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T H E

# Canadian Agriculturist,

OR

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE  
OF UPPER CANADA.

L. XIII.

TORONTO, AUGUST 16, 1861.

No. 16.

## Mr. Stone's Live Stock.

I take the liberty of inserting the following extracts from a letter chiefly on business, with which we were favored a few days since from Mr. Stone, Esq., of Guelph. The information conveyed cannot be otherwise than interesting to our readers of the *Agriculturist* and to all who desire to promote the welfare of the country:—

There is no doubt will have been seen in English papers the attractions to the Babraham sale of Southdowns, and the large gathering it called forth.

I thought I should like to have some of the best, and let people know that Canadians appreciated fine stock as well as other nations in the Colonies, and that such a famed flock ought not to be dispersed without securing more or less of it. I therefore instructed my brother to go and secure a ram for me. He purchased one, and I am pleased to say they arrived here in good condition, and I trust, in a few weeks, my flock of Southdowns will be improved by this importation. The Country Gentleman mentions the purchase made by the late Duke of Devonshire, and states the Babraham sale attracted nearly as much attention as the Royal Agricultural Show, or only second in importance. Probably you will be kind enough in the next issue of the *Agriculturist* to mention that Canada had secured two sterling rams from the Babraham famed flock.

By the bye, I see the Bates blood of Short Horn has been very successful at the Royal Agricultural Society's Exhibition at Leeds. Capt. J. Bates's Dutchesses carrying off three first prizes, all three of which I believe are half bred to my 12th Duke of Oxford, by the same

bull. And it is worthy of remark that the three first calves got by this celebrated stock getter, "6th Duke of Oxford," were bred at Moreton Lodge, Guelph, Canada West. I mention this from seeing so much in the American papers respecting Mr. Thome's shipment to England, and having had two of the Grand Turk Heifers before Mr. Thorne got him, and also the Oxford's, I thought you might like (for the credit of Canada,) to say a word in the *Agriculturist* respecting Canada stock. I wish you could find time to run up for a few hours, and see my herd and flocks. I like people to see the whole, my heifers and calves are very good. The Herefords, on poor keep, have surprised me by the condition they are in. I am pleased to say my herds and flocks are in good condition, and some individuals in prime order."

A meeting of the Board of Agriculture having been held in London on the 15th inst., for the purpose of maturing the arrangements for the Provincial Exhibition, we resolved on returning to Toronto by way of Guelph, and, if possible, to give Mr. Stone a call. The party consisted of Mr. R. L. Denison, Treasurer of the Association, Mr. H. C. Thomson, Secretary of the Board of Agriculture, Mr. J. E. Peil, Vice-President of the Board of Arts and Manufactures, Mr. W. Edwards, Secretary of the same, and Professor Buckland.

On arriving in Guelph we found that the next train would arrive in about two hours, which unfortunately was the only time we had at our disposal, scarcely sufficient to get a peep at the many good things which Mr. Stone possesses. We at once drove to Moreton Lodge Farm, about a mile from the town, pleasantly situated

on the main road leading to Hamilton. Mr. Stone was not on the farm, though we had the pleasure of seeing him after we had gone round; his bailiff obligingly showed us the stock, and we were kindly accompanied by Mr. Hutchinson, of Guelph.

It would be impossible to take the most cursory glance at Mr. Stone's stock generally, without feeling that here is a man who is fast destined to occupy one of the highest positions as a breeder, not in Canada only, but on the whole continent of America. Mr. Stone's Short Horn herd is now too well known and appreciated to need anything further, perhaps, than an allusion. It contains quite a number of first-rate animals of different ages, of the pure Bates' blood, which the most competent judges now regard as the very best that England possesses. The calves and yearlings, as a whole, are exceedingly promising. Without particularizing, we must refer with profound admiration to the newly-formed herd of Herefords, three of which we saw at the Royal Agricultural Society's Show at Canterbury last summer; which carried off that national competition first prizes. The Bull is a very fine animal, and the rest of the herd, nine in number, we found grazing in a field, consisting of ordinary pasture, in excellent condition. Mr. Stone has judged wisely in commencing a herd of Herefords, to base it, regardless of trouble and expense, on the best blood, Lord Berwick's, that can be found in England; and the country is greatly indebted to his enterprise. Herefords are but little known in Canada, and the few that have, now and then, been shown at our Provincial Exhibitions, have been very inferior specimens, and could give a stranger no adequate idea of the breed, in its more improved form and advanced condition. To such as desire to see first-rate specimens of the modern Hereford, we can only say, pay Mr. Stone a visit, and you will return, both as regards Herefords and other animals, not only pleased and satisfied, but most likely considerably wiser. We were all highly gratified by their beautiful appearance. The public will now have an opportunity of forming correct conclusions as to the adaptation of this breed of cattle to the climate and wants of Canada. With no expectation that they will in any degree displace the Shorthorn, we think that they will be found to form a valuable adjunct. Mr.

Stone had just received from England a 'Shearling Southdown Rams, which were purchased for him at the recent Babraham sale. They are handsome, and evidently fine breeding animals; indicating the extraordinary degree of perfection to which Mr. Jonas Webb has been successful in bringing his world-renowned flock. We were unable, for want of time, to see Mr. Stone's Cotswolds, which are now so well known to occupy a very high position, and the recent importation of rams will doubtless still further improve the form and quality of his Downes. We observed about the yards a number of excellent pigs, of the improved Berkshire and Suffolk breeds. Indeed Mr. Stone seems determined to have every description of farm animals of the best possible quality, which though costly first, will assuredly pay the best in the end.

We would strongly recommend our young and enterprising farmers, especially, to pay Mr. Stone a visit, and to give to Moreton Hall Farm an entire day, as we hope to do before long. They will find its enterprising owner pursuing in the quietest and most unobtrusive way a career of improvement possessing sufficient public interest to justify the few hasty remarks we have made. We know of no better stimulus for Canadian farmers than what they would find there. Animals of superior excellence, properly housed and cared for, without any attention at mere show or extravagant outlay in buildings. In a word Mr. Stone's Homestead, farming operations generally, seem well adapted to the climate and wants of Canada, indicating *improvement combined with profit*. I may they continue so!

### The Army Worm.

An esteemed correspondent, residing in the county of Northumberland, sent us a few since some specimens of two kinds of insects, one of which is producing extensive mischief among the cereals in various parts of the province, and particularly in the south-western counties. The one is the larva of what is properly designated the Army Worm, on account of its vast numbers and desolating ravages; the other appears to be a species of *Apthys*, or locust, belonging to a very extensive family of insects, some of which are exceedingly destructive to vegetation, while others, probably, the specimen in question, belongs

comparatively harmless. We subjoin two articles of scientific authority which will throw some light on this important, but, at present, complicated and mysterious subject. Like most attacks of this nature no specific remedy is known, and farmers have, in a great measure, to be passive, leaning on the omnipotent arm of Providence, and trusting in those beneficent compensating arrangements, which belong to the constitution of the natural government of the Deity. Careful observation and scientific research, doubtless tend to enable the cultivator of the soil to mitigate, if he cannot wholly prevent, these attacks on his crops. The application of quick lime or a strong solution of salt, might in case of the army worm, produce some good effect. Strong brine however, cannot be safely applied to our cultivated crops, and such a remedy might prove as bad as the disease. The progress of the worms has, we observe in some instances, been arrested, as they travel from the field to another, by making a deep furrow with the spade or plough, and then trampling them to death. The Hon. David Christie presented some specimens of this destructive pest at a recent meeting of the Board of Agriculture, held in London, and it was deemed of the utmost importance that the most reliable information should be obtained in reference to the habits and progress of this insect, by accurate and extensive observations.

### THE ARMY WORM MOTH.

(From the Country Gentleman.)

Messrs. TUCKER—I have an illustration of “the result of knowledge under difficulties” to present. Dr John Bartlett of Pesotum, Champaign Co., Ill., sends us in spirits, in a tin tube, a specimen of the renowned Army worm, and of the moth which is bred from it. Now spirits is the very best vehicle in which to preserve and transport all kinds of worms, spiders and beetles; but insects with delicate wings, such as butterflies, bees and flies are usually ruined by being wet, their wings becoming matted together in a wad, as a wet dish-cloth, and if prettily colored, their colors are liable to be altered or destroyed by spirits. An inexperienced collector, therefore, will do best to place such insects between layers of cotton in a small box, to transmit them without injury by mail or express.

On emptying the tube from Dr. Bartlett it was with deep regret that I saw this moth of the Army worm lying before me, soaked to a soft, shapeless black mass, which might on drying wholly consist of showing me the same colors and spots which naturally belong to it. On carefully disentangling and spreading its wings, and drying

it, my first step was to compare it with the broken and effaced specimens received last year from Dr. Jenkins of Maryland, mentioned in my letter to Hon B. P. Johnson, lately published in the Co. GENT. I hereupon saw that the Army worm in Maryland last year, and that now in Illinois were undoubtedly one and the same insect. And now, by a searching look from one to the other of these soiled and imperfect specimens, I was able to gather from them certain marks by which I thought I could recognize this insect if I chanced to have any other specimens of it in my collection. Upon looking over the moths of the cut worms I find nothing like this among them. Turning then to another group, lo, here I have it!—two perfect specimens, received a few years since in a fine collection from Prof. D. S. Sheldon of Iowa College. *Laus Dei!* The riddle is now read! What for nearly a score of years I have been so anxious to obtain I now have! I know what the moth of this Army worm now is! And in the fulness of my joy hereupon, I thank you, Prof. Sheldon, and you Dr. Bartlett, and Dr. Jenkins, each and all, that you have collectively furnished me with such clues as have enabled me to make this discovery.

A short sketch of the history of this species, as it appears in our works of science, will interest the reader. Long ago, a preserved specimen of this moth found its way into the then celebrated collection of Mr. Francillon in London. Upon the breaking up and sale of that collection, this specimen passed into the possession of Mr. Haworth, who, not doubting but that it had been captured in England, described it very briefly, in the year 1810, in his *Lepidoptera Britannica*, page 174, naming it *Noctua unipuncta* or the White Speck, by which names it has ever since been referred to by English authors and collectors, save that a new generic name, *Leucania*, replaces that of *Noctua*. It appears to have been through inadvertency that Mr. Stephens changed this name to *impuncta*, when he came to describe the species in 1829, in his *British Entomology*, *Haustellata*, vol. iii, p. 80. Later, in 1850, he refers to it under its original name, in the *List of Lepidoptera in the British Museum*, p. 289, it having now been ascertained that it was a North American and not a British insect.

Guenee appears to have overlooked this species of the English authors. In his valuable work on the *Lepidoptera* (vol. v., p. 77—Paris, 1852) he regards it as a new species, naming it *Leucania extranea*. From him we learn that there are specimens of it in several of the Paris collections, whereby they know it to be a common insect in North America, Columbia and Brazil. He also states that a variety of it which is destitute of the white dot on the fore-wings, occurs in the East Indies, Java and Australia. I cannot but think, however, that this East India insect should be ranked as a distinct species from ours, as it differs in such a prominent character, and is so widely separated from it geographically.

From what has now been stated, it will be seen that the original and therefore legitimate scientific name of this insect is *Leucania unipuncta*. And the “Army-worm moth” will undoubtedly be the

common name by which it will be currently designated in this country, instead of the White Speck, the name given it in England.

About a dozen New York species of this genus, *Leucania*, are known to me. They are those white and pale yellow moths, or millers which are so common in our meadows and other grass lands, and which flit aside in such numbers when the scythe of the mower sweeps their covers from them. And the "black worm," which in this section of our Union sometimes shows the same gregarious and migratory habits as the Army worm of the Western and Southern States, I now infer to be the larva of some one of these moths.

I have scarcely sufficient space remaining to give in this article such a full and particular description of this moth as ought to accompany this announcement of its name, and will enable every one to distinguish it with certainty from other moths which resemble it.

It is very plain and unadorned in its appearance. The eye, on first glancing at it, only recognizes it as an ordinary looking moth of a tarnished yellowish drab color, inclining to russet, with a small white dot near the centre of its fore wings, and a dusky oblique streak at their tips. On coming to look at it more particularly, we find it to be rather less than an inch long to the end of its closed wings, or if these are extended it is about an inch and three quarters in width, different specimens varying somewhat in their size. Its fore wings are sprinkled with blackish atoms, and a short distance forward of their hind edge, they are crossed by a row of black dots, one on each of the veins. Outside of the middle of the wings, this row of dots suddenly curves forward, and from this curve a dusky streak runs to the tip of the wing, the ground color being more pale and clearer yellow outside of this streak. Though the moths of some other genera usually have a similar streak, this is the only species of this genus in which this mark occurs, and hence M. Garnee names this species *extranea*, i. e., extraneous, foreign, different, as though it did not belong here. And Mr. Stephens doubts whether it correctly pertains to this genus. But a character that will appear to common persons as more conspicuous and important, is that from which Mr. Haworth names this species. Nearly in the centre of the wing is a milk-white dot, placed upon the mid vein. This dot is surrounded more or less by a dusky cloud, and this duskieness is frequently extended forward upon the mid-vein to its base, forming a faint darker streak along the middle of the wing. Contiguous to this dot on its outer side may be discerned a roundish spot of a slightly paler yellow color than the ground, and a very short distance forward of this is a similar spot, but smaller, both these spots often showing a more tarnished centre. On the hind part of the wing the veins are marked by slender whitish lines, and between their tips on the hind edge of the wing is a row of minute black dots.

The hind wings are smoky brown, with a purplish gloss, and are nearly transparent, with the veins blackish. The fringe of both pairs of wings is pale yellowish, with a dusky band on the middle.

On the under side the wings are much more glossy and paler, opalescent whitish inwardly, and smoky gray toward their outer and hind sides, where they are also freckled with blackish atoms. The smoky color on the hind wings has, on its anterior edge, a row of short, blackish lines placed on each of the veins, and in line with them on the fore wings is a faint dusky band, becoming more distinct towards its outer end, and sometimes only represented by a dusky dot on the outer margin forward of the tip. The veins are whitish, and also the hind edge, on which is a row of black dots placed between the tips of the veins. The hind wings have also a blackish crescent shaped spot a little forward of their centre.

The abdomen or hind body is smoky gray above and on its under side ash grey, freckled with black scales, and usually showing a row of black dots along each side.

Though these moths are subject to some variety, whoever has one of them in his hands will find it to coincide so exactly with most of the particulars stated in the above description, that he will be fully assured it is this insect.

ASA FITCH.

Salem, N. Y., July, 1861.

P.S. July 17th.—A fine specimen of this moth reaches me to-day from Mr. Emery, editor of the *Prairie Farmer*. It is a male, and indicates the sex to be smaller, measuring but little over an inch and a half across its spread wings. It is also of a darker or more smoky gray color, but does not appear to differ otherwise from the description above given.

A.P.

#### ANOTHER WHEAT PEST.

(From the *Kingston Whig*.)

"He doth take my life  
Who takes the means to support my life."

Within the past few days several farmers in the neighborhood of Kingston have transmitted to the Botanical Society of Canada ears of wheat and other grains infested with an insect, which, although individually minute, presents a formidable appearance on account of the vastness of numbers. In some cases the little parasite completely covers the ears of grain; in fact, wheat is "dark with it." The insect in question is a species of *Aphis*, or plant-louse. It is probable that it now makes its appearance in Canada for the first time; but this season its usual abundance has served to attract the attention of farmers. It appears from the newspapers, that the same, or a similar insect is at present infesting the wheat and other grain crops in the United States.

The *Aphides* are very numerous, and on domestic plants, such as roses and geraniums, suffer severely from their attacks; their usual green colour has obtained for them the name of green fly. Naturalists at once time thought every plant had its peculiar attendant *Aphis*, it is now known that the same species, in various cases, attacks various plants. They do not gnaw leaves of the plant like caterpillars, but sit

their juices. The plant suffers, its energies weakened, the leaves and other parts shrivel, blister, and an inroad is formed for other insects.

In the present case, the fly, as yet, presents itself chiefly in the wingless form, the individuals being like rather large crawling mites of a wash-yellow colour varying to apple-green. In some cases, where the whole ears were covered with the insects, the total destruction of the crop seemed inevitable, yet there is not much to be feared for concern. Undoubtedly, the yield will be lessened by their presence, and the quality of the grain, perhaps, slightly deteriorated, but it is not likely that the injurious effects will prove formidable in extent as the appearance of the pest is apt to indicate. In Britain, the bean is annually liable to the attacks of an allied insect species (*Aphis Fabae*) which appears in the numbers that, in autumn, when they acquire wings, they leave the bean fields and darken the atmosphere with living clouds—yet farmers do not find their bean crop very light. This is the so-called "Cholea-fly" of Europe, which, although ominous in aspect and name, is practically felt to be injurious only from its troublesome habit of flying over the country in clouds, covering the roads with a shower of living, crawling forms, and filling the eyes, nose, and mouth of weary travellers as they pass along the dusty roads in autumn.

