams; also, a few Pairs of Southdown Ewes, together with the whole Flock of Leicester Ewes and Lambs (as Mr. S. has determined to give up breeding Leicester Sheep), and about twenty-five pure bred Berkshire and Small White breed of Pigs, Boars and Sows.

at 12 O'CLOCK AT NOON.

Not to commence promptly at One o'clock.

**TERMS.**—Under \$25 Cash, over that sum, three months credit on approved endorsed notes. If required, catalogues may be had on application to **MR. KNOWLES, or MR. STONE,** Morton Lodge, Guelph, C. W., 9th Aug., 1866. v3-16-21





A CERTAIN cure for Tick, and all skin affections in Sheep. No flock master should be without it. Prepared only by HUGH MILLER & CO., Chemists, Toronto.

Seeds Direct from the Growers.

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

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

BONES! BONES! BONES!

CASH Paid for any quantity of Bones, delivered in Boston, or at our Bone Flour Manufactory, in N. Y. Address, C. H. GARDNER, Agent, Of the Boston Milling and Manufacturing Co., 16 Cortland St., N. Y.

FARM FOR SALE

In the Township of Onondago. THIS farm is beautifully situated on the Grand River, 3 1/4 miles from Caledonia Station, B. & L. H. R. R., being lot 83, river range, township of Onondago. It is three miles from Middleport station, and 17 miles from Hamilton, and contains 90 acres, all under fence, with about 65 acres cleared. There are also a frame barn and dwelling house. Price \$35 per acre. Terms liberal.

IMPORTED SHEEP.

THE Subscriber has for Sale some First-class specimens of PURE LINCOLN AND LEICESTER RAMS, imported from England in 1868. JOSEPH KIRBY, Milton, Halton Co., C. W.

SAFER THAN OIL LANDS!

FOR SALE LOT 1, Kerr Tract, Township of Brantford, containing 110 acres in the highest state of cultivation. This farm is about nine miles from Paris and Brantford. Apply (if by letter postpaid) to ROBERT REDPATH, Mohawk, P. O., Brantford. Or to THOMAS B. McMAHON, Solicitor, Brantford. Also for sale North west part lot 18, 11th Con., Burford, 40 acres. Apply to T B McMAHON, Solicitor, Brantford.

TRIAL OF IMPLEMENTS.

A GENERAL TRIAL OF MACHINES AND AGRICULTURAL IMPLEMENTS, under the direction of the Board of Agriculture for Lower Canada, will take place in MONTREAL at the end of AUGUST and SEPT. Ten days notice will be given before the day appointed. Entries in the different series to be made before the 15th of each month. All further particulars and information to be had from the Secretary of the Board of Agriculture. G. LECLERE, 615 Craig Street, Montreal.

LANDS FOR SALE.

TWENTY THOUSAND ACRES OF LAND, both wild and improved, and at all prices, for sale in various townships throughout Upper Canada, cheap and on easy terms. For lists and particulars, apply to the proprietor, T. D. LEDYARD, Barrister, etc., South-west cor of King and Yonge-sts., Toronto. Toronto, Oct. 2, 1864.

Markets.

Toronto Markets.

"CANADA FARMER" Office, Aug. 15, 1866.

FLOUR—There has been rather more enquiry for No. 1 superfine and fancy, on account of the improvement in Montreal markets. The market has, however, on the whole, been very dull. Receipts during the past week, 1,391 bbls, sales 100 bbls No. 1 superfine at \$5 25; 100 bags high grade No. 1 at \$5 per 190 lbs; 100 bags fresh ground No. 1 superfine at \$5 on the cars; 100 No. 1 superfine at \$5 25; 100 bbls No. 1 superfine at \$5 40; extra was offering at \$6 without buyers.

WHEAT—There has been very little doing in wheat. Receipts have been 2,019 bush. Sales 850 bush spring at \$1 10 fob; 1,500 bush spring at \$1 34 delivered at Prescott; 360 bush superior spring at \$1 18; 6,000 bush spring on p. t. Fall Wheat was only offering in small lots. It was offered in the early part of the week at \$1 30 without buyers, and sold to-day at \$1 16.

PEAS—In peas there is nothing doing. No receipts or transactions are reported.

OATS—Have been in demand and have slightly advanced. Receipts, 1,734 bush. Sales 200 bush at 32c, 4,000 bush at 34c.

BARLEY—Very little in the market, nominal at 40c.

GRAIN—Dull, at \$4 20 to \$4 30 in barrels.

SALT—Liverpool coarse 80c to 97c, Salt on the dock per bbl \$1 75, in the cars \$1 70; dairy bags each 10c to 17c. Water Lime per bbl \$1 65. Plaster \$1 15 to \$1 20.

PROVISIONS—Butter, dull and unsettled, at 15 1/2c to 16 1/2c. Eggs from 8c to 10c. Pork—Mess \$23 to \$25; Primo do \$21 to \$22. Bacon in salt, 11 1/2c to 12c. Smoked—none in Lo market. Hams—smoked 14c to 15c; in salt 12c to 13 1/2c. Cheese 13 1/2c to 14 1/2c.

WOOL—The market is dull and declining. The season may now be considered virtually over, the receipts being very trifling. Selling at 34c per pound.

