

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Coloured pages/
Pages de couleur

Covers damaged/
Couverture endommagée

Pages damaged/
Pages endommagées

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Cover title missing/
Le titre de couverture manque

Pages discoloured, stained or foxed/
Pages déco'orées, tachetées ou piquées

Coloured maps/
Cartes géographiques en couleur

Pages detached/
Pages détachées

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/
Transparence

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Quality of print varies/
Qualité inégale de l'impression

Bound with other material/
Relié avec d'autres documents

Includes supplementary material/
Comprend du matériel supplémentaire

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Only edition available/
Seule édition disponible

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Pages wholly or partially obscured by errata slips, tissues, etc., have been refilmed to ensure the best possible image/
Les pages totalement ou partiellement obscurcies par un feuillet d'errata, une pelure, etc., ont été filmées à nouveau de façon à obtenir la meilleure image possible.

Additional comments:/
Commentaires supplémentaires:

Continuous pagination.

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

THE

Canadian Agriculturist,

OR

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

VOL. XIII.

TORONTO, MARCH 1, 1861.

No. 5.

Prepare for Spring Work.

When the stormy MARCH is come at last,
With wind, and cloud, and changing skies;
With the gushing of the blast
That through the snowy valleys flies.

When passing few are they who speak,
And stormy mouth in praise of thee;
Though thy winds are loud and bleak,
Yet thou art a welcome month to me.

[*Bryant.*]

When March, stormy and changeful as it often is, comes as a welcome to the farmer, and indeed to the lovers of nature in this northern sphere, as indicating the termination of the cold and gloomy winter, with its frosts and snows; though, in truth, some portions of our Canadian winters are the reverse of gloomy,—the approach of green and joyous spring; the season of hope and beauty, and full of anticipation of all that is lovely and attractive in the surroundings of daily rural life. What an advantage do the inhabitants of the country have over those of crowded cities in inhaling the fresh atmosphere, and in opportunities of observing the wonderful works of the Creator, as they are manifested in the varied phenomena of the circling year! If there be one occupation in this fallen world of ours better calculated than another, to lift men's minds and hearts to the contemplation and enjoyment of the power, wisdom, and goodness displayed in the works of our Creator, as indicating the perfections of an all-wise and beneficent Creator, we shall not run the risk in pronouncing that occupation

to be the farmer's, or the gardener's, whose daily avocations bring him into contact with the ever varying changes of the seasons, and the natural government of God. A thousand pities that so many of our fellow creatures, for want of the necessary mental and moral culture, should live almost wholly insensible to the beauties and blessings by which they are constantly surrounded! With the necessary preparation of mind, the cultivation of a field or garden will naturally induce correct habits of observation, and lay the foundation of knowledge, scientific and moral, which will enlarge the sympathies, refine the taste, and elevate the aspirations of its possessor. It is important that these truths should not be lost sight of by the agricultural press; since there appears to be no means of permanently raising the status of the rural population, as, indeed of all others—but such as are of a moral and intellectual nature.

Our object, however, in the few remarks we intend to make is not so much to moralise,—and the above digression it is hoped will not be deemed out of place,—as to remind our readers of some necessary things which the season at which we have now arrived naturally suggests. It is true that much snow yet remains on the ground, and that cultivation cannot be commenced for, perhaps, some weeks. But that period may arrive earlier than we expect; the snow is now fast wasting,—going off in a most satisfactory manner, and the ground not having in general been deeply frozen before

the first covering of snow, present appearances, after so much severe weather, seem to indicate the probability of an early spring. Whether these anticipations should be realised or not, it is clearly the duty and interest of the farmer to be full, prepared to commence operations as soon as the season will admit. His future plans should now be finally determined, and all kinds of implements repaired and got ready for use. Before the snow is quite gone the necessary amount of rails should be hauled to all such places where the fences require repairing,—a work of indispensable importance, and which will run a great risk of being neglected if not performed before the numerous and pressing duties of spring actually commence. Some people sow clover and grass seeds on the snow, a practice that is, we understand, often found to answer well, though as a general rule we should prefer performing the operation when the surface is dry, immediately after the first warm rains of spring, and to finish with a light harrowing or rolling. Some practical observations on matters of detail will be in time in our next number.