The rapid reproduction of Aphides is one of the most singular features in their history, and serves to explain their apparently sudden appearance in vast numbers. In these insects the ordinary laws of development appears to be departed from; but the researches of Bonnet are strengthened by the observations of phenomena of a similar kind in certain other insects. In spring and summer, the Aphides are all females, and wingless—there being no male individuals, at least—yet, many generations of living young are almost weekly produced throughout the summer; these are likewise females. The males are not born until the end of summer or autumn. Some of these have wings, but their comparatively heavy bodies render their powers of flight feeble, so that when they leave the plants in which they are parasitic, they are carried about and thither by the atmospheric currents.

### Reaping Machines.

The reader will find much interesting information in the following letters written by Lord Caird, addressed to Mr. Wilson, who read it in the course of his able lecture on reaping by machinery, at a recent meeting of the Newcastle (England) Farmers' Club.]

I consider that we are indebted to the Rev. Mr. Bell, and to his brother, Mr. G. Bell, for the reaping machines at present in use, and I would beg you for further details to the *Journal of*

*Agriculture of the Highland Society*, published by Blackwood & Sons, Edinburgh, for January, 1854, in which is a very interesting account, headed 'Bell's Reaping Machine.'

"My reason for giving Mr. Bell and his brother credit is, that, although several patents had been formerly taken out during many previous years, nothing of any note had resulted from them—and the American machines forwarded to this country, the original of those now in use, were constructed subsequently to Mr. Bell's—a larger number of which were sent to America, and there imitated.

I got one at the time, but was obliged to lay it aside, in consequence of the weight, iron being almost wholly used in its construction. Mr. G. Bell, however, naturally feeling a parental affection for this his own creation, persevered with it, and brought it at length to great perfection. He made an arrangement for its manufacture with Mr. Crosskill, and it is known in England as 'Crosskill's Bell,' but at present it is manufactured by Mr. Watson, of Errol, North Britain, and it is very frequently used by farmers in Scotland. There is an account of the 'Expenses in cutting and stooking white crop of 1860 with Bell's Reaping Machine in the number for April 3rd, 1861, of the *Scottish Farmer and Horticulturist*, which is worth your looking at.

Amongst the first, if not the first machines which came from America, was Hussey's, and I immediately procured one of them; it cut the corn—depositing it behind, the driver walking at the side. The necessity for lifting the corn at once, so as to allow the horses to pass on coming round again, is objectionable; but the great defect was that it choked.

Mr. McCormick's was, I believe, the next machine which reached us from America—to this was attached Bell's reel for drawing the corn towards the knives, and a man sat on a bar at the back with a rake, and put it into sheaves. The great merit of this machine was the serrated cutter, which, with some slight modification only is adopted in every machine at the present day, thus doing away with Bell's shears and scissors and Hussey's smooth knife. I was so much pleased with McCormick's plan of cutter that I bought the machine, and established a private work for the manufacture of reaping machines, being satisfied that, to bring them to perfection, much time and ingenuity would be requisite, and that the self-delivery was indispensable. I engaged a very ingenious blacksmith, since, I regret to say, dead, and by dint of carrying out not only my own ideas, but the very valuable suggestions I received from practical men, I succeeded in producing a very workable implement, but I found, by practice, that there were so many contingencies to be provided against—such as hard, soft, unequal ground, grain laid, &c.—that the machine would require many improvements, especially in its simplification, before any ploughman would be able to work it, or an ordi-

nary blacksmith repair any part which might give way. The difficulty was that as it was impossible to postpone the cutting of the crop, there was not time for remedying any defect which might be discovered, and affording the opportunity of another experiment. At last, I resolved to make arrangements for a field of wheat to be kept for the purpose of experiments, and I believe the last portion was not cut till the beginning of November; but I was amply rewarded—the result being that I have got a most complete implement, and one which I have used constantly for the last three or four years; indeed I have four, as I consider that on a good sized farm, a couple of machines are of great use. I gained the first prize at two meetings of the Highland Society of Scotland, but did not exhibit at the English Society last year, though I intend to do so at Leeds this year. I will now proceed to give you my opinion, founded on considerable practical experience, on reaping with machinery, and on the different machines now in use,—of course my opinion can only be taken for what it is worth.

In the first place, I consider that a reaping machine without self-delivery is an imperfect implement, in so far, that it is no saving of expense, while one great advantage, that of corn being laid down lightly on one side, to which reference will hereafter be made, is lost. On the other hand, there is no doubt that where hands are scarce, or on small fields and very hilly ground, one with self-delivery may be used with advantage. A considerable number of these have been sold by different makers, and I suspect the cheaper rate at which such can be made, than the self-delivery machines, has been an inducement to farmers to purchase them, in spite of their requiring two men, one to drive, the other to take off, which last is not able to do a good day's work if the crop is heavy; and, indeed, even with a light crop of Wheat, no man can continue such work for a number of days consecutively, whatsoever he may do for a mere exhibition. There are, I know, several ingenious plans for assisting the raker, but nothing equals the self-delivery. It is difficult to form a fair estimate of the respective merits of machines seen only at shows, as on such occasions they are driven rapidly, which makes them cut better, but the fatigue consequent thereon to the horses makes this rate of speed impossible in practice. The self-delivery machines, however, which I am about to mention, do not require to be driven fast in order that their work may be performed well. I will only speak of those with which I am practically acquainted, namely, Wood's, Bell's Burgess & Key's, and my own. Wood's, combines mowing and reaping, a combination which, at first sight, appears advantageous, but which, I am satisfied, does not answer in practice. Wood's mowing-machine is a useful implement, but the bar is too weak—yields in passing over uneven ground, whereby the cutters are

impeded in their action, and some part must give way. The provision for rising and falling, according to the inequalities of the ground, is ingenious, and is in this respect superior to Burgess & Key's mowing machine, which is a tolerably effective. It is comparatively easy to cut seeds, but close meadow Grass presents greater difficulties to the action of machines. Wood's reaper, though light, is superior, in my opinion, to either of the other there above named, but will need several improvements before it comes into general use.

Next, with regard to Bell's, this is a perfect reaper, which has gained many prizes and is extensively used by farmers. It has a great advantage of passing through gates easily; it also cuts out a breadth of the crop for itself, which in the case of all other machines, has to be done by the hand, or with the scythe, which is, in fact, no real objection in practice. A very ingenious plan has been devised by Bell for laying the corn, if required, in sheaves, considered by some as advisable, in which opinion I do not concur, as I believe it takes away one of the benefits of reaping machines, which I shall refer later, that of the advantage derived from the mode of depositing the grain by self-delivery machines. My objection to this machine is, that it is heavier in draught than mine, and requires a driver of some little experience; but, nevertheless, it is a very good implement.

I now come to Burgess & Key's reaper. It is the most generally used self-delivery reaper any which has yet been invented. Like mine it is an improvement on McCormick's, the livery being effected by means of revolving screens, and it does its work admirably. It is also driven in the same manner by a man sitting in front, who has complete command over working gear, as well as over the horses. A ploughman, with common intelligence, can be taught in a brief period of time to manage this machine driven from the front. It lays the grain very evenly, though, perhaps, not quite so well as Bell's, and, in some cases, appears better than mine; but it is only in appearance. The outside straws being caught by one of the screws, are laid at right angles to the machine, covering the deposits beneath, which lie on or less obliquely. The external layer, however, looks well to the eye, and may tell at a distance, but it is no practical benefit. The objection to this machine is, that it is rather heavy to drive than mine, and that, with a heavy crop of Wheat, the screws do not catch the grain, stoppages are frequent. With mine, on the contrary, the heavier the crop the better it is cut, but, with regard to light Barley crops, Burgess & Key's machine has, I think, the advantage. Bell's I should say, has the merit of being equally efficient in both cases. I have endeavoured to give, fairly, my own impressions on these machines with which I am acquainted. I will

need to describe, as far as I can, the differences between any machines and those above mentioned.

These self-delivering machines are worked by means of a pole, with a pair of horses, like an ordinary carriage. In Bell's case the poll is behind, and the horses, to all appearance, push the machine forward; but, in fact the bars being attached to the end of the pole, the traction of the horses upon these propel the machine. In the case of one horse works in shafts with an outer gear, affording greater command over the machine for turning and backing. The plan for raising and depressing the cutters is simple. The draught of the machine light—not harder to draw for a pair of horses, if so hard, as ploughing. When the corn is standing, one man and a pair of horses cut down with ease one imperial acre per hour. When the corn is laid, it is less, it may be necessary to take the grain either in the face or sideways, in which case the machine can only work one way, returning only. The delivery of the grain is by means of hands passing over a smooth surface, similar to Bell's. These are more easily driven than the rollers, and, as I have said, are better adapted to a heavy crop. My machine, if well made, works well after season, requiring little or no repair. The advantages of cutting by machinery with a self-delivery are these:—First, a saving of expense, and frequently also of a great portion of the crop; secondly, less risk of shaking out the grain; and thirdly, independence from the necessity of obtaining extra hands, in many places difficult to procure, and attended with many

inconveniences. The machine is used at a period when horses are not so much required, so that additional food is not the outlay the farmer is put to, and the expenses are reduced to the few required for fuel and wages. Some seasons it is true that only a portion of the crop can be cut by machinery—that the remainder is standing or laid only one way; if much twisted, like last year, it can only be accomplished by hands. Granting, however, that half is cut by machinery, a great saving is effected, for much grain is lost by being allowed to stand for want of hands. There are seasons when it ripens simultaneously, and consequently becomes over ripe and shakes out. In these seasons the fields quite green in spring from this year.

This the machine obviates completely. It is not only more expeditious, but it lays the grain down so gently that no grain is shaken out; from the mode of its deposition, the heads fall downwards, allowing the wet to run off, and the free circulation of air through the grain and stalks, the grain is ready to be carried up, and up, as the case may be, much sooner, and is not so liable to injury from wet weather as the old system. I saw the effect on a field of Barley which was subjected to a week's rain; and while the one half was uninjured, the other half which was tied up had sprouted.

A man and a pair of horses, allowing a two hours' rest, can, unassisted, easily cut down 10 imperial acres per day; but it would be more advantageous to work the machine the entire day without stoppage, by means of relays of men and horses. The grain may lay till it is either fit for carrying, or the binders are ready to enter the field.

I have endeavored to comply with your request and I have also endeavored to state, as impartially as I can, my opinion of the different machines which have come under my notice. It is, perhaps, natural that I should have a bias in favor of my own; and my long experience of its merits may excuse the preference. I believe it would have been more generally used in Scotland, had not the maker, to whom I entrusted it, after the blacksmith to whom I alluded, turned out some very imperfectly made machines. However, I trust that you and your friends may have the opportunity of judging of its merits, such as they are, at Leeds.

I am fully convinced that no new invention can be brought out without a series of trials and disappointments. Improvements may very possibly be still made; but, at any rate, I have no doubt that, before many years, reaping machines will be considered as necessary an adjunct to every farm as any other implement now in use."

### Irrigation as a Fertilizer of Grass Lands.

We take the following Report of Mr. J. Stanton Gould from the July number of the *Journal of the New York State Agricultural Society*. It refers to the farm of Mr. Clift, who appears to have carried out a system of irrigation with much benefit and success. There are many places in Canada where irrigation might be beneficially practised, and would doubtless very much add to the value of our grass lands, which, as a general thing, are too much neglected. The increased value of farm stock, would justify more attention and the incurring of greater expenditure to the improvement of meadows and pasture land.

#### MR. CLIFT'S FARM.

Having learned that Leanord D. Clift, Esq., of Carmel, Putnam co., N.Y., had derived great benefit from this practice, I visited his farm on the 17th of June, for the purpose of studying his methods and verifying his statements respecting his increased production.

The farm lies upon the road from Croton Falls to Lake Mahopac, about two miles and a half from the former. It is intersected by a stream which forms the outlet of Mud Lake, situated in the vicinity of Lake Mahopac.



## THE SOIL.

The soil is constituted by the disintegration of the granite rocks lying in the neighborhood, and is therefore, probably, very homogeneous in its chemical composition; but there is a very considerable difference in the mechanical texture of the different lots, that portion of it lying south of the stream being principally sandy loam, while that lying on the north is a coarse gravel.

## THE UNIRRIGATED MEADOWS.

My attention was first turned to the meadows which were unirrigated, but manured. One of these was being mowed on my arrival. It had been manured in previous years with barnyard manure and with the sediment in the bottom of the pond from which the irrigation is supplied to the lower grounds.

In order to determine the proportions of the various kinds of plants in this meadow, several spots were selected in various sections, which appeared to represent the average vegetable composition; these were cut over, and the culms of each species were counted, with the following average result:—

White clover ( <i>trifolium repens</i> )	52.3 per cent.
Kentucky blue grass ( <i>poa pratensis</i> )	35.2 "
Red top ( <i>agrostis vulgaris</i> )	4.1 "
Timothy ( <i>Phleum pratense</i> )	3.2 "
Meadow fescue ( <i>testuca pratense</i> )	2.9 "
Vine grass, or blue grass ( <i>poa compressa</i> )	1.0 "
Sedges ( <i>carices</i> )	0.3 "
Curled dock ( <i>rumex Crispus</i> )	0.4 "
Butter cup ( <i>rununculus acris</i> )	0.4 "

This table gives an accurate representation of the patches examined, and which were selected as average specimens of the whole field; but on a subsequent examination, I found several large patches which were almost entirely filled with sheep sorrel (*Rumex acetosella*) and others, which were largely intermixed with this plant. Around the fences and the outskirts of the field I found a five-finger (*Potentilla canadensis*) and some of the ox-eye daisy (*Leucanthemum vulgare*.) The rarity of this latter weed on the whole farm was very remarkable. I have never before seen any meadows so free from it. This meadow yield about one and a half tons the acre.

## THE IRRIGATED MEADOWS.

Contrary to my expectations, and to what is usually found in other places, the grass on the irrigated lands was the purest on the farm. A great number of small sections were carefully examined, plant by plant, without finding a single spear of any plant save Kentucky blue grass and white clover, in very nearly equal proportions, viz., 52 of the former to 48 of the latter.

There was occasionally a spear of sheep sorrel, and in two or three places I found three or four ox-eye daisies. A single plant of the butter cup was found in another spot. With these excep-

tions there was absolutely nothing on the save blue grass and white clover.

On irrigated meadows generally, the Italian rye grass (*Lolium Italicum*), common rye grass (*L. perenne*), and rough stalked meadow grass (*Poa trivialis*), are found in great abundance; in fact, they are usually the prevailing grass; but I could not find a single plant of either of them on Mr. Clift's lands. I have no doubt that the introduction of the two former species would increase his crop materially, but that the latter ripens too late to cut with the others.

## THE GAIN FROM IRRIGATION.

The mechanical arrangements for the distribution of the water are of the rudest kind, therefore fail to spread it as equally as desired; many spaces are found which have not been any time covered with the water. A comparison of the weights of the grass growing on these patches with those of equal areas on the completely irrigated lands will afford us a perfect criterion for judging the value of irrigation since the soil, and all other circumstances affecting vegetable nutrition, must be precisely the same in both cases.

Equal spaces of each were accurately measured, the grass carefully cut with a hook, and weighed. The average of these weights showed that the irrigated portions gave 17 pounds of grass on the same space that yielded one pound on the unirrigated portions.

## THE CONDITION OF THE LAND BEFORE IRRIGATION.

This was the most unfertile portion of the farm before it was irrigated. After ploughing, seeding, and a heavy manuring, a good crop of grass might be expected for one year, but the burthen would be diminished one-half the next year, and on the third nothing would remain but daisies, butter cups, dock, and sheep sorrel, the latter largely predominating.

Since the land has been irrigated it has received a single shovel full of manure of every kind, while it yields from one to two tons upon an acre than the best and most highly manured lands upon the farm. Even the patches which escaped the direct action of the water were benefitted by the soaking, and proved by the absence of the weeds which previously infested them, and by a very considerable increase in the amount of grass stock upon them.

## PROFIT OF IRRIGATION.

About twenty acres of land are under irrigation. Suppose the increase to be only one ton to the acre, and its value be \$10 per ton, it would give an increased annual income of \$200. The whole cost of dam and leading ditch is \$500, which would thus be paid by the increased production in two and a half years, leaving after a clear net income of \$200 as the result of the enterprise.