FREIGHTS—Flour by steamer to Montreal 20c; to Prescott 15c; to Ogdensburg 15c, to Kingston 12 1/2c; Grain—to Montreal, 6c; to Kingston, 4 1/2c; to Prescott, 4 1/2c. Lumber to Cleveland \$2 25, United States currency; to Oswego \$1 50.

LATEST CORN EXCHANGE REPORT.

FLOUR—Receipts 260 bags; better feeling in the market on account of an advance in Montreal. No number 1 superfine offering, \$5 50 offered for a good sample, extra offered at \$6. Wheat—no receipts; considerable enquiry for spring wheat; \$1 15 offered for a round lot, very little offering, a sale of fall wheat, extra sample, reported at \$1 20. Oats—Receipts—no receipts, nothing doing. Provisions—unchanged.

LONDON MARKETS.—August 14.—Fall Wheat—Good to Prime, \$1 20 to \$1 25. Spring Wheat, \$1 05 to \$1 20. Barley, none. Peas, none. Oats, 34c to 36c. Corn, 56c to 60c. Buckwheat, 65c to 60c. Butter—Primo Dairy, packed, 15c to 16c per lb. Eggs, 12 1/2c to 15c per dozen. Lard, 12 1/2c. Wool, firm, at 35c to 36c per lb. in bills.

HAMILTON MARKETS.—Fall Wheat, white wheat, \$1 15 to \$1 25; Red wheat, \$1 10 to \$1 20. Spring Wheat, \$1 10 to \$1 18. Barley, none. Peas, per bushel, 60c to 65c. Oats, 34c to 35c. Corn, per bush, 60c to 65c. Wool, at 28c to 37 1/2c.

GOUDERICH MARKETS.—August 14.—Spring Wheat 90c., Fall Wheat, \$1 10; Oats, 20c to 25c., Flour, \$8 50 to \$8; Barley 40c to 50c., Peas 40c to 45., Sheep, \$4 to \$5; Hides, (green,) \$1 50, Duller, 50c to 60c., Eggs, 10c., Wool, 32c to 35c.

NEW YORK MARKETS.—August 14.—Cotton dull at 34c for middling uplands. Flour—Receipts 10,204 bbls. Market 10c to 25c better for sound with rather more doing; sales 10,800 barrels at \$5 75 to \$7 50 for superfine state; \$6 95 to \$8 60 for extra state; \$8 60 to \$9 80 for choice do; \$5 75 to \$7 60 for superfine western; \$7 to \$9 10 for common to medium extra western, and \$9 50 to \$11 50 for common to good shipping brands extra round hoop Ohio Canadian flour quiet and nominal Rye flour quiet at \$5 to \$6 25. Wheat—Receipts 8,500 bushels; market 3c to 5c better and quiet, the advanced prices asked checking transactions, sales 300 bushels new amber state at \$2 70, 1,500 bushels white western at \$2 75; new No. 1 Milwaukee is held at \$2 25, with buyers at \$2 15. Rye—receipts 7,800 bushels; market more active; sales 16,000 bushels of western at 73 to 75c and 3,700 bushels state at \$1 02. Barley—receipts none; market dull. Corn—receipts 239,213 bushels; market opened 1c better, but closed with the advance chiefly lost; sales 62,000 bushels at 80c for inferior, and \$1 to 81 1/2c for shipping mixed western Oats—receipts 102,168 bushels; market a little firmer but closed dull, sales 93,000 bushels at 42c to 43c for Chicago, 45c to 48c for Milwaukee, 63 1/2c to 65c for Iowa, and 58 1/2c for Pennsylvania.

LATEST MARKETS.—Flour closed 10c to 20c better for sound parcels with more doing. Wheat closed dull, with the advance chiefly lost. Pork closed dull and heavy, new mess at \$31 62 cash. Lard closed heavy at 18 1/2c to 21 1/2c, the latter an extreme.

BUFFALO MARKETS.—August 14.—Flour quiet, XX Ohio at \$11 25; X State on p. t.; and dry lots at \$13 for "Harball" \$9 to \$9 50 for X State, and \$9 50 to \$10 50 for Western spring extra. Wheat—Little enquiry, millers generally holding off Milwaukee club at \$2; do on p. t.; old white Michigan at \$3 35; and new do. at \$2 50, barrels extra. No. 1 Milwaukee club quoted at \$1 95 to \$2, as to views of holders and quantity. Oats—Only moderate enquiry. Sales reported of No. 1 Milwaukee at 42c. an l No. 1 Chicago at 39c. No change in other grains. Provisions—Steady. Heavy mess pork quoted at \$33 60; sugar cured hams at 24c; shoulders at 17c; and lard at 21 1/2c.

MILWAUKEE MARKETS.—Aug 13.—Wheat—Receipts 15,000 bushels; No 1 firm at \$1 93 1/2 to \$1 94, No 2 at \$1 78 to \$1 74, sales \$1 90 sellers option all month for No. 1 in store. Weather unsettled and unfavourable. Flour firm at \$5 50 to \$5 60. Freights unchanged.

CHICAGO MARKETS.—Aug 13.—Wheat buoyant; receipts 10,000 bushels; No. 1 f. o. b. at \$1 65. Corn firm at 60c to 60 1/2c. Receipts 197,000 bushels.

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