We would now remind the reader of the importance of getting in readiness not only his ploughs, harrows, &c., so that not a single hour be lost when the proper period arrives for commencing cultivation, but also his seed grain of every description. More timely attention, we understand, is now given to these matters than formerly, but so much depends on the prompt manner of doing these things that it can never be considered superfluous to remind farmers of them. We strongly urge them to select the purest and best quality of seed, whether of spring grain, grasses, or roots, that they can possibly command. Sufficient attention is very rarely paid to these matters; and the consequence is that much loss is sustained, and the general character of our produce lowered. A perfect cure, perhaps, will only be found in keeping the different species and varieties of grain absolutely distinct, either in ricks or separate departments of a building, so that no intermixture can take place. The present system of housing all kinds in barns loudly calls for reform.

Those farmers who have a stock of turnips, mangels, &c., on hand will now appreciate their value. During this and the succeeding month they may be most advantageously fed to cattle

and horses; and especially to cows and breeding ewes, that a full supply of milk may be obtained for their young. All kinds of roots now in store, whether in or out of doors, should be turned over and examined; picking out such as are decomposed or decomposing, and leaving in air to sweeten the mass and prevent vegetation. Potatoes should be carefully picked over and such as appear most suitable for seed left by themselves, taking pains that the selections are pure, that is, unmixed. Roots of all kinds are peculiarly liable by the increasing temperature of the air and their own tendency to ferment, to deteriorate rapidly at this season, by sprouting, unless the above precautions are strictly and timely observed.

Yearning ewes will now require the best attention, they should be separated from the rest of the flock, kept in a dry, sheltered, but well ventilated place, for nothing is so injurious to sheep as a damp and close situation. A small quantity of roots and a little corn, barley, or other meal, regularly given, with good hay and pea straw, and plenty of dry litter. In the middle of the day when warm and dry, ewes should be allowed to go into the open air, if yards, or the sheltered corner of a field, for exercise, but the young lambs should not accompany them, unless under peculiarly favorable circumstances, in regard to warmth and dryness. All exposure to changes of temperature, particularly when accompanied by dampness, is particularly injurious to lambs, and is not unfrequently followed by fatal results. While the ewes are out, the lambs may be gradually brought to eat some finely chopped hay or meal given in shallow troughs, which will tend to strengthen them, and improve their condition.

Notwithstanding the severity of the winter now drawing to a close, and the large amount of snow that has fallen, and which has in many places stopped all kinds of travel for several days, we hope from all we hear, that live stock will come out in spring in quite as good condition generally as could have been expected. The supply of hay was not great, but the extension of root culture has already in some measure met a deficiency from that source and to the raising of increased crops of Swedish turnip, mangels, carrots and parsnips, we must mainly look for sustaining our increased herds and flocks in a healthy and thriving condition.

dition. Every farmer should have under cultivation more or less of these crops, which now become an absolute necessity in any system of farm improvement. The relation between stock, grain and roots is every day becoming more apparent and important; constituting as it does, in connection with thorough culture and drainage, the soul of modern husbandry.

Salt and Lime.

Since writing the remarks on salt in reference to the enquiry of a correspondent on another page, we observe from an American exchange that that article is sometimes profitably applied to the States to field crops, particularly old mowing or pasture lots, where the grass is, as it termed, "running out." The quantity sown and cast in its crude states, varies considerably, from three or four to as much as twenty bushels per acre. It is said to be effectual in killing worms and insects, when applied in the doses; that is at the rate of twelve or sixteen bushels to the acre. Thus applied it will kill weeds on garden walks, and on asparagus beds, and the asparagus itself will be benefitted. The care however is necessary in applying it to growing crops, for if used in too large quantities it will injure or destroy them. We remember many years ago seeing a strong solution of salt applied to pasture land, in England, which apparently destroyed the vegetation through the summer, the surface appearing perfectly barren as in a severe drought, but the rains of autumn awakened up the grass, which soon put on its usual green livery and grew luxuriantly; both cattle and sheep preferred that part of the field, which had been salted, to any other a year or two afterwards. In Upper Canada, which is considerably removed from the direct action of oceanic influence, it is reasonable to think that the action of salt will be found more powerful than in situations lying contiguous to the sea.

We notice in a recent report of an English Agricultural Society, that one of the members had been in the habit of dressing land intended to be sown with wheat in the fall, with a manure made of a ton of lime to half a ton of salt, mixed together some weeks before it was used. He had applied it after summer fallow

for a long period with marked and invariable success. Whenever he was afraid of a crop of wheat going down, he always applied this dressing, which had always secured a good crop of clover; generally ploughed the land, and then applied the manure to the surface. The lime and salt should be mixed some time before they are used, for the more completely they amalgamate the better. The mixture stiffens the straw, and prevents it going down by heavy rains, while it increases the quantity and improves the quality of the grain.