In the course of my journey from

ance to Mr. Clift's, I estimated roughly the susceptible of benefit by irrigation, which I saw under my eye, at 20,000 acres, assuming before that the increase was only one ton to an acre, and its value to be \$10 per ton, we should receive from our now wasted waters a revenue of \$200,000 annually. I fully believe that without resorting to any extensive or costly engineering operations, or any erections more complicated than any good farmer is capable of effecting with his ordinary help, it will be possible to increase the annual value of the grass lands of the State of New York one million of dollars, by the judicious use of the streams flowing through them.

#### DRAINAGE AND IRRIGATION ASSOCIATED.

I have already stated that lands lying on the north side of Mr. Clift's stream is a sandy loam, and that lying on the north is coarse gravel, through which the water leeches easily and rapidly. Although the south side is greatly benefited by the water, it is very much less so on the north side, in consequence of the imperfect drainage. Where lands are flat and require, thorough underdraining is an indispensable accompaniment of irrigation. Without it, water may prove injurious rather than useful. The land on the south side was well drained, and would without any doubt yield a greater crop than the north side.

#### COMPARATIVE VIEW OF IRRIGATED AND UNIRRIGATED HAY.

It is frequently alleged that the increased production of hay from irrigation is apparent rather than real, as after drying in the sun there is no difference in the weight, and the irrigated hay is palatable.

I intended to test this point very carefully, but was unable to procure any accurate weighing apparatus of sufficient delicacy for the necessary experiments. I was compelled to relinquish part of my design. I however saw a row of irrigated hay in Mr. Clift's barn which was bright and sweet as could be desired; and I ascertained that the cattle eat it with as much relish as they do any hay grown upon his farm. Mr. Clift's mode of applying the water being described very fully in the Society's Transactions for 1855 and 1858, I refer those interested in the matter to those volumes for the information they may require.

It was a real pleasure to me, to visit a man who has commenced life with little capital save a strong heart and stout arms, and who had converted a rocky and swampy waste into fertile fields, who has given his children the best education the country affords, who has used a generous and genial hospitality, and who has been successful to embellish as well as utilize his property, and, after doing all this, to accumulate a comfortable fortune without any speculations, but by the aid of honest straightforward farming

alone. Such men are the jewels of our country, worthy of all honor and renown. I congratulated him heartily upon his success in life, and the truly happy position in which he stood. He told me one thing had contributed more than anything else to this result. He had *one of the best wives in the world*. He said he could never have accomplished it but for her.

#### Manuel Wurzel, on Hardy's Improved Lois Weedon Practice of Husbandry.

TO THE EDITOR OF THE CANADIAN AGRICULTURIST, TORONTO.—SIR,—Inquiries having been made by several correspondents respecting the particulars and truth of a statement made by me of the weight of my experimental plot of mangels (1860), twenty-two square yards, permit me to say farther, for their intelligence, that if my good faith was wanting, the said crop was open for the inspection of all visitors who chose to call and see them growing, or to witness their weight when they were pulled. Being intent upon agricultural pursuits, for the good of others as well as myself, by only common personal courtesy, I have pleasure at all times in showing any interested friend my experimental crops when growing; and these are many, as I experiment on a small scale diverse plans of husbandry upon almost every crop I grow, for the advancement of agricultural knowledge. To be more explicit in my description, the crop alluded to was thirty-six roots of yellow globe mangel, grown on 22 square yards, averaging 15 lbs. each, or 4 cwt. 3 qrs. 8 lbs., equal to 53 tons 2 qrs. 24 lbs. per statute acre. I would have it distinctly observed, and kept in mind, that the crop grew on common ploughed land, of a mixed character, and loamy subsoil, well manured, and deeply cultivated by the spade in the winter season, only once dug, and that for the first time. Deep cultivation, or *perfect* culture, for roots especially, is not essential, by whatever method it may be accomplished—whether it be by manual labor, horse power, or mighty steam; but the old practice of digging has not yet been superseded. Shuffle the cards how we will, the spades are pretty sure to win. This crop, let it be understood, was grown in double rows, on the flat, and not on ridges, occupying something less than *one moiety* of the land, or, strictly speaking, on only 11 yards, in the centre of 7ft. 5 in. stretches. This pair of rows was about 2 ft. 6 in. apart; the plants in the rows standing diagonally, or dog-leg fashion, the same distance apart from each other. The remaining counterpart, or moiety, or half of the land, most barren, where were the furrows, being clean fallowed for a similar crop the next season, to within seven inches of each row of plants, it being just half the entire stretch, the plants occupying the other half, 3ft. 8in. In like manner, by the bye, as I advocate wheat,

beans, and other robust-growing crops, to be grown alternately, and with equal success and advantage as roots, in one, two, three, four, or five rows, at the will of the grower, with few or no weeds to retard their growth. (By this new mode of fallowing every year, no weeds are ever allowed to seed; whilst by the old system, every four years, and sometimes never at all, with a sacrifice of a whole year's crop, all weeds are allowed to seed, and to be fostered in the crops, so as not possibly to be eradicated, even with the greatest vigilance, during one's whole lease, or it may be a century, the seeds always germinating when they are brought to the surface, and not before, though it may be for 100 years.) Though not all to be done by the spade, that being impracticable, for want of labourers to perform it; yet imitating it with as much success and profit, by subsoiling the cropped moiety, either by steam or the common plough. The manurial application for this crop of mangels was deposited during the previous autumn, *all* in the centre of the stetch or moiety of land to be cropped, as I recommend for beans and other exhausting crops; with the exception of wheat, however, which I consider makes it grow too rank, and in patches, liable to be mildewed, and root-fallen, the straw frothy and the grain late and dwindled. The grand points to be studied and secured for obtaining a full weight of roots, or crop of any kind, are deep cultivation, and a uniformity of plants singled out at an early stage of their growth, all commencing or starting into growth at one time. Moreover, this successful rule holds good in degree, let the plants be extravagantly thick or thin, though if both are avoided, the results will be the best of crops. For ordinary practice and successful issues, I would advise that double rows of mangels be planted as I have described; but if any deviation is made, to let the plants stand thicker than mine were, say 50 on the two rows, every 12 or 13 lineal yards, which makes a rod or square perch on 7ft. 4in. stetches, commonly called 8ths, or 8 furrrows, viz., taking into account both moieties, the cropped and the uncropped fallowed portions. Thus, reckoning only 6 lbs. for each bulb, which is a low estimate, would be 300 lbs. a rod, or 40,000 lbs., or 21 tons, 8 cwt. 64 lbs. per acre, with half the land at rest, and clean fallowed, be it remembered, into the bargain. The advantage of transplanting mangels have lately been questioned and discussed in various journals. Allow me to advert to it, and to observe, that repeated experiments in the misplaced spaces, where the seed chanced not to germinate, or not to produce a uniform crop, have with me signally failed. In fact, for forty years in my remembrance, nine cases out of ten, crops of all kinds, transplanted, or otherwise patched with another crop in vacant parts, have invariably proved a failure, and not worth

the trouble and expense bestowed upon them. The go-ahead plants have generally encroached and gained the ascendancy over the laterals, transplanted roots, especially in dry seasons, at the best have eventuated with very uncer and unmarketable samples; whilst only half plant, well developed, would have been more valuable. Notwithstanding, however, the ill-success of the practice above alluded to, namely, from a mixed crop, it has, nevertheless proved advantageous to transplant mangels sowed as a full and permanent crop, as our Brassicas are planted, on prepared land during spring, and well manured in winter, fallow purposely in the two months of April and May, whilst good stout plants are being raised in advance, thinly, on reserve ground, or on a nursery bed, especially prepared for that purpose in the month of March. Thus a great saving of seed may be effected, an object when it is scarce and dear, and not likely to germinate well [instance the present year] and no more plants need be raised than are absolutely wanted. Moreover, a fine tilth and clean fallow, in two months longer than could possibly be cured if the seed had been obliged to be so where it was to remain, with the land only prepared, planted early, and full of weeds. Nursery plants should be carefully taken up, the roots entire, raising them with a fork, only to be slightly root-tipped, or tailed. Care of no rain intervening, or otherwise, roots should be puddled in thick artificial manure water, or urine; in this case one watering afterwards will suffice to establish growth, and to ensure a uniform, good, weighty crop. Care must be taken that bulbs are not bruised by the dibble or hoe, although a wound may heal, or callous, thereby greatly deteriorated, and takes place of a sound plant. If transplanted in two rows on the centre of each stetch, the stetches may be clean fallowed with profit. Advantage for future crops, it may be for some kind of crop again, or it will be adapted to begin my Lois Weedon practice, growing wheat, or beans, two, three, four, or five rows on the middle of each stetch, and one moiety of the land would be clean fallowed every year, and all weeds set at naught every first year, and as long as the practice was continued. The beginning of Lois Weedon practice ought, in fairness, to begin on fallowed weeds the first year being objectionable. Thus, as the Rev. S. Smith, of Lois Weedon, rightfully and truthfully observes, "the produce of the half is as much as the additional benefit of the clean, deep, ready-prepared fallows for future crops, beyond all price."

ABRAHAM HARRIS  
Seedgrower and Merchant, Maldon,  
England.

March 4th, 1861.

## The System of Showing Horses at Exhibitions.

THE EDITORS OF THE CANADIAN AGRICULTURIST.—GENTLEMEN,—It has always struck myself, and I am certain that it has frequently struck across the conviction of many others, at the rules regulating the exhibition of horses at our Provincial and Township Shows are lax to the extreme. The one point to which at the present moment I would more particularly advert is that system which is permitted, and generally pursued, of horses appearing for judgment in those harnesses and trappings which the wealth of their owners may allow, and which they add so much to the external and general appearance upon a fair ground. The system is correct, and it is also unfair, and I am opposed to it, as I think that every horse exhibited should appear in its naked, native dignity, unadorned with any of that paraphernalia which is so much to mislead the eye and corrupt the judgment.

According to the system now pursued, every horse taking under every description, blood, harness, carriage, and draught, should equally all appear in the real character and attributes to which they assume. For instance, a horse naturally be supposed that an agricultural horse should perambulate the course with a plough, a draught-horse with a heavy cart, so on *ad infinitum*. This idea is correct enough no doubt, but it becomes absurd and monstrous, and, in short, unfair, when we see the horses appearing on the show in all the variety of new harness, while their competitors are just as they are and as they ought to be, in the simple bridle.

I would therefore, Gentlemen, suggest that horses brought for show, should be shown simply with the plain bridle, and with nothing more, not even with roller and crupper, as any horse if capable of doing so, will hold its head and dignify its appearance without any artificial aid or mechanical coaxing.

There are no doubt many owners of tolerably good driving horses who frequent these fairs, not with any idea of obtaining prizes, but simply to have the opportunity thus afforded of showing their animals, and effecting a sale. I certainly would not wish to deprive these parties of the privilege of showing their horses, but I certainly do think that they should have a separate distinct class to themselves, to show just as they please. As it is now, they come in direct contact with the real *bona fide* competitors in every class, and afford a wide margin for discomfiture and a well founded idea of injustice in the minds of those who honestly show under special regulations.

Trusting that this letter may obtain an insertion in the "Agriculturist," and that its suggestions may be taken into the careful consideration of the Board. I am Gentlemen,  
Yours most obediently,  
GILBERT SMITH.  
Newbury, 30th July, 1861

FARMING MEMS.—The following is Mr. Hawkin's receipts for a top-dressing to prevent the ravages of a turnip fly:— $\frac{1}{2}$  bushel of white gasashes, fresh from the gasworks,  $\frac{1}{2}$  bushel of fresh lime from the kiln, 3lb of sulphur, 5lb. of soot. This is sufficient for an acre drilled 27 inches apart. Apply it when the dew is on the ground.—One of Mr. Spooner's remedial measures to prevent disease in the turnip crop, is to avoid a too frequent repetition on the same land, by interposing a crop of mangolds or carrots, more especially the former.—Manure for the turnip crop— $\frac{1}{2}$  cwt. of bone dust per acre.—A ton of well rotted manure contains of fertilizing substances  $47\frac{3}{4}$  lb., of water 4 cwt. 1 qr. 27lb., of other materials 15 cwt.  $9\frac{1}{4}$  lb.

## A Trial with Different Breeds of Sheep

In a seed-field on the Parlington estate, distant about a quarter of a mile from the steam trial ground of the Royal Society, an interesting experiment with the various breeds of sheep is now in progress, to prove which sheep are the best adapted to the soil of the district. A sixteen acre field has been taken; 600 hurdles purchased, to divide the field into two-acre plots; and sheep of various breeds have been procured from the following flockmasters: The first compartment contains ten Cotswolds, purchased from Mr. Edmund Ruck, Esq., Castle Hill, Cricklade. The second division comprises twelve Leicesters, selected from the flock of Mr. Hill, Sledmere, and descended from the pure Sir Tatton Sykes blood—in fact, the worthy baronet himself selected them, prior to the Leeds market, wishing his tenant to carry them on for the exhibition. The next division is the most interesting, as in this class one of each class is selected—the gigantic Lincoln, the symmetrical Leicester, the large-framed Cotswold, the pure and elegant Southdown, the celebrated Shropshire Down, the fast-grazing Baunshire, and the improved Leicester and Teeswater cross are all feeding together—quite a pleasing study for the sheep fancier. The fourth allotment contains ten pure Shropshire Downs, sent by Mr. G. Preece, of Shrewsbury, and procured from first-class breeders. The pure Southdowns are from the flock of Mr. G. S. Foljambe, of Osberton, Notts, possessing all those attributes of character, quality, and symmetry for which that gentleman's stock are so highly renowned. The Lincolns adjoining them are wonderful animals, bred by Mr. Greetham, of Stainfield house, and bought out of the 200 which were sold at Lincoln April Fair for 72s. each: these sheep each clipped a fraction short of 15lbs. of wool. The next lot came from St. Boswell's, Scotland, representing a cross between the Leicester and Cheviot, very highly thought of for their grazing propensities, and noted also for their rapidity of gaining flesh. The last lot are a cross between the Leicester and the Teeswater, bred in the neighborhood of Ripley, and that have at various times been suc-

cessful at the Parlington show. They look well in the wool, and clip about 19 lbs. The sheep have been all weighed and numbered. The Parlington Club are deserving the thanks of the agriculturists for carrying on this experiment in so plucky a manner, and procuring the sheep from such first class men. The sheep will commence cake next week, except the odd mixture which are being tried without cake.—*Mark Lane Express.*

### Will the Ewe Breed twice in one year.

(From the *Mark Lane Express.*)

As you have lately published the opinion that it is possible to make the ewe breed twice in one year, I will bring to your notice an instance which I consider to be very unusual. Allow me to say I doubt if it would be politic as a rule to keep a flock for the object and with the view of making such fecundity the essential qualification in a breeding flock; but in the case of a scarcity of lambs an old ewe might oftentimes be made to produce an extra 10s. in the year by such a mode of treatment. The great objection would be the risk incurred by castration in the autumn of the year, although a plentiful use of tar might obviate much of the inconvenience. The case in point is that of an ewe put to ram in August, 1858. She had twins in January, 1859, which were sold in May for 30s. each. She had a single lamb in August following, which was sold in December for 25s.; and on the 24th of last month she again produced a fine lamb, and is herself in better condition than she has been at any period since I have been her owner. How long she may continue to produce at this rate I cannot tell, but she shall not be sacrificed to the butcher while she continues such a useful member of the commonwealth. The Norfolk ewe is best adapted for twice in one year. It is a hardy sheep, and produces abundance of milk.

E. AGATE.

### Farm Buildings and Farm Yards.

The out-buildings of the farm consisting of barns, sheds, carriage and hog-houses, tool shop, &c., give a better index to the system of management than most any other thing, except the fences and the fields. These buildings in regard to number and finish, should correspond with the farm and the wants of the farmer.

A good barn is, next to a house, the first building which the farmer should erect. It should be large enough to house his stock, store away hay and grain, and have some little extra room for the purpose of turning in cattle loose, if occasion required it, housing farm tools, &c. If no cellar is built under it, a shed for the protection of manure is indispensable. This can also be used for a hog house, or, during the summer as a place to keep carts and farm wagons from exposure to the weather.

Some farmers have a corner of the barn devoted to a granary, but it is better to have a small building for this purpose built at some place not too far distant from the barn itself and having it elevated upon stone posts about two feet from the ground, over which, place a tin pans in an inverted position. In such a grain-house, there will be less trouble from mice which in a barn are apt to do a vast amount of mischief to grains.

Doors of barns and farm out-buildings are more handy and convenient if hung upon rollers than by any other method. Use the rollers upon the bottom of the door, not the top; bring the door slide inside, but never outside the building. If doors are already hung with hinges, provide hasps for the purpose of fastening them back when open, thereby obviating the trouble of the doors swinging in the way, or being shattered by the wind.

A carriage-house with stable room attached to two or three horses is a desirable building. Much the better if so arranged that hogs can be placed in the cellar to convert the horse manure into valuable dressing. A small room for harness may be kept, and cleaned or oiled necessary to form a complete establishment of this kind.

A tool-room, either in the barn or carriage house will be the most desirable place of all. Here the farmer can make, repair, and paint his own farm carts, and heavier tools, doing it at times as will not interfere with more pressing labor, thus saving time and expense and getting along independent of the carpenter and painter. Of course, it will take many years to complete all these different buildings, but they are necessary and if the farmer does not have them already, he should make his plans to complete them one by one, until they are all finished.

The barn-yard should be enclosed with a double fence or wall, and if the farmer keep sheep and cattle, divide in the centre. It is a bad plan for cattle and sheep to both occupy the same yard in winter, as many accidents result therefrom. Let a division fence be made, that they may be separate. Gates are cheaper than bars, therefore pull down the latter and erect the former. Small gates for the passing of persons, are convenient, and are easily made at one side of the larger gate.

Wells in yards should in all cases be provided with pumps. If the cows are yarded during summer, let a good supply of muck be placed in the yard, to be converted into valuable manure.

In the vicinity of the farm buildings, there should be a yard for receiving timber, with boards, &c., rather than leave them piled by the roadside, or near the dwelling.—*Maine Farmer.*

### Cranberry Culture.

There is in our State, hundreds of acres of land, usually called muck, swamps or meadows, which produce nothing but an annual crop.

weeds, briars and worthless shrubs, which for a small outlay could be made to yield a clear profit of one hundred and fifty dollars a year, provided such lands were properly managed and set out with plants of the best variety of cranberries. The preparation of the soil, setting and management of the plants, and other necessary requisites for the successful culture of the cranberry, shall receive attention; our hope being to introduce more extensively the raising of cranberries as a profitable and safe crop.

As already intimated, the soil best situated for this plant is in a low meadow or bog. If it is not cleared, it will first be necessary to cut out such bushes and shrubs as may be growing upon it, then take out stumps and snags, and shovel the knoles and tussocks into hollows so as to make the surface quite smooth and easy of culture. The ground should be naturally moist, but not retaining stagnant water, while the plant is passing through the seasons of growth. It is important that a dam be constructed for the purpose of flowing the whole surface of the meadow at any desired time and with considerable haste. These preparations having been made, select healthy and prolific plants, from vines which bear—as some vines, like those of the strawberry and grape do not produce fruit—and commence the work of setting. This can be done with little or no regard to the depth at which they are set, two or three inches being considered the most favorable. If the plants are set considerably close the sooner they will become possessors of the ground, keeping down weeds, brakes and grass; but that some rule may be given, the advice is to set them one foot apart, and we even say, that if plants were plenty, six inches would be the preferable distance.

The best time for setting the plants is from the 20th of April to the last of May, if set in the spring, which is the more favorable season. They may however be set in autumn, provided they can be covered with water during the whole of the winter and spring.

We have spoken of flowing, as one of the essential requisites of success. The object of this, is the protection of the plants from the frost, and the worm which deposits its egg in the season, and to keep them from being wintered or thrown out by the freezing and thawing of the ground.—*Maine Farmer.*

#### Meetings of the Board of Agriculture.

The following report should have appeared in the previous number of the Journal.]

THURSDAY, April 4, 1861.

The Board met this day, pursuant to adjournment from 14th ult., at the Tecumseth House, Boston, at 1 p. m.

Present: Messrs. E. W. Thomson, President, H. Denison, H. Ruttan, A. A. Burnham, W. Thomson, J. Barwick, Dr. Bently.

The minutes of previous meeting were read and confirmed.

The following communications were submitted: From "An Exhibitor," suggesting that prizes should be given for pens of sheep and pigs in the same manner as for herds of cattle.

From Mr. J. Lynch, Secretary of the County of Peel Agricultural Society in reference to the deposit made by one of the township societies in that County in the year 1860, being, in his opinion, in excess of the amount of bona fide subscriptions.

The Board adjourned at 2 p. m., to attend a meeting of the Local Committee at the Court House.

At the meeting of the Local Committee at which the members of the Board took their place as members of the committee, information was given by the Chairman and other members as to the progress making in the preparations for the exhibition, which appeared to be of a satisfactory character. The members of the Board also imparted information as to how far the Board could give assistance towards the temporary fittings up of the exhibition.

The Board resumed at 4 p. m. The same members present.

Mr. Denison presented the report of the Committee appointed to revise the prize list, recommending that in its general features as to the amount of prizes, &c., the prize list of 1859 be adopted,—that a gold medal be given to any competitor winning a first prize of \$40, if preferred by him, and a silver medal, valued at \$10, to any competitor winning a first prize of \$20 and upwards, if desired by him, with the difference in money; that all the stallions and bulls of each class, of any age, be allowed to compete against each other in their respective classes for the Association's Diploma; that all the stallions of all classes and all ages be allowed to compete together in one general class for the diploma and silver medal; and also all the bulls of all classes and ages for a similar prize; that three prizes be offered for a French Canadian stallion; also prizes for an implement for pulling peas; that prizes be offered of \$5, \$4, \$3, and \$2 for the best bushel of wheat (fall) exhibited by each county society, and the sum of \$150, given for each bushel contributed by other county societies not awarded a prize, the wheat to remain the property of the Board; that a class of sheep be added for pure bred short-wooled sheep other than Southdowns, Merinos, or Saxons; that prizes be continued for herds of cattle the same as in 1860, the amount of prize for each herd to be \$40; all which would bring up the amount of prizes offered in the list to more than \$11,000, irrespective of the double and treble prizes which may be given for new importations of horses and cattle. The report was received and adopted.

*Resolved*,—That in accordance with resolution at meeting of December 27th last, the Prince of Wales' prize be given this year for the best stallion for general purposes.

*Resolved*,—That three prizes be offered for Amateur Instrumental Bands of Music, of \$100, \$75, \$50, respectively, under the same rules as in 1866.

The Board then adjourned.

TUESDAY, June 11th, 1861.

The Board met this day pursuant to notice from the Secretary, at the Board Rooms, Toronto, at 11 a. m.

Present: Messrs. E. W. Thomson, President, R. L. Denison, A. A. Burnham, Hon. G. Alexander, J. Barwick, H. Ruttan, Professor Buckland, Dr. Beatty, J. E. Pell.

The minutes of previous meeting were read and approved.

The following communications were submitted:—

From Mr. Shuball Park, Quebec, stating that he had invented and patented a horse-power subsoil drainage machine, capable of digging drains and laying in and covering the tiles in a very expeditious and economical manner, and desiring to know whether the Board would buy the right to build the machine.

From Mr. Hutton, Secretary of the Bureau of Agriculture, Quebec, in reference to the two different societies at Kingston, each claiming to be the legally constituted Electoral Division Society, stating that upon due consideration of the merits of their claim, the Bureau had fully recognized the Society for which Mr. Thos. Wilson is Secretary, as a regularly constituted Society, and requesting that the Board would grant to that Society the usual privileges granted to all regularly constituted societies.

From Mr. John Shaw, Secretary of one of the societies at Kingston, claiming to be the legally organized society, with this affidavit of amount of subscriptions for the current year, and also a detailed statement by the Directors of the society of the proceedings which had taken place, and which had resulted in the present separation of the society into two organizations.

From Mr. Thomas Wilson, Kingston, in reference to the claim of the Electoral Division Society, of which he is Secretary, to be recognized by the Board.

From Mr. Hugh McLean, Secretary of the Dalhousie Township Agricultural Society, stating that the North Lanark County Society had refused to acknowledge them as a Branch Society on the ground of an informality in the declaration of their organization.

From Mr. Edwin Taylor, Toronto, stating his desire, as the agent of Messrs. Howard, Implement Manufacturers, Bedford, England, to exhibit at the approaching Provincial Exhibition at London this autumn, one of Messrs. Howard's steam ploughs or cultivators, and de-

siring to know if the Board would afford certain facilities in aid of the project.

The Secretary was instructed to communicate to Mr. Park, that a premium had been offered by the Board in the prize list for the approaching exhibition for such an implement as that invented by him.

The Secretary was also instructed to write Mr. McLean stating the views of the Board referred to by him.

The prize list, in proof, was submitted by the Secretary, as drawn up in accordance with resolutions adopted at last meeting, and after consideration was approved and adopted.

The Committee on the prize list submitted further Report, recommending the following changes in the system of admission to the grounds, viz.: that members' tickets should be issued to exhibiting members up to Monday evening of the show week, which should admit them to the grounds during the exhibition, but no such tickets should be issued after Monday evening; on Tuesday and Wednesday the charge to be half a dollar each person, each time of entering through the gates, and on Thursday and Friday a quarter of a dollar; children half price each day; carriages, \$1; horsemen, 60c. each admission; necessary attendants to be furnished with tickets to admit them through the exhibitors' gate only, and to be examined each evening; also, certain other slight alterations in the rules, all of which report on consideration was adopted.

Mr. Taylor's letter was considered, and it was ordered that a prize of \$100 be inserted in the prize list for the best steam plough or cultivator in satisfactory operation on the ground, open for foreign competition.

The correspondence in reference to the Kingston Electoral Division Society was considered, and it was Resolved—That the decision of the Bureau of Agriculture, as communicated to the Board, shall be accepted as final.

Professor Buckland laid upon the table a silver cup and two silver medals, presented by Hon. Adam Fergusson, to be awarded as prizes for the best grade heifer, and the two best pairs of common fowls, and to be continued annually at each exhibition.

*Resolved*,—That the thanks of this Board be given to the Hon. Adam Fergusson for the best of some prizes sent to be competed for at the Provincial Show to be held at the City of London the ensuing fall.

Professor Buckland submitted a correspondence with certain parties in Scotland in reference to the establishment of the nucleus of a veterinary school for Upper Canada, under the auspices of the Board, together with the names of parties to accept the appointment of a veterinary practitioner, and the report of the special committee upon the same. It was then

*Resolved*,—That Mr. Andrew Smith, Veterinary Surgeon, of Ayrshire, Scotland, be appointed as Veterinary Surgeon to this Board, and

and be authorized to write and inform him the resolution of this Board, giving him all particulars, and suggesting to him to be here ere the exhibition of this autumn.

The President submitted the report of the committee to whom was referred the consideration of the subject of procuring suitable buildings for permanent occupation by the Board for a museum, library, &c. The committee reported the terms upon which certain ground was offered for the purpose had been offered, also a rough estimate of the cost of suitable buildings. Resolved,—That the President be requested to ascertain upon what terms the executors of the estate of the late Mr. McIntosh would sell the property, and submit such offer and power to a good legal opinion; and, if satisfactory, to call a meeting of the Board at an early day, to decide upon the propriety of erecting a building for the permanent use of the Board, and that he mean time a plan and specification be obtained.

The Board then adjourned.

### Meeting of the Board.

LONDON, Thursday, Aug. 15th, 1861.

The Board met this day, pursuant to notice, at the Tecumseh House, London, at 1 o'clock

present: Messrs. E. W. Thomson, (President) R. L. Denison, Hon. D. Christie, A. A. Asham, Hon. G. Alexander, W. Ferguson, J. Wick, Professor Buckland, Dr. Beattie, J. E.

The minutes of previous meeting were read and approved.

The following communications were submitted to the Secretary.

From James Johnson, Esq., Chairman of the Local Committee, London, asking for information in regard to the accommodation requisite for cattle, upon the Exhibition grounds.

From the President of the Montague Town-Agricultural Society, stating that that Society had been in regular operation and had fulfilled all the requirements of the law for several years, and had expended a considerable amount of money in premiums, &c., but had been unable to obtain any portion of the public grant to which it was entitled, though the South Lanarkshire Agricultural Society, and asking relief at the premises.

From Capt. Retallick, Secretary to His Excellency the Governor General, with a despatch from the Duke of Newcastle, Colonial Secretary, containing printed correspondence and address from the Wool Supply Association of Bradford and Leeds, England, to all parties interested in the trade of the Colonial and foreign wool, and accompanied by samples of the kinds of wool offered for the trade. The Secretary stated that the printed correspondence and the address of the Wool Supply Association had been published

in the *Agriculturist*, on its receipt, by which means the information therein contained had been widely disseminated, as desired by the Association.

From Mr. W. Grey, of Woodstock, Secretary of the North Oxford Agricultural Society, requesting information as to how the deposit of a Township branch society which had not been made till after the date fixed by law should be dealt with.

From certain gentlemen residing at and near the City of Hamilton, stating that they had subscribed to the Association as Life Members in the year 1847, but that such subscription, on the ground that it was for a local purpose, had never been recognized, and requesting that their names might now be placed upon the list of Life Members.

From W. A. Cooley, Esq., Ancaster, applying for the appointment of General Superintendent of the out door department of the Provincial Exhibition.

From J. B. Marks, Esq., Colborne, 17th June last, on his return from England, recommending the offering of a prize for a liquid manure drill. The Secretary stated that this had been placed in the prize list, by order of the special committee, in accordance with Mr. Marks' suggestion.

From Hon. H. E. Killaly, of the Department of Public Works, requiring possession of the Government House Stables, occupied by the Board with the intention of establishing a Veterinary School, to be given up for the use of the Military, about arriving at Toronto. The Secretary stated that as the demand was urgent, the buildings had been immediately surrendered, by instructions of the President, in accordance with Mr. Killaly's demand.

From Mr. Dalton, Solicitor, of Toronto, giving a legal opinion as to the power of certain parties to convey a piece of property in the City of Toronto to the Board for building purposes.

From Mr. Elliott, executor for the estate referred to in Mr. Dalton's communication, stating the terms upon which he would lease a part of the property the Board.

The Board then adjourned at 2 p. m., to visit the Exhibition Grounds, where the buildings and preparations were found in a forward and satisfactory state, and the members of the Board then attended a meeting of the local committee.

The Board resumed at 6 p. m.

The same members present.

Mr. Dalton's letter was then taken into consideration and it was

Resolved—That 40 feet front of land on the corner of Yonge and Queen Streets, Toronto, forming part of the McIntosh estate, be leased on the terms offered by the executor, for the purpose of erecting thereupon suitable buildings for Offices and Museum for this Board, that the President, Mr. Denison, and Professor Buckland be a committee to procure plans and specifica-



tions, and that they submit the same to a meeting of the Board so soon as they are prepared.

Mr. Killaly's letter was then considered. In connexion with it the Secretary submitted the copy of a letter he had addressed, by instructions of the President, to the Hon. Mr. Ross, Minister of Agriculture, representing the embarrassing position in which the Board had been placed, in consequence of having been induced, through the obvious requirements of the Province, and the encouragement afforded by Government, to enter into negotiations for the establishment of a Veterinary School, and now being deprived of the buildings, without which, or similar accommodation, the school could not be carried on, and desiring to be informed whether the Government would afford any aid to the enterprise in lieu of that heretofore given and now withdrawn. Professor Buckland also submitted letters from Mr. Smith, the Veterinary Surgeon appointed by the Board, accepting the offer made him.

Ordered—That the members of the Board residing at Toronto be authorised to make such temporary provision for the Veterinary Surgeon when he arrives as may be necessary.

Resolved—That the Treasurer be authorized to stake out and lease to the highest bidders, if otherwise satisfactory, sites for five booths on the show grounds, half the rent to be paid down, and half on the evening of the second day (Wednesday) of the show week.

The communications from South Lanark and North Oxford Societies were considered, and the Secretary was instructed to write to the parties pointing out the steps to be taken in each case.

The communication of the persons claiming to be Life Members was considered and ordered to be laid on the table.

The President was authorized to invite such distinguished visitors to the approaching exhibition as might appear desirable.

The following communication was received from the Local Committee.

LONDON, August 15th, 1861.

To the Board of Agriculture.

GENTLEMEN:—At a meeting of the Local Exhibition Committee held this day, the following resolution was passed, a copy of which I beg to transmit you, viz: That this Committee have ascertained that there is a deficiency of \$3000 to enable them to complete the necessary arrangements for holding the Provincial Exhibition. Resolved—That the Board of Agriculture be requested to aid us by advancing that sum either from the funds of the Association, or enabling us to receive it from some other source.

I am, gentlemen,  
Yours respectfully,  
W. McBRIDE, Secretary.

The Mayor of London, F. Cornish, Esq., and John Carling, Esq., M. P.P., were present as a

deputation from the Local Committee, and explained the situation of the Committee in regard to the expenditure for the Exhibition buildings.

Moved by Hon. Mr. Alexander, seconded by Hon. Mr. Christie, and

Resolved—That in view of the financial position of the Local Committee, this Board recommend that they, the Local Committee made application to the Provincial Government for the relief they require, and this Board will guarantee the repayment of the sum to the Government when the Exhibition is again held in London, provided the sum does not exceed \$30,000, and provided also that the city give the Board a lien upon the buildings and ground for the same.

Resolved—That Hon. Mr. Christie, Mr. Denison, Mr. Ferguson, of Kingston, and Mr. Burnham, be appointed Delegates to represent the Association at the next Exhibition of the New York State Agricultural Society, to be held in Watertown.

Resolved—That the President of the Board and Mr. Pell be a Committee to oversee the fixing up of the grounds and show buildings.

Resolved—That the President be authorized to transmit a memorial to the Government urging the importance of making some provision for the representation of Canada at the Great Exhibition of London in 1862.

Ordered—That the members of the Board residing at Toronto be a Committee to select Judges from the nominations of the Society for the approaching Exhibition.

Ordered—That the Secretary be instructed to write to the General Post Office Department asking for a reduction or remission of postage on packets issued from the office of the Board in connexion with the Exhibition.

Ordered—That the Secretary be authorized to get a new supply of Diplomas of the Association lithographed in time for the approaching Exhibition.

After the arranging of some other matters detail in reference to the business of the Association, the Board adjourned, at 11 p. m.

### County and Township Shows this Autumn

West Durham Agricultural Society at Newcastle, October 4.

South Ontario Ag. Society at Whitby, & 18 and 19.

Kingston Elec. Div. Society, Kingston, & 13.

Fullarton, Logan and Hilbert Society, Mitchell, October 2.

Russell Co. Society, at Smith's Hotel, goode, Sept. 27.

Hay Township Society, at Rodgerville, Oct  
South Wellington and Guelph Townships, Guelph, October 10.

In the Counties of Lanark and Renfrew, Perth, first Tuesday in October.

Lanark, second Tuesday in October.

Smith's Falls, first Friday in October.  
 Ferguson's Falls, third Tuesday in October.  
 Carleton Place, first Tuesday in November.  
 Clayton, second Wednesday in November.  
 Pakenham, second Thursday in October.  
 Franktown, second Tuesday in October.  
 Almonte, last Thursday in October.  
 Sand Point, first Tuesday in October.  
 Renfrew, second Tuesday in October.  
 Ross, fourth Tuesday in October.  
 Pembroke, third Wednesday in October.  
 Roseville, second Thursday in September.  
 Arnprior, first Thursday in October.  
 North Simcoe Society, at Barrie, Sept. 19th.  
 Blenheim Township, Drumbo, October, 4th.

Secretaries of Agricultural Societies will oblige us by informing us of the days on which their shows are to take place.—Eds.

### Cotton Growing in Australia.

A Mr. Jordan, of Queensland, Australia, lately delivered two lectures in Liverpool, on the cotton growing capabilities of that country, of which we find the following brief report in English papers.

Having spoken of the general agricultural capabilities of Queensland, the lecturer said that cotton was however, destined to be the great staple of the country, this was evidently intended by nature, the cotton plant being indigenous in Queensland. It was there, also, a perennial, though an annual in America. This plant has been regularly cultivated in Queensland several years. The growth of cotton there now was no mere experiment, but the textile thus produced has been exported during that time in small quantities to this country. The quality was found to be very superior, of a description generally that could not be produced in large quantities in America (the Sea Island). The Orleans cotton, too, had been grown well. Mr. Thomas Bazley had said in a letter sent to the colony—and had repeated this at Mr. Jordan's lecture at the Polytechnic, in London—that they might be sure of realizing at present as much as 1s 4d per pound on an average for Queensland cotton. The yield per acre was higher than in America. Equal to 630 pounds per acre had been produced of clean cotton; and to put it at the lowest, the average yield was 400 pounds per acre. The labor question could be no difficulty, as a stream of emigration was already setting in to their colony, and under the very attractive free land grant emigration scheme now established by law, and already in vigorous and successful operation, multitudes of persons who would otherwise have gone to America and elsewhere, would be going now to the new colony. As the result of one lecture in London, Mr. Jordan had received about three hundred letters from persons intending to go

there. Many would pay their own passages, and grow cotton and other farm produce on their own lands, but one-third in each vessel would be taken free (farmers' laborers,) and he had made arrangements by which it was expected they would be able to despatch one ship a month. But to return to the cotton. One man and a boy could cultivate ten acres of cotton, prepare the ground, plant it, weed it, prune it, and gather it. It was a fallacy to suppose that the picking constituted any real difficulty. In America one man (that man being a slave) gathered on an average, 200 pounds of cotton in the seed in a day. That in Queensland would be fifty pounds of close cotton. The picking season there extended over three months—May, June and July. These were their winter months, when the weather in almost all seasons was dry and exquisitely fine and equable, so that persons only desire to be out of doors all the day long. How absurd, therefore, to say that in consequence of the expense required during the three months of the picking season, Europeans could not cultivate cotton in Queensland. The lecturer had resided five years in Queensland, knew nearly all the farmers there, had conversed with them on this point, and it was admitted that, with ordinary care, an English farmer could labor as hard and as many hours a day (resting an hour or two after twelve o'clock) as in England. This was confirmed by the undoubted testimony of several gentlemen, whose published statements on this point Mr. Jordan read. Here they saw ten acres of land, cultivated by one man and a boy, would produce four thousand pounds of clean cotton. Supposing thus to be worth one shilling and three pence a pound, allowing one penny for freight, which Mr. Dunbar has told him would cover it, there was £250 for the crop, to be received from the merchant, the value of the seed covering the expense of the ginning; besides there was a bonus given by the government of the value of eight pence per pound, which added to the £250, made £338 to be realized from the cultivation of ten acres of cotton by the labor of one man and boy. If the farm was the property of this man, of course the labor would cost nothing.

### British Wool.

(Concluded from page 462.)

Professor Wilson agreed with Mr. Caird as to the need of a distinct breed of sheep to give that peculiar lustre to the wool; and in regard to the effect that good feeding will have upon the produce of wool. The Lincoln has a distinct price in the market on account of its lustrous properties. But there is another breed competing with it, and that is the Romney Marsh. All Europe comes to us for improved breeds of cattle, for horses, and machinery. We have the great trade in those three branches of

agriculture. And if the Continent were made better acquainted with our peculiar breeds of sheep, and also with the peculiar condition of the wool market and the requirements of the people generally, we should have them coming to us for sheep to the same extent that they now come to us for other cattle. In 1855 we exhibited in Paris a collective series of English agricultural produce, and one of the principal things was our wool produce. Fair market fleeces of every distinct breed, and also of all the more successful crosses, were collected by Professor Wilson, and created great interest. The Cheviot was one of the wools that was most valued for manufacturing purposes; and from the information obtained there, it appeared that the day for the fine qualities of wools was rapidly passing away. We now none of us wear the fine Saxony cloths that we used to wear when merino wool was sold at a high price. The great object of the day now is to get a cheaper article that can be worn by the many, and clear-headed farmers on the Continent see that they have not that demand for the expensive short wools; and it will be their policy to change their merinos to a breed of sheep that shall give more mutton, a large frame, and a larger quantity of a cheaper description of wool. In Australia and New Zealand the flocks are kept out in the open air, the animal secretes its wool under natural conditions, and the fibre throughout is equal. But when you come to the Continent—take the case of Moravia and Silesia—you can, with a microscope, distinctly see the secretion that has taken place during the cold months of winter, differing in size and in spiral form from that which is secreted during the warm months of summer. You do not see that in the Australian wools. At the Exhibition in Paris there was a great deal of interest taken in the wools. Baron Barathen got the first prize for the finest wool, a magnificent Moravian fleece; this fleece weighed about 14 ounces, and that was the produce of a sheep of five years old, and the wool was worth four francs. On that occasion Professor Wilson produced a Lincoln fleece that was the produce of a sheep 14 months old, and it weighed 20 lbs.; and the price was valued at ten pence per lb. at that period, (it is worth more now). Of course it was decided that the latter was the most valuable description of sheep for all purposes. Mr. Southey, the greatest agent for the Australian and New Zealand wool, sent a bale of wool that weighed 350 lbs., and this was estimated by the French experts as equal in quality and in market value to Baron Barathen's choice fleece. That at once showed that the foreign growers could not successfully compete in the wool market with England and her colonies; and it is believed that the tendency that was then generated, and has been growing since, is for the foreigner to give up growing these fine class wools upon small animals, and to substitute for

them the large frame sheep, carrying more wool of a lower price. To do that they will have to come to England to obtain some of our stock to cross with their own. France for some eight or ten years has been adopting this policy. Those very high class merinos are now nearly all replaced by what they call the Metis merino, a cross breed; and those are giving way to another cross, chiefly with the Leicester, which they call the Dishley merino, which are making an immense deal more mutton and much heavier fleeces than the merino did before. At the same time the wool is of a quality equal to the requirements for the best manufactures of the present day.

Mr. Gurdon Rebow had crossed his grazing flock of Southdowns with the Leicester. The hogget then made 8½ lbs. half breed, and 7 lbs. all Down—but the whole flock was 6 lbs. on the average for the hogget at 22d. last year, and the flock at 20d. If we can get 1½ or 2 lbs. more wool, and at least 10 lbs. more in the carcase, with the same amount of feeding, we certainly ought to do so. He tried to cross with the Cotswold the year before last, and he had them feeding one against the other; but the Cotswolds were so enormously voracious, that they would not bear comparison with the others.

The Chairman: But you get it back in mutton.

Professor Wilson: We must not lose sight of the fact that wool cannot be made for nothing, and that the amount of food required to make 1 lb. of wool will make 3 lbs. of meat. Therefore, we have to consider the relative value of wool and meat.

Mr. Hobbs said he was aware we could produce wool almost of any quality and any length. He had seen a specimen of wool 30 inches in length off a Lincoln sheep. It was two years' growth. We must not consider that we can have either the Leicester or the Lincolnshire flock in the South of England, or get that fine quality of wool which they get on the continent, unless we house our sheep and feed them as they do. We cannot get a fine quality without housing. We get a finer quality by yarding our sheep; but with our system of folding—with the ammonia which certainly affects the wool as much with our Southdowns as with the merinos—we shall never be able to gain the lustre which we desire with long or short wools. In the South of England, wherever there are large flocks of sheep that are accustomed to walk daily over a large tract of poor land, wherever the folding with Turnips is very much carried out, we can have our short-wooled sheep of a greatly increased length of staple, and still a quality of wool nearly as fine. There is another point that requires great consideration, and that is respecting the management. We do not in the spring of the year feed our flock sufficiently well. We look to one point only when we should look to both. Nothing wool

pay the flockmaster better than feeding the sheep in the spring of the year with generous food, especially with oilcake. If, however, you begin feeding your sheep with oilcake in the spring, and then take it off merely for a week, the wool stapler will tell you of it. The oil flows into the wool, and if it is checked even by a week's poverty, or almost by one night's exposure to bad weather, it will greatly deteriorate the quality of the fleece. A Down flock would not now be considered as yielding a fair amount of wool if it did not average a pound, or a pound and a half, more than a Down flock would yield twenty years ago, when the animal was smaller than at the present time.

## Horticultural.

### Hamilton Horticultural Society.

The third Annual Exhibition of the Hamilton Horticultural Society was held in the Mechanics' Institute on the 19th instant. Considering the season, the flowers, fruits, and vegetables were much finer than could have been expected. The Fuchsias and other hot and green-house plants, from the gardens of W. P. McLaren, R. Mason, and John Young, Esquires, were of the best description. From the garden of T. C. Kerr, Mr. C. Meston exhibited some very fine plants of *Humea Elegans*, which attracted much attention. The *Humea* is a beautiful, tall, penulous flowering, Australian biennial plant, of the Vernonia Division, of the composite order, constitutes a genus of itself, and is called *Elephant*; it was introduced into Britain nearly half a century ago, grows six or seven feet high, and flowers from midsummer until late in the autumn. Messrs. Bruce and Murray had two very nice plants. In these collections I observed some very fine double Fuchsias, *Santana rosea*, *Santana Mutabilis*, *Veronica Andersonii*, *Veronica florida*, *Veronica Salicifolia*, *Lestrum acuminatum*, *Begonia Rex*, *Begonia Sanguinea*, *B. parviflora*, and many other varieties, together with some fine Peach, Nectarine, and Fig Orchard orange Trees, full in fruits.

The Fuchsias, as usual, formed a grand stand, and for this time of the season were really good. The first prize for the four was taken by Thos. Buchanan, Gardener to W. P. McLaren, Esq.; 2d, by H. Shaw, Gardener to R. Juson, Esq.; 3d, specimen by H. Shaw, 2nd do. by Thomq. Buchanan.

Achimenes, 1st & 2nd by Thomars Buchanan. Achimenes Hendersonii, A. Longiflora, A. Wilsonii. A. Cardal Wolfarth, A. Ambrose erschaffelt, A. Cordata; 2nd Varieties, Achimenes Herii, A. Hookeri, A. Fimbriata, Longiflora major, A. Carminata, A. Longiflora alba.

Gloxinias, best six, Thos. Buchanan; varie-

ties, *Gloxinia Madame Bergree*, G. Charles Dickens, G. Moseamallies, G. Exquisite.

Balsams, best four, R. Murray, Gardener to John Young, Esq.; 2nd, H. Shaw.

Green and Hot House Plants, best 12, Thos. Buchanan; Varieties, *Anglonia Gardnerii*, *Isolonia descansueana*, *Coleus Blumii*, *Santana*, *Snow Ball*, *Santana Lutea*, *Asclepias salicifolia*, *Pentas rosea*, *Justicia carnea*, *Begonia simpliciflora*, *Santana Gwengii*, *Vinca alba*, *Lilium San-cifolium*. Best six do., Thomas Buchanan; varieties, *Clerodendron fragrans*, *Cyrtanthera magnifica*, *Santana*, *Snow Ball*, *Hydrangen Hortensis*, *Isoloma descansueana*, *Nerium splendens*. Geraniums, Scarlets, best 4, Thomas Buchanan, Hanging plants, best, H. Shaw, Cockcombs, 1st, H. Shaw, 2nd, Thos. Buchanan. Carnations, best 12, Bruce & Murray; 2nd, Wm. Reid, Gardener to Sir Allen N. McNab, Bart. Carnations, best 6, R. Murray. Anterrhinums, best 12, Jos. Freed; 2nd, R. Murray. Herbaceous plants, best 12 spikes, Mr. Freed. Holy-hocks, 1st, H. Shaw; 2nd, R. Murray. Phloxes, Mr. Freed. Picotees, named, Bruce & Murray; 2nd, W. Reid. Pinks, best six, Bruce & Murray. Roses, best 12, W. Reid. Stocks, best 12 spikes, H. Shaw; 2nd, R. Murray. Best six stocks, 1st, Thos. Buchanan; 2nd, H. Shaw. Verbenas, best 24 distinct varieties, Thos Buchanan; 2nd, R. Murray, best 12, H. Shaw; 2nd, Thos. Buchanan. Best six Verbenas, 1st and 2nd, Thos. Buchanan. Dahlias, best six, D. A. McNab, Esq. Annual, best 12 varieties, R. Murray; 2nd, H. Shaw. Best six do., Thos. Buchanan; 2nd do., R. Murray. Bouquet, best hand, Bruce & Murray; 2nd, Thos. Buchanan. Table Bouquet, H. Shaw.

Cottage Window Plants, best three, W. Michael; 2nd, George Tesal, single specimen, 1st, N. T. Birely, Esq.; 2nd, McMichael. Discretionary prizes: six double Petuneas, Thos. Buchanan; Picotees, collection, Thos. Buchanan; Picotees, seedlings, W. Reid; Sweet Williams, double, A. Stevens, gardener to J. White, Esq.; Petuneas, collection, A. Stevens; Fuchsias, collection, John Weatherston, Esq.; Marigolds, collection, T. Burner.

The native plants collected and exhibited by Mr William Sanderson were highly worthy of commendation, they were found in and around Dundas Marsh and Mill Grove Swamp. As such are interesting, I give you the names: *Lobelia*, *Spictata*, *Lobelia Cardinalis*, *Gerardia Glanca*, *Monarda didyma*, *Pyrola umbellata*, *Pyrola rotundifolia*, *Asclepias tuberosa*, *Lilium Canadense*, *Lilium Philadelphicum*, *Clematis Virginiana*, *Campanula rotundifolia*, *Cypripedium spectabile*, *Castilleja coccinea*, *Desmodium Canadense*, *Mimulus rringens*, *Pogonia ophioglossoides*, *Platanthera lacera*, *Corallorrhiza innata*.

**Fruit Department**—Cherries, best pint, Jas. Wildes. Cucumbers, 1st, R. Murray; 2nd, C. Mills, Esq. Currants, black, Jas. Wildes and

W. Taylor. Currants, white, 1st and 2nd, S Burner, Gardener to P. Grant, Esq. Currants, red, C. Meston; 2nd, S Burner. Gooseberries, red, C. Meston, 1st and 2nd, H. Shaw. Gooseberries, Green, 1st, H. Shaw; 2nd, R. Murray. Gooseberries, yellow, 1st, H. Shaw; 2nd, Thos. Buchanan, Esq. Raspberries, red, 1st, H. Shaw; 2nd, W. Chapman, Raspberries, white, 1st, T. Burner; 2nd, H. Shaw. Raspberries, black native, 1st, J. Freed; 2nd, W. Taylor. Tomatoes, 1st, Jas. Wildes; 2nd, C. Meston. Mr. Meston exhibited 30 varieties of gooseberries imported from Scotland last fall. Some of the fruit was of good size, and highly recommended by the judges.

**Vegetable Department**—Beans, French, 1st, Thos. Buchanan; 2nd, Jas. Wildes. Beets, blood, 1st, J. Wildes, 2nd, D. A. MacNab, Esq. Cabbages, 1st, Thos. Buchanan; 2nd, H. Shaw. Carrots, W. Taylor. Onions, Potatoes, 1st, Jas. Wildes; 2nd, W. Taylor. Cauliflower, 1st, W. Taylor; 2nd, Jos. Wildes. Onions, spring sown, 1st and 2nd, Thos. Buchanan. Parsley, 1st, C. Mills; 2nd, J. Wildes. Peas, 1st, W. Chapman; 2nd, W. Taylor. Potatoes, kidney, 1st, Jas. Wildes; 2nd, W. Taylor. Potatoes, Meshanoc Chas. Mills, Esq. Radishes, 1st and 2nd, W. F. C. d. Turnips, white and yellow, Jas. Wildes. Discretionary, Beans, Windsor, 1st, A. Stevenson; 2nd, C. Meston.

GEORGE LANG

Hamilton, Aug. 1861.

### Orchard Houses.

EDITOR OF THE AGRICULTURIST.—The enclosed paper on the cultivation of fruit trees in pots was read by Mr. Murray, Nurseryman, in this city, at last monthly meeting of the Horticultural Club. The subject is one that has been receiving considerable attention at home for some years—and although little has been done this side the *Allantic* towards this mode of fruit culture—a start has been got, and I have no doubt that it wants only to be known to be appreciated.

Yours, &c.,

CHAS. MESTON.

Hamilton, August 6, 1861.

#### THE ORCHARD HOUSE, OR THE CULTIVATION OF FRUIT TREES IN POTS.

This mode of growing fruit trees has been practised in Great Britain for the last twelve years; it was first introduced by Thomas Rivers, Sawbridgeworth Nurseries, Herts, England. Much is due Mr. Rivers for the unwearied zeal and attention that he has bestowed on it for years; he has brought it to much perfection in that country. Of late the system has been introduced into the United States, and successfully carried on; but in Canada, as yet, few have been able to see its worth. It is wise to consider

well in all things, but not to be backward, particularly in such an important branch of horticulture as this. I hope, before many years pass over our heads, that all the wealthy portion of our community will have their "Orchard House;" and not they alone, but every farmer, merchant and mechanic, set under his own vine and fig-tree. I am happy to state that W. F. McLaren, Esq., has set the example in this city. May it be followed by many of our enterprising citizens. In stating my views on this subject shall in the first place consider the necessary accommodation in the way of houses, notice the most approved kinds, and cost of erection, then conclude at this time with a few short remarks on the culture and management.

Orchard houses may and can be erected of any size, model, or plan, to suit the taste and requirements of the individual or party.

The most approved is the span roofed, ranging north-east and south-west, thus embracing both morning and afternoon sun, you will observe that in this position the hot meridian rays are in a manner rendered ineffectual in scorching or burning the foliage; thus being partly broken by the rafters and bars, and thrown off the glass as it were on a tangent. In England large squares of glass are used in a glazing 20 x 12 inches, sometimes more; this they term "orchard house glass," but in such cases they use no rafters; the glass is set on the bars. This plan is thought economical, and to afford more light and heat. In this country we are differently situated, and therefore small glasses 7 x 9 inches, with rafters and bars, are more commendable, for the reason already noticed. A span-roofed house 40 feet long, 20 feet wide, 13 feet high; sides three feet, partly glass, ventilated top and bottom, substantially built, and well finished every way, will cost about \$450 without artificial heating; and if heated, the cost depends upon the system adopted, whether by a hot-water apparatus or brick flue. An sized house may be built at a proportionate cost. Such a house as the above will contain wit ease, 70 peach trees or form 80 to 90 grapes, vines in pots. Trees three years old, at a moderate rate, will produce, say of peaches, 10 dozen fruit; of grapes, five pounds, to each vine, and, as they advance in years, by good management, will increase in fruitfulness.

Taking a pecuniary view of this matter, calculating on very moderate returns, allowing largely for all outlay and labour, the conclusion we must arrive at is very encouraging.

Few trees give more satisfaction in the orchard house than a choice selection of peaches, nectarines and grapes; and to obtain this, secure early in the fall, good maiden plants, making sure that they have all short fibrous root, clean stem and well balanced top, well ripened wood, and free of disease, whether as pyramid or bush, to have a clean stem of 1 1/2 inches at the bottom. To form a pyramid, 1 1/2

laterals to be cut according to strength and height of tree, tapering upwards from their bottom to the point.

To form a bush, the tree to be cut down to eighteen inches, having a clean stem of twelve inches, all laterals to be cut back to two or three eyes. The proper compost for all fruit trees, is, with few exceptions, the topsoil of old pasture, from a rich and rather tenacious loamy soil, say two-thirds of the loam, and one of decomposed manure and leaf-mould; let all be thrown together in the summer three or four months before using; have it frequently turned, and properly mixed, but not sifted. In potting the plant, make sure of good drainage. Trees and vines in a bearing state can be had at any respectable nursery. Such trees procured in the fall, or early in spring will fruit the following summer, thus preventing delay.

I shall, at some future day give you a report on management, &c.

### A Good Rhubarb.

John Saul, of Washington, after very justly condemning, in the *Gardener's Monthly*, the little attention we pay to the quality of the rhubarb, as is evidenced by the popularity of some large, coarse and worthless varieties, makes the following interesting remarks: "Rhubarb may be divided into two classes, large (originated from *palmatum*), and small, of which an old variety called Buck's, may be taken as the type; and to this latter class the richest and most valuable sorts in cultivation belong, varieties having much less of the medicinal plant about them than the others. The following qualities I should consider necessary to a good rhubarb. First, stalk free from filament, requiring no stripping when preparing for use; second, a bright scarlet colour, not only on the exterior of the stalk, but through its substance,—this gives a rich colour to its syrup in whatever way it is prepared, which my lady readers can appreciate; third, the syrup should be rich saccharine, and as free as possible from the taste of the medicinal plant; fourth, the stalks should be nearly round, solid, not flat, and produced abundantly. Now, all these qualities belong to the finer seedlings, descendants of Bucks. Earliness I have not set down as one of my qualities; for, as in fruits, the rhubarb may be extended over a considerable season. In addition to Victoria and Linnaeus, which I recommend to all wishing large quantities, I would name the following, every one of which are superior:

*Emperor* (Waite's).—In the way of Victoria; larger, richer, and less filament in the stalks; a very desirable variety.

*Buck's Champagne*.—The stalks are of a deep blood-red, rich, free from filament. Its defect is a want of productiveness and vigorous sit-

able to the garden of the amateur. Type of Bucks.

*McLean's Early*.—One of the earliest, very productive, stalks of a rich scarlet, nearly round, free from filament, and exceedingly rich; a very fine early variety. Type of Bucks.

*Mitchell's Prince Albert*.—Has now been some years before the public; in England it is extensively grown, but in this country not so much, size being against it. Market-gardeners, on trial, will here find it quite as profitable as the larger kinds, being one of the very earliest, very productive, cannot only be gathered earlier, but will continue longer than the larger sorts, and the yield per acre will be heavier; stalks deep scarlet, free from filament, round, firm, giving an exceedingly rich syrup. Type of Bucks.

*Mitchell's Gray Eagle*.—This belongs to the large class; not so deep in color as the offspring of Buck's; has a large thick stalk; free from filament, exceedingly rich and mild; free from the medicinal taste of many larger sorts, and productive. Every person who grows a large rhubarb, should cultivate this; I consider it one of the finest.

*Randell's Early Prolific*.—Intermediate between the classes this will be found; stalks are of good size, well colored, free from fibre, rich flavor, very early and productive.

*Salt's Crimson Perfection*.—This comparatively new variety promises well; as the name implies, the stalks are of a rich crimson, free from filament, round, rich and mild; very productive and early. Type of Bucks.

*Turner's Scarlet Nonpariel*.—Stalks bright scarlet, free from filament, round, very productive. flavor rich and mild. Type of Bucks.'

### The Dairy.

THE NEW YORK CONDENSED MILK COMPANY—Wassaic, Dutchess County.—We visited the establishment of this Company, about eight miles from Mr. Thorne's on the Harlem Railroad, with Mr. Jonathan and Mr. Samuel Thorne. We were very kindly received by Mr. Gail Borden, jr.; the superintendent of the work and the patentee of the preparations there made. The works were in fine order, and we witnessed the process from the milk from the cow until prepared for market. It is *new milk*, fresh from the cow, with 75 per cent of water evaporated from it. This is done by steam; and the public who use this, have *real milk*, and nothing else; and can add water to it, suited to their test. It is already delivered in New York and Brooklyn to more than three thousand families—is recommended by a great number of physicians as superior to all other milk sent to market. The day we were at the works they

were preparing upwards of one thousand eight hundred quarts of milk, delivered that morning—somewhat less than the average quantity. The Company have another establishment at Burrville, Litchfield county, Ct. The establishment is open to the inspection of all, there being no necromancy about the matter; but the process being simply what is above stated. Neatness reigns predominant throughout the entire establishment, and is one reason doubtless of the great popularity of the milk sent from these works. A small pamphlet accompanies the milk, giving directions how to use it, and how to keep it; and statements of its value and cheapness.

*Essence of Coffee*, manufactured at the same establishment, all ready for use, is an article when known to the public, will supersede the pea, bean and other mixtures palmed off upon the public as coffee. For army and navy purposes; for families and for travelers, it is invaluable, and will, ere long, be appreciated as it deserves.

We are all much gratified with our visit at Wassaic and wish prosperity to the Company, who have introduced to the public *genuine pure milk*, which next to *pure water*, is the great desideratum in all our large cities and towns.—*Journal N. Y. State Agricultural Society.*

## The Apiary.

### Great Produce of Honey.

The *Journal of the California State Agricultural Society*, from which we copy the following statement says:—

However surprising the statement of Mr. Hamilton, we cannot doubt anything which he says. We have known him, intimately, for about twenty years, and no man's veracity is freer from suspicion. Mr. Hamilton writes thus from Stockton, under date of the 14th January.

"Thirty-five swarms of bees did produce, during the past season, over twenty thousand pounds of honey. I am not surprised that the truth of this should be questioned, for I doubt if the world can furnish a parallel. Not that a hive producing 571 pounds in one season cannot be found, but that thirty-five swarms should average that amount, is a great yield. But it is of no good to the public to be told that a great thing was done. This I will try to do, in as few words as possible. About the 1st of February, 1860, I left the vicinity of Stockton with thirty-five swarms in Langstroth hives, containing about 1,400 cubic inches, and ten swarms in an another moveable-comb hive, containing about 2,000 cubic inches each. I took these bees to the town of Santa Clara, Santa Clara county, and kept them there till the 1st of July, six months. I managed them on the system taught by the Rev.

L. L. Langstroth, in his work on the honey bee. I fed them on nothing except the honey I took from them. By the first of July the swarms had increased to 270. I removed them, at that time, to the vicinity of Stockton, whence they started, and by the 1st of October the swarms had increased to 500. The large hives, ten in number, have increased to seventy-five, containing 60 pounds of honey each, or 4,500 pounds; the small hives, 25 in number, have amounted to 425, containing about thirty-five pounds each, or 14,875 pounds. From the small hives, in September, about 700 pounds were taken, and they afterwards filled 700 pounds; making, for the whole, the great total of 20,075 pounds. From the above, it will be seen that the small hives have been much the more profitable. Bees do but very little in Santa Clara after the 1st of July; but in San Joaquin, and Sacramento they do most after the 1st of July—July, August, September, and October, being the best months of the year.

## Transactions.

### Report on the County of Bruce.

[The subjoined report was forwarded by the author, a resident of the County, to the Bureau of Agriculture in the Spring of 1860, and subsequently transferred to this office.]

The County of Bruce, is the junior of the united Counties of Huron and Bruce, it extends between the 44th and 45th parallel of north latitude, and between 81 and 82 western longitude, is bounded on the south by the County of Huron, on the east by the County of Grey and the Georgian Bay and on the north and west by the waters of Lake Huron.

It consists of the Townships of Huron, Kinloss, Culross, Carrick, Kincardine, Greenock, Brant, Bruce, Saugeen, Elderslie and Arran, together with the Indian Peninsula which will form a separate county of itself whenever it is settled; and as it is only the part of the county, that is under cultivation that I mean to treat of, I shall commence with it.

#### FIRST SETTLEMENT.

In 1849 the Durham line was surveyed and the town plot of Kincardine laid out. The following year, 1850, the road from Durham Village to Lake Huron was bridged and

crosswayed, from which time the settling of the county may be said to have begun.

The free grant lots on the Durham Road, and most of those on the second range north and south were taken up by the end of the year, and all the lots in the Township of Huron and Kincardine, on the Lake range, many preferring to stop on the shore, on account of its easy access, and pay for the land rather than go back into the bush and receive a free grant.

In the year 1851 the Elora and Saugeen road was projected, which traverses the whole county from south to north. In the year 1852 the whole County was one municipality, with Kincardine for the senior Township, a proceeding not at all relished by either Brant or Saugeen, both of which Townships would rather stay as they were until they could become municipalities of themselves, than come under Kincardine although the latter Township had a population nearly equal to all the other Townships in the county put together. But when we take into consideration that the municipal law was new, and that those that took upon themselves to be the leaders and advisers of the people, were totally ignorant of it, there is no great wonder that there should be some difficulty in obtaining an assessment the first time. The next year, 1853, was the same. In 1854, Kincardine, Bruce and Kinloss were one municipality, Huron, Saugeen and Arran one, Brant, Carrick and Elderslie one, and Greenock and Culross one.

In the year 1855 each Township had its own municipality, with the exception of the Township of Bruce, which by some neglect on the part of the officers was attached to Kincardine one year longer than was required by law.

At this time these eleven Townships might be considered fairly packed, as every lot was claimed by some one and many were claimed by more than one or two.

It has been said, and I believe with truth, that the county of Bruce was settled within the shortest time of any County in the Province of Upper Canada, and it may be said with equal truth, that no County was ever settled under such inauspicious circumstances.

In the first place, from the year 1848 to the year 1852 the highest price for Fall Wheat was \$00,90, when in remote Districts Spring Wheat could not be sold at all; in 1853 the rush to the gold mines of California

and Australia gave the prices a slight rise; in 1854 the failure of crops in the Southern States and the south of Europe, raised it still higher, and then came the Russian War, to cap the climax, in 1855 and 56, and although it kept up pretty well in 1857 and 58, it was more from scarcity than for foreign consumption. All this was absolute ruin to the settler in the new County, he had sold his little stock and property at the lowest figure, and had to buy at the very highest. The little capital that he expected to last him until he could grow his own provisions, did not last him until he got his shanty built, and a few acres chopped. This compelled those that could not conveniently go out to earn something to supply their wants, to accept the only alternative that was left them and that was to go into debt.

Now going in debt for a few necessaries, such as provisions and the necessary clothing of a family, is nothing very extraordinary, but the settlers in this County went into it in a manner that was really astonishing.

But it was not the sudden rise in prices that the Bruce settler had to contend with. His greatest enemy was the influx of money, caused by the expenditure on the various railways which were then making through the county, which induced those that were depending on their labor to go to work on them, rather than with the farmer. The wages asked were enormous, nor would they work for the farmer for the same rate that they received on the public works, and the result is that both parties have suffered since.

The farmer who had a little capital and no assistance of his own could hire none, and consequently his fallow remained uncleared, even if he had got one chopped.

The labourer on the other hand, after spending his six or eight months on the public works, returned home with about a quarter of what he reckoned on having. Between broken weather and paying for board, and perhaps sickness or absconding contractors, his dollar and a quarter a day that appeared so attractive at first, dwindled down to much less than the wages he might have had, had he contented himself with the farmer and taken a little trade. The few dollars that he brought home must go to pay the store bill, or taxes, or something else that must be paid. If he has a cow or two, or a yoke of oxen, which is not unusually the case, he is obliged to sell them at a sacrifice to procure something for his own sustenance. The debts he contract-



ed for other than those mentioned he is sued for, and then comes on the horrors of the division court.

The year 1856, '57 and '58 were very bad for clearing land, the snow lay deep and long in the spring, which was either very harsh and dry with a wet harvest, or a very wet spring and a very dry harvest. Oxen in spring are very weak owing to the want of root crops and turnips, the growing of which is shamefully neglected in this county.

But worse than all this is that curse of curses to the farmer and laborer, the Credit System, in connection with the means of collecting the debts.

The land mania that every one was afflicted with, drove many out of their senses as well as property. People imagined that if they could not get land for their children at the present time they never would have the same opportunity again. They borrowed money at any rate of interest, no matter what, if they could only get it. Others, if they could scrape up \$20 to pay down on one hundred acres, would squat on the one along side, while they went in debt for every thing they required. But how, may be asked, did they obtain this credit? On account of their property. The land in general was good, and for every one that wanted to sell there were three ready to purchase. From \$1000 to \$1600 was the usual price asked for the good will of 100 acres, according to the improvements and locality. Every corner was considered village property, and if it was only staked off and a map made of it, it was considered worth \$500 an acre. I suppose there have been as many as three hundred persons in the Township of Bruce in 1856 looking for land, which they would pay a fair price, but could obtain none under the above figure; to-day one half the Township would be sold for from \$400 to \$500 for the good will of it, and the land is the best on the face of the globe. Under the circumstance mentioned above, with regard to the supposed value of property, the settlers did not seem to care what debts they contracted. The merchants on the other hand were not slow to give them an opportunity. All a person had to do was to say he had so much land with as much paid on it, and his credit was good for \$200. But the local merchant was not the worst, the foreign trader is the party that has ruined the County of Bruce. First, the stove pedler, the plough maker, fanning mills, fruit trees, and furniture;

the number of agents for the sale of these articles as astonishing, an absolute pest, no sooner had you bought off one, than another was in the clearance or house as the case might be. The more you protested against buying the more pressing they became. All they required to know of the parties was, had they land? and then, as they said, the law was sure to find them their pay. It is true many bought articles that they did not want or intend to pay for, but for this the vendors secured themselves by charging double the value of the article to every purchaser. Others again bought what they were not in the slightest need of; parties bought stoves that had not a herring to cook on them, and others got them that did not know which part of them to put the fire in a year before, and if they were not getting them on the credit system they would not have one in the course of their lives. In no county in Canada could such things have been more easily dispensed with, for better material for building chimney of either stone or clay is not in existence, than can be found in the County of Bruce. Every body knows how stone or burnt brick chimneys are built, but the clay chimneys in the country are highly dangerous, and should not be allowed in a settlement. Chimneys can be built with clay, solid or moulded into sun burnt brick, which article can be prepared in this manner: Mark out a piece of ground for a bed, say 12 feet by 6, remove the surface carefully till you get below the roots, and loose soil, which is generally from 8 to 12 inches. In some parts by that depth you will be in the marl (which is the best manure for sandy, mucky, or loamy land that can be applied) or in stiff clay, but it does not matter which, as either is equally good for the purpose; of this you will dig and break as fine as possible 1 foot deep, then soak it through with water, leave it to soak for 24 hours, then take a horse, or ox and lead, drive, or ride him through it until it is completely mixed and no raw particles appearing in it, when turn with the shovel. The only point where judgment is required is to know what temper is required for moulding or building; if for moulding it need not be very stiff, but if for building a solid chimney the stiffer the better. This is the part of the operation that has defeated thousands, and led to the practice of putting wood along with the clay, which has ended in the burning of many houses. When a bed of clay of a foot

thick is firm enough for a man to walk on without sinking more than four inches into it, it is fit for use. You then take some straw, or beaver hay, and chop it n about 4 inch lengths, on every shovel full of mortar you shake a handful of this litter, which is for the double purpose of drawing the water out of the mortar and preventing it from cracking. When you think you have got enough to build your wall 4 feet high, you commence by taking off the last shovel full (each shovel full removes its own share of litter) in your hands, roll it on the litter so as it will be evenly covered or mixed with it, strike it with force on a heavy plank, or slab, or large stone if you have one convenient, until you get it to the shape you want it. For the lower part of a chimney the walls should be 18 inches thick. For this your pieces should be of the same length as the thickness of your wall, and whatever width is most convenient, either 4 inches 6 or 9, and then either 4, 3 or 2 bricks will cross one, and make a complete band. By laying them on carefully and pressing them firmly together, you will make a wall that will last longer than any wooden house that ever was built. After the wall reaches the height of 4 or 5 feet a wall of 6 inches thick will do, when you mould your pieces to the size most convenient. From 4 to 8 days by a man who is well acquainted with the work, will build a chimney in any common house or ehanty, and had such a practice been pursued in the County of Bruce, it would have saved thousands of dollars, as well as heart-aches.

Then there is another advantage the fire-place has over a stove, in the article of candle light. With a tolerable supply of dry light-wood \$2 worth of tallow would do in the year for candle light, whereas unless they sit in total darkness less than 6 or 8 dollars dont do with a cooking stove.

Again there is the wood. It does not take so much in bulk, but it takes far more labor to chop wood for a stove, than for a fire-place, and if the house is not very close, which is seldom the case in the "bush," the stove is burned out in the fourth or fifth year, and in many cases before it is paid for.

The next article we come to is the plough, and although he would be considered a bold man that would deny the fact of a plough being a useful implement in agriculture, yet there are many who have got them here on "tick," who had as much use for them as a tire of Madagascar has for a pair of skates.

One acre of new cleared land is worth 3 acres of or called plowed land, for the simple reason, that the land is not plowed; to be sure the plow and team are in the field and are driven round through and among the stumps, but the work bears no more resemblance to plowing than a fresh chopped fallow does to a well laid floor. But he has a vague notion that it must be plowed, he has seen good second crops obtained by plowing, and he dont see why he should fare worse than his neighbour. Now although the land is uniformly good, yet there are many different kinds of soil from the solid pavement of boulders and small stones, with a slight mixture of vegetable mould, to the finest sand, with 18 inches of the same mould on the top of it, and from the stiff white clay in the black ash swale, to the loam that you could sift through a cheese cloth.

But our Bruce farmer classes all alike, all get the same usage, go through the same process. That is by those that do all on the credit system. We have some as good farmers as there are in any part of Canada, but what can they do among such a crowd that will do nothing but wait. They will wait till the swamps dry up and then they wont need draining. They wait till the roots and stumps rot before they attempt to level the cradle knolls formed by the roots of trees blown down. After cropping the land until it is worn out, they let it run wild until it recovers itself again. They petition to have their land reduced in price from \$2 to \$1 an acre, although they would not think from \$10 to \$16 a cent more than the value were they selling out. When their petition wo'nt be heard, they wait till the times get better or the government changes.

All this time the industrious settler is trying to do all he can, he removes all obstructions off his land in the shape of fallen timber, old rotten logs, opens surface drains, levels all knolls, and does every thing in his power to render his land capable of being sown early. In the year 1858, which may be termed the destitution year, men of this description had as good crops as ever they had. Two of these came under my own notice, one was a piece of spring wheat, on a piece of flat land with some vegetatable mould on top, which was well dragged in the first week of April. The yield was about 30 bushels to the acre. The other farm was a clay loam; the part of it that was tilled in the way I describe was a field in which there was a light

hollow. This the owner cut a drain through about 18 inches deep, levelled all the knolls, took out all the stumps he could, plowed it deep and planted potatoes in it in 1857, in 1858 it was fit to receive the seed two weeks before any plowed land he had, and when the land that had been plowed and not drained was hard and dry this was soft and mellow. He sowed a bushel of Glasgow wheat on the piece and got 35 bushels off it (there was not quite an acre in it). Of 4 bushels sown on land tilled in the usual way, he had not 40 and that of an inferior sample. The plow is a useful implement when the ground is fit for it, but the spade and grub-hoe have preceded them in all countries that we have any history of, and in no country are these more necessary than in the County of Bruce. It is a lamentable fact that there is no tool made of iron or steel the native American hates with more intensity than the spade, and the immigrant very soon imitates him, either through false pride or carelessness. It is true the spade is very little used in the old country except for draining, and in the construction of railways, &c. But in this country it should go along with the axe. The first thing a man should do in clearing a piece of land, whether it is one acre, five acres or fifty, is to remove all obstructions to the water lying on it or that may lie on it, for such will be the case where there is marl or clay bottom, or subsoil. At least such is the case in the Townships bordering on lake Huron in the County of Bruce. Next to this should be the digging down the knolls. With a proper spade, a man can level an acre per day. In the underbrushing care should be taken to pile it on these raw spots, for two reasons; first, to enable the frost to enter and pulverize, which it would not do if the snow fell evenly and slowly on it; secondly, the burning of the loose clay and the ashes from the brush enriches those spots, so that the crop will be as good the first year as it will be in any other part of the field, which is not generally the case when they are dug cold and raw, in the spring after the land is cleared. Perhaps, this is the reason why it is not practised more. I know I did five acres one year in that manner and it far exceeded my expectations.

To the man that is determined to keep in the old track, or as near it as possible, I would advise him to try this far, and I will warrant him a satisfactory return, it is but a slight reform and might lead to great results.

But to him that would "reform it all together," I would say *come to the trenching at once*. It is a bold proposition certainly, and one I would not like to make in a large crowd of spade-haters, still I will maintain that had each householder in the County of Bruce one acre of trenched ground down with parsnips, carrots and mangel wurzel, from the second year of his being on his lot, such a heading as "Destitution in the County of Bruce" would never have been seen in the columns of a newspaper, to the disgrace of our magnificent County. But you will say it was the case all over the Province. I say I have not the least doubt of it, and from the very same causes too. The spring of 1858 was comparatively fine, that is, the month of April was dry and cold, but the fodder being all used, and no feed in the bush or pasture, the cattle were not able to work. When the feed did come it was raining every day. Those that did not get their crops in in April did not get them in in June, and the result was they might as well not have put in any, for "twelve good men and true" that ever were sworn could tell whether fire-weed, fox-tail timothy or wheat bore the greatest proportion to the whole bulk. Notwithstanding this deficiency, if the "Fathers" of the municipalities had taken the precaution of ascertaining how much was in each Township, and how much would be required, the distress would not have been so severely felt, and the borrowing of that large sum from the government would have been avoided. This could have been done by the different collectors, for at the time they were going round each rate payer knew how much he had and how much he should want. Such a measure I believe was proposed to some of them, but it was met with "pooh, pooh!" that was always the way the people were grumbling, they would be plenty sold yet, they would engage.

They were right in one respect, there is plenty sold out of the back Townships at taken away east for 75 cents per bushel, but if there was, it had to be brought back again for \$2,00 per bushel.

I forgot to state in the proper place that from the middle of June 1858 the heat was oppressive, the ground was absolutely baked, and that that was sown latest suffered most. Here the early sowing shewed superiority for it had well covered the ground and caused it to retain the moisture. In this manner the timothy that was close to

stumps, and was not disturbed by the plow.

The fox-tail glories in a dry year, and springs up the moment the heat set in; but the fire-weed was king of all, it has a long straight root like flax or hemp, and will succeed in the hardest ground and driest season. One old north Briton had a clearance of this description in which he dragged in 6 bushels of oats and 5 bushels of wheat, and I believe the drag had some wooden teeth in it. The wheat barely headed out; the oats which were not sowed quite so soon only came to the third leaf. He would not believe there was anything wrong in the way it was put in. The time, the soil, the climate, and the government were the cause of the whole disappointment. Neither flax, turnips, nor root crops had any charms for him, he could not live on such things himself. Could he not feed pigs or sheep with them? Well, he might do that, but where were the pigs and sheep, and besides, he said, there was nobody in the settlement grew any of them, and no one in the old country ever did it but the gentry, and of course he could not presume to do any thing of the kind.

This I am sorry to say is the feeling, if these are not the expressions of the majority of our settlers in this county.

Our best farmers are not the best educated men we have. They are men who by never ceasing toil accumulate some ready money, whereby they are able to take the advantage of those that are less cautious, and quite so industrious. They are not obliged to sell their goods when everybody else is pressed by his creditors. By this means they obtain a position which they can easily hold among a people so very careless. The best educated men we have are Merchants, Attorneys, Mechanics, Lawyers, Commissioners, Clerks of Division Courts and Bailiffs. Some of these are doing very well, others very indifferently, especially those that gave too good credit or commenced business on borrowed capital. When any of these gentry try trading and of course succeed no better than they did at their store-keeping, the "unwashed" takes the liberty of saying that *learning* cannot make a farmer without labor.

Generally speaking, the system of farming practised here is superficial. Bushels and acres are the order of the day. The man that has the largest clearance, or the largest summer crop, and the greatest number of cattle, is considered the best farmer. It is true that when the land is fresh and a crop of turnips

succeeded by a crop of wheat, and then seeded down, a man can do very well, for by the time he has enough cleared the stumps will be coming out of what he cleared first, and then he begins to summer fallow. This system does well where land is plenty, and a man has plenty of help within himself; but, say what you will of the summer fallowing system, there are two years lost for one crop, when by dividing the labor there could be a crop obtained every year. Of this mode of cultivation 20 bushels of fall wheat are obtained as an average, whereas by a course of root and green crops you may expect 40 bushels.

Trenching is the only mode of cultivation that surpasses all others yet adopted. In no country is it more necessary than in Canada, and in no county can it be more beneficial than in the County of Bruce. The guiding principle in agriculture should be to make clay land as much like sand as possible, and the sandy land like clay. Every one knows that river flats which are made from alluvial deposit are the richest lands in existence. Now I cannot see why a deposit made by the hand of man, would not be as good as that made by the overflow of a river. It is well known that river flats don't need draining, neither would our heaviest clays if they were once trenched and the water never to rise above the trenched ground. The rain or snow that falls on land never hardens it if it can soak through it and pass off. It is when it soaks and bakes under the heat of the sun, and no loosening matter mixed in the subsoil, that it becomes hard. It is the numerous ingredients of which they are composed that make those flats so mellow and so dry.

You may take equal quantities of sand, marl, peat, or black muck, lime, clay, stable manure, mix up all together and you have as good an alluvial deposit as ever was made.

The novelty of spade husbandry is the only thing that makes me so diffident in introducing it. I say and say it without fear of contradiction, that the County of Bruce is the best agricultural County in Canada, and for the same reason it should receive the best cultivation. The old idea of holding large farms under surface tillage is too much the practice in this County still, and the sooner the people are convinced of the fallacy of it the better. There are hundreds in the County of Bruce that hold one and two hundred acres that will never till twenty of it in their

lives, for reason I shall endeavour to show hereafter. Now I shall endeavour to show what an ordinary man can do on the principle I advocate.

Suppose a man and his wife go into the bush the third week of September. The first week would be better, only that I am supposing them to be of the very poorest class and cannot afford to lose anything they can earn. The first month it takes him all his time to build a shanty, with a chimney such as I have described already, the next month should be spent underbrushing, chopping up old rotten logs and turning them out of their beds, so that the frost may extract the water out of them, that they may burn the more readily in spring, levelling knolls, and draining if necessary, and in clay land it is always so. Four or five acres is enough to undertake to do in this manner. Every stick that he can make into cordwood he should do so. We will suppose him to be ready to commence chopping by the first of January. There are three months to chop the five acres and prepare for sugar making. If there is no cedar or black ash on the lot he should be careful to select any red beech and rock elm, white ash, or cherry for building purposes and fencing, these should be chopped and drawn before the snow gets too deep. With regard to sugar making the process is so well known that it needs no description. However, in all I have seen, and a good deal I have made myself, there is more sap and labour wasted that would make double the quantity. A person in the circumstances described, if he has a good sugar-bush on his lot, should get a salts kettle, if in his power, if not, a fice pail sugar kettle. This he should fix in an arch, made of clay, after the manner of the chimney building; it should be set in a manner that the flame would surround it to within four inches of the top. By the side of it he could set one or two smaller pots for heating the green sap, and so keep the large one boiling down. By this means a quarter of a cord of wood will be sufficient to boil for the season; smoke and cinders, and all other matter that never fails to get mixed up with it in the old way, have no access to it all, neither is there any loss from sap boiling over, or spilling in removing from the different kettles. To a new settler in the bush sugar is invaluable, for with 100 lbs. of sugar, and 200 lbs. of tomatoes, he can make a delicious preserve, that would last him the year round; perhaps there

might be a little more sugar needed in that that would be kept for summer.

During the intervals of sugar making, the settler should dig in some convenient bank for a root house. One that would hold 1000 or 1500 bushels of roots is nearly as easily built as a smaller one. Ten feet wide sixteen feet long, and eight feet high, will hold 1280 bushels. This should be built with logs, the same as any other ground building. The logs should be laid close, and the roof should form a perfect arch, in the same way as the Cobb'd roofs are generally made. The roof should be covered with mortar, such as is recommended for chimney building. There should be a large, open drain around it, and the floor should not be within 1 inches of the bottom. The mortar should be protected by slabs or clapboards from the rain and frost. An opening should be left in the opposite end from the door to pass down the roots to a party inside, who should pack them by hand with some clay, sand, or black muck between the layers; in mild weather this should be left open, and carefully closed in frost. Only turnips, carrot mangel wurzel, and potatoes need a cellar; parsnips are proof against frost, and need only be put in for convenience. As soon as the frost is out of the ground, the settler should lose no time in trenching an acre-half an acre of ground. The brush he may burn by hand; that is, kindle fires of chips and pile the brush on them. The sound wood will have been removed for firewood, fence timber and building. All the rotten wood and leaves should be carefully buried in the bottom of the trenches, together with roots and debris that will have to be chopped down during the process.

The trenching is done in this manner: Lay off your grounds in lands of 16½ feet each; eight of these ten rods long will half an acre. You first take a strong grub hoe, with which you loosen the surface as far as the roots go down; this you remove with the shovel to the side opposite ground you are going to trench, then with spade as strong as a crow bar, and as sharp as a chisel, you dig at least to the depth of 18 inches, this you shovel out, then you lay trench about 2 feet wide and 18 inches deep. Now you have room to dig underneath roots, by which process they are far less formidable than they appear at first. The pulverized mould should be kept on the

much as possible. The hard clay knolls should be thrown in the hollows, and the decomposed matter that is in the hollows on the spot where the knoll stood. The ridges should be as level as possible, and an open row between each, at least four inches deeper than the ground is trenched.

By this means all the small stumps are removed at once; the larger will be so trimmed, that after a winter's frost a charge of blasting powder will put the sound ones, at least, in the way they will burn out. The slow or rotten ones will burn out by themselves, with the assistance of the small ones being stuffed into them.

This to many may appear a tedious and laborious system, but when we take into consideration that when the land is cleared a man can work at it from December until April, and that any man can do an acre in a week; and that when it is once done it is done forever; and that one acre will produce much as four not so worked, we will see the advantage of it. A good spadesman will do an acre in two weeks. I don't think it could be drained in much less time, and no one has ever questioned the benefit derived from draining yet. As soon as the prepared ground is pulverized by the spring frosts, it may be sown in equal parts with carrots, parsnips, and mangel wurzel. Drills should be used with the corner of a hoe about three feet deep, and from 24 to 30 inches apart, and from 8 to 12 inches between the plants. The only manure, and I believe the best, that can be applied to these, is what ashes will have been made during the time the settler has been on the place, mixed with three times the bulk of burnt clay, or fine mould, spread liberally in the drill, and the seed dropped on in small punches at the prescribed distance. The remainder should be sown with Flax, Oats, Peas and Turnips. They should be placed in rows as well as the rough state of the soil will admit. If the settler is able to purchase a cow, a brood sow, and a couple of sheep, he should do so; if not, he must get out for the haying and harvest to earn a little. Besides the sow he will want three or four pigs, to feed on the roots that he will not want for himself and family, or the cow and sheep. The produce of the acre of roots he will have to sell, which will bring him from £20 to £40, according to all the trials that have been made of it, either in this country or the old. By having a steam box over

his sugar kettle any weeds and all the small roots that are pulled out of the spots where they are too thick, can be converted into food for the pigs, and the box can be made large enough to hold as much as will do for a week. The produce of root crops on clay land is not so great the first year as afterwards, while in the sandy it is fully as good, if not better, than it will be in the succeeding ones, especially if not manured. A thousand bushels is about the average yield of such root crops, wherever they have been tried in this county, consequently off of half an acre there would be 500 bushels, with which he could feed 1200 lbs. of pork, which at \$5 a hundred would be \$60. This, with \$120 for the flax, would make \$180; beside butter from the cow and what poultry they could rear. The capital required to go on a lot in this way would be \$140; so the settler would have \$40 saved the first year. Flour, of course, he would have to buy, but he can do that much easier than grow it. Growing wheat in small quantities is the worst thing a man can do, except trying it on a large scale, which is ruinous. I have known people living in the bush for three years before they could grow an ounce more than they wanted for their own use,—all on account of sowing their wheat first. The ground would be logged in the spring, done in a hurry, the ground neither leveled, nor the ashes spread. The consequence would be that some of it would be too rank, some of it too poor, and all would be rusty; while their potatoes and turnips would have been good, only that were all in too late. Another advantage they the spade husbandry has over the drag, is that you don't need oxen; one horse is sufficient after the second or third year. If I have not said enough on this subject I have said too much, for my labor is all lost. I believe it was on the subject of the farmers of Bruce buying ploughs they did not want that I began, and I have ended by trying to prove that the spade would have suited them better. How far I have succeeded time will tell.

(To be continued.)

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### Miscellaneous.

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**CURE FOR DRUNKENNESS**—There is a prescription in use in England for the cure of drunkenness, by which thousands are said to have been assisted in recovering themselves. The recipe came into notoriety through the efforts of John Vine Hall, father of Rev. Newman Hall, and

Captain Vine Hall, commander of the *Great Eastern* steamship. He had fallen into such habitual drunkenness that his most earnest efforts to reclaim himself proved unavailing. At length he sought the advice of an eminent physician, who gave him a prescription which he followed faithfully for seven months, and at the end of that time had lost all desire for liquors, although he had been for many years led captive by a most debasing appetite. The recipe, which he afterward published, and by which many other drunkards have been assisted to reform, is as follows: "Sulphate of iron, five grains: magnesia, ten grains; peppermint water, eleven drachms; spirit of nutmeg, one drachm; twice a day." This preparation acts as a tonic and stimulant, and so partially supplies the place of the accustomed liquor, and prevents that absolute physical and moral prostration that follows a sudden breaking off from the use of stimulating drinks.

**DRAB SANDSTONE.**—The beautiful drab sandstone which is now coming into extensive use in New York, comes from Dorchester, Nova Scotia, in blocks weighing about five tons. It differs from most other sandstone, in not being stratified. It is very homogeneous and close in the grain. It is sawed into slabs, in the same manner as marble, after it arrives in this city.—*Scientific American.*

**THE HORSE IN ARABIA.**—The horse is involved in the most ancient superstitions of the people of Arabia. They believe him to be endowed with a nature superior, not in degree only, but in kind, to that of other animals, and to have been framed by the Almighty with a special regard to the convenience of man, and the setting forth of his person. It is one of their old proverbs, that, after man, the most eminent creature is the horse; the best employment is that of rearing it; the most delightful posture is that of sitting on its back: and the most meritorious of domestic actions is that of feeding it. Mahomet himself did not disdain to inculcate a lesson of kindness towards the horse. "As many grains of barley," said he, "as are contained in the food we give to a horse, so many indulgences do we daily gain by giving it." The belief is widely spread that the best breeds are descended from five favourite mares of the prophet, on which he and his friends fled from Mecca to Medina.—*Cassell's Popular Natural History.*

**WASHINGTON'S LOVE OF HORSES.**—The President's stables in Philadelphia were under the direction of German John, and the grooming of the white chargers will rather surprise the moderns. The night before the horses were expected to be ridden they were covered entirely over with a paste, of which whiting was the principal component part; then the animals were swathed

in body cloths, and left to sleep upon straw. In the morning the composition had come hard, was well rubbed in, and carried brushed, which process gave to the coat beautiful, glossy and satin-like appearance. Hoofs were then blackened and polished, mouths washed, teeth picked and cleaned, the leopard-skin housings being properly adjusted, the white chargers were led out for service. Such was the grooming of the ancient time.—*Recollections of Washington.*

**RESISTANCE TO IMPROVEMENTS.**—The folio from Archbishop Whately's *Annotations on Bacon's Essays*, is a rich literary and scientific gem:

It was the physicians of the highest standing that most opposed Harvey. It was the experienced navigators that opposed Columbus. It was those most conversant with management of the post-office that were the first to approve of the plan of the uniform postage. For the greater any one's experience and skill in his own department, and the more he is led to the defence which is proverbially due each man in his own province, the more he indeed, he will be to be a judge of improvement in details, or even to introduce them himself; the more unlikely to give a fair hearing to proposed radical change. An experienced coachman is likely to be a good judge of all that relates to turnpike roads and coach horses; you should not consult him about railroad steam carriages. Again, every one knows slowly and with what difficulty farmers are prevailed on to adopt any new system of husbandry, even when the faults of an old-established one and the advantages of a change, can be evident to the senses.

**SLEEP.**—There is no fact more clearly established in the physiology of man than that the brain expends its energies and itself during the hours of wakefulness, and that these are recuperated during sleep; if the recuperation not equal the expenditure, the brain with this is insanity. Thus it is that in early E. history, persons who were condemned to death by being prevented from sleeping always raving maniacs; thus it is, also, that those who starve to death become insane; the brain is not nourished, and they cannot sleep. The principles are these: First, those who do the most, who do the most brain-work, require the most sleep. Second, that time saved from sleep is infallibly destructive to mind and body. Third, give yourself, your children, your servants—give all that are under you the amount of sleep they will take, by compelling them to go to bed at some regular early hour and to rise in the morning the hour they and within a fortnight, nature, with almost regularity of the rising sun, will undo the bonds of sleep the moment enough rep.

been secured for the wants of the system. This is the only safe and sufficient rule; and as to the question how much anyone requires, each must be a rule to himself—great Nature will never fail to write it out to the observer under the regulations just given.—*Dr. Spicer.*

**DIFFICULTY OF DISTINGUISHING A PLANT FROM AN ANIMAL.**—The more naturalists know of the plants and animals of the globe, the more difficult have they found it to distinguish one from the other. Among the little organisms which are invisible to the naked eye, there are large numbers about the character of which there has long been a fierce dispute, they being claimed by the botanists as plants and by the zoologists as animals. Many of the plants in certain stages of their growth, swim about in the water and look and act so nearly like animals that they would probably have always been classed as such had they not been observed to branch out and grow up into perfect plants. There is no doubt a character by which the animal or vegetable nature of an organism can be tested; but the best guide in the doubtful cases is furnished by the mode in which the nourishment is taken. Animals are nourished by organic matter, which they take in some way into the interior of their bodies; while vegetables have the power of absorbing their food from inorganic elements in the exterior.

**THE POTATO DISEASE.**—A correspondent of the *Mark Lane Express* residing in the County of Down, observes:—"The more we look into the potato disease, the more we are inclined to attribute it to drying and greening of the seed in autumn, by placing the tubers in a dry place exposed to sun and wind for several weeks, one tuber thick, and turning them at least once, taking care to cover them in the evening should it threaten frost. After a few days exposure, it takes a considerable degree of frost to injure them. When sufficiently dried, they ought to be covered up as usual with earth and straw, but the bin-ridges not above six feet wide and a foot in height, so that there will be no disposition to heat in the mass. This greening and greening greatly increases the vitality of the tubers, preserving the seed from the dry rot and the future plant from the blight. The tubers and leaves of the future plant are hence of a firmer texture, and healthy. Here the potato blight and the rot in sheep are completely similar, and the cause of moisture in the food, atmosphere, &c., is the same; the induced disease in sheep, as also takes a vital character is organic or contagious, and both, we believe, are promoted by the development of electricity.—June 21.

**INFLUENCE OF EXTREME COLD UPON SEEDS.**—Experiments have been made this year, by Professor Elie Wartmann, of Geneva, Switzerland, upon the influence of extreme cold upon the vitality of plants. Nine varieties of seed, some of which were tropical, were selected. They were placed in hermetically sealed tubes, and submitted to a

cold as severe as science can produce. Some remained 15 days in a mixture of snow and salt; some were plunged into a bath of liquid sulphuric acid, made extremely cold by artificial means. On the 5th of April they were all sown in pots, and placed in the open air. They all germinated, and those which had undergone the rigors of frigidities produced plants as robust as those which had not been submitted to this test.—*N. Y. Tribune.*

## PROVINCIAL EXHIBITION.

To be held at London, September 24th, 25th, 26, & 27, 1861.

**ENTRIES OF ARTICLES FOR EXHIBITION** except in the classes of Horticultural products, Ladies work, Foreign Stock and Produce, must be made at or transmitted to the office of the Board of Agriculture, Toronto, on or before Saturday, August 31st.

Entries in these special classes may be made till the evening of Friday, Sept. 20, at Toronto, and on Monday Sept 23, at London, but exhibitors are requested to make their entries in these classes also at as early a date as possible.

Prize lists and Blank forms of entry may be obtained of the Secretaries of Agricultural Societies and Mechanics' Institutes in any part of the Province.

HUGH C. THOMSON,  
*Secretary Board of Agriculture.*

Board of Agriculture office,  
Toronto, Aug. 14th, 1861.

## WILSON'S ALBANY STRAWBERRY.

**T**HIS variety has produced with me at the rate of 300 bushels per acre, fine large fruit with ordinary cultivation. I will now deliver plants, and pay carriage, to any Express Office in Canada West, at the following rates, when cash is paid in advance. \$1 per twenty-five; \$2 per seventy-five; \$3 per one hundred and fifty; \$10 per thousand; Hooker Jenny Lind, and Bur's New Pine at the same rate.

Old varieties \$5 per thousand.

### GRAPE VINES.

Concord, Diana, Rebecca, and Canadian Chief, \$1 each.

Address  
CHARLES ARNOLD,  
*Nurseryman,*

Paris, C. W.  
Paris, Aug. 15th, 1861. 16-4t.

## SHEEP FOR SALE.

**30** RAMS, one year old and upwards, Cotswold, Leicester and Lincolnshire breeds, large size and good quality, weighing from 240 to 350 lbs. each, four imported. Terms reasonable. Will be exhibited at Brampton, County of Peel, fall fair, on Wednesday, Sep. 18th.

JOHN SNELL, *Edmonton, P. O.*  
near Brampton Station, G. T.  
August, 1861.



**AYRSHIRE BULL FOR SALE.**

**M**R. Denison, of Dover Court, offers for Sale a thorough bred Ayrshire Bull, bred by the celebrated Ayrshire breeder, John Dodd, Esq., of Montreal. The bull is 3 years old, and can be delivered at or after the Show at London, in September.

↳ Toronto, Aug., 1861.

**FOR SALE.**

**A** LOT of thorough bred improved Berkshire Pigs of various ages.

R. L. DENISON,  
Dover Court.

Toronto, Aug., 1861.

**TO LANDED PROPRIETORS.**

**A**N experienced English Agriculturist, for several years practically acquainted with the Canadian Farming, wishes to undertake the management of a Farm, either on shares, or as Bailiff to the owner.

Satisfactory references and testimonials given by addressing AGRICULTURIST, Post Office Paris, C. W.

Paris, C. W. June, 1861 . 3t.

**BOARD OF AGRICULTURE.**

**T**HE Office of the Board of Agriculture is at the corner of Simcoe and King streets, Toronto, adjoining the Government House. Agriculturists and any others who may be so disposed are invited to call and examine the Library, &c., when convenient.

HUGH C. THOMSON,  
Secretary.

Toronto, 1861.

**FOR SALE.**

**A** PURE bred young short horn Bull; Sire and Dam imported in 1857, and both took First Prizes at the Provincial Show in Brantford the same year.

Address, R. R. Bown, Brantford.

N. B. Full blooded cow stock taken in exchange, if desired.

Brantford, April 8th, 1861. 4t

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