Preparation of a new Artificial Manure.

We find in a recent number of the "*Journal de la Societe Centrale d'Agriculture de Belgique*," the details of manufacturing a very powerful artificial fertiliser, from which we condense the following facts for the benefit of our readers. The experiment was made on the property of M. De Bryas of Saint Florent, in Belgium, and the result is said to have far exceeded his expectations. He threw into a pit containing about 2000 hectoliters, and which communicated with another pit capable of holding 500 hectoliters, a dozen of dead animals, horses, oxen, &c.; two or three thousand oilcakes, a quantity of concentrated sulphuric acid, and 400 kilogrammes of vitriol of iron. This having been well mixed up, and then allowed to lie, formed so powerful a manure, that by using 300 hectoliters of it to manure a hectare of land, a very rich crop has been produced, although it had not been manured for three years.

Subsequent experiments appear to demonstrate that this artificial manure will extend over a surface eight or nine times greater than the same quantity of ordinary stable manure would; and the effects produced on vegetation are far more important. In all large cities the amount of fertilising matter that can readily be obtained from dead horses, and other animal substances, is considerable, which is too often allowed to run to waste and occasion much annoyance and positive mischief, instead of, as it should do, go to the increase of garden and field crops.

One of the tunnels on the Baltimore and Ohio railroad is lined throughout with cast iron, and lighted with gas.

Botanical Society of Canada.

Abstract of recent Discoveries in Botany and the Chemistry of Plants. By Professor Lawson.

SEA-WEED AS A MANURE.

The attention of the English farmer has been recently called to the use of the sea-weed as a manure. This material is thrown up in enormous quantities on the shores of Britain, and on the east coast of Scotland it is extensively employed to fertilize sand dunes that would otherwise be worthless. In dry sandy soils it acts in two ways; first, by directly contributing food materials to the crop, and secondly, by the hygroscopic action of the mucilaginous tissues in maintaining a certain degree of humidity in the arid soil, a result that is no doubt aided by the presence of the sea salt accompanying the weed. The richness of the ash of the common sea-weed in potash, soda, phosphates, and other materials of plant growth, shows that it has a high manurial value. In Greenland specimens, the ash has been found to contain ten per cent of phosphates. The proportion of water in the recent weed is so large, however, that sea-weed cannot be profitably carried to great distances, but along the shores of the lower St. Lawrence and in the other maritime provinces, where it can be readily obtained at certain seasons, its value can scarcely be overrated. The process that have been suggested for converting the sea-weed into a paste for transport, mixing with peat ashes, &c., do not seem likely to lead to any useful result, so far as the British American provinces are concerned.

"STEEPS" FOR SEEDS.

Of the many "steeps" that have been recommended to facilitate the germination of seeds, the most intelligible is that of caustic potash, or carbonate of potash, applied by M. Andre Leroy to seeds naturally protected by fatty or oily pulp. He reports that the seeds of Hollies, Magnolias, Yews, and the like, which often lie dormant in the ground for a couple of years, come up readily after treatment with potash and subsequent rubbing with sand.

BLANCHING OF FLOWERS.

It is well known that light is as necessary to plants as a due supply of heat and moisture. The effects of its absence are often singular. We know that plants grown in darkness do not exhibit their usual healthy green color, light being required for the development of chlorophyll. Advantage is taken of this circumstance in the blanching of salads and vegetables, and the same process is now being applied to flowers. It appears that in Paris there is a great demand for white lilacs for ladies' bouquets in winter, and as the common white lilac does not force well the purple "Lilas de Morly" is used. The

flowers of this variety, when made to expand at a high temperature, in total darkness, are of a pure white; those of the Persian lilac will not whiten.

PAPER MATERIALS.

The cry for "more rags" which papermakers raised some years ago, necessarily failed to increase the supply of rags, but it served to bring materials to the paper-mill that had not been previously thought of. Hollyhock stems, straw and heather, and a hundred other substances, were tried and found suitable in various degrees. Many of these, while capable of being converted into paper, could not be profitably used in the manufacture; but several have taken their place as really important sources of paper fibre. Plants that require to be cultivated extensively for this purpose are not likely to yield satisfactory results, and of late years, therefore, attention has been especially directed to the waste products of agriculture. In all agricultural plants woody fibre is produced to a greater or less extent, and that of the straw of cereal grains has been used for a number of years to a considerable extent. The leaves and husks of Indian corn (*Zea Mays*) are also coming into extensive use, as appears from interesting details published by Professor Lindley in the *Gardeners' Chronicle*. Dr. Lindley's account of the manufacture appears to be founded upon statements that have appeared in the *Breslau Gewerbeblatt* and the *Daily Telegraph*, a London paper. The following extracts will be of interest on this side of the Atlantic, where Indian Corn is produced in such enormous quantities:

"Recent experiments have proved Indian Corn to possess not only all the qualities necessary to make a good article, but to be in many respects superior to rags. The discovery to which we allude is a complete success, and may be expected to exercise the greatest influence upon the price of paper. Indian Corn, in countries of a certain degree of temperature, can be easily cultivated to a degree more than sufficient to satisfy the utmost demands of the paper market. Besides, as rags are likely to fall in price, owing to the extensive supply resulting from this new element, the world of writers and readers would seem to have a brighter future before it than the bold fancy would have imagined a short time ago. This is not the first time that paper has been manufactured from the blade of Indian Corn, but, strange to say, the art was lost, and required to be discovered anew. As early as the seventeenth century, an Indian Corn paper manufactory was in full operation in the town of Rievi, in Italy, and enjoyed a world-wide reputation at the time; but with the death of the proprietor the secret seemed to have passed into oblivion. Attempts subsequently made to continue the manufacture were baffled by the difficulty of removing the flint and resinous and glutinous matter contained in the blade. It

...ery of the process has at last been effected... his due to the cleaverness of one Herr Moritz Diamant, a Jewish writing-master in Austria, who made a trial of his method on a grand scale, which was made at the Imperial manufactory at Schloßmühle, near Glognitz (Lower Austria), has completely demonstrated the certainty of the invention. Although the machinery, arranged as it was for the manufacture of rag paper, could not of course fully answer the requirements of Herr Diamant, the results of the essay were wonderfully favorable. The article produced was of a purity of texture and whiteness of color that left nothing to be desired; and this is all the more valuable for the difficulty actually experienced in the removal of impurities from rags. The proprietor of the invention is Count Carl Octavio Zu Lippe Weissenfeld, and several experiments give the following results:—
1. It is not only possible to produce every variety of paper from the blades of the Indian corn, but the product is equal, and in some respects even superior, to the article manufactured from rags.

"2. The paper requires but very little size to render it fit for writing purposes, as the pulp naturally contains a large proportion of that necessary ingredient, which can at the same time be easily eliminated if desirable.

"3. The bleaching is effected by an extraordinarily rapid and facile process, and, indeed, the common light colored packing paper the process becomes entirely unnecessary.

"4. The Indian Corn paper possesses greater strength and tenacity than rag paper, without the drawback of brittleness so conspicuous in the common straw products.

"5. No machinery being required in the manufacture of this paper for the purpose of tearing up of the raw material and reducing it to pulp, the expense, both in point of power and cost, is far less than is necessary for the production of rag paper.

"Count Lippe having put himself in communication with the Austrian Government, an Imperial manufactory for Indian Corn paper (*Maishalm papier*, as the inventor calls it) is now in course of construction at Pesth, the capital of the greatest Indian Corn growing country in Europe. Another manufactory is already in full operation in Switzerland; and preparations are being made on the coast of the Mediterranean for the production and exportation on a large scale of the pulp of this material."

Advertised Cattle Foods.

The following is taken from a very instructive and interesting little book, entitled *Scientific Farming Made Easy*, by T. C. FLETCHER, just published by Routledge. It is the ordinary formula

for making a ton of the most extensively advertised of these foods, one or two of which have been exported to Canada, and are puffed up for sale here. Few indeed of our farmers, we should think, are likely to be deeply bitten.

		Wholesale cjsr price.	
		£	s. d.
Carob (locust) bean, finely ground....	at 6l. per ton	6 0 0	1 16 0
Indian Corn.....	at 7l. "	9 0 0	3 3 0
Linseed cake.....	at 10l. "	3 0 0	1 10 0
Powdered Tumeric..	at 6d per lb.	0 0 40	1 0 0
Sulphur.....	at 1½d. "	6 0 40	0 5 0
Siltpetre.....	at 1½d. "	0 0 20	0 7 6
Liquorice.....	at 10d. "	0 0 27	1 2 6
Ginger.....	at 6d. "	0 0 3	1 6 0
Aniseed.....	at 6d. "	0 0 4	0 2 8
Coriander.....	at 8d. "	0 0 10	0 0 8
Gentian.....	at 7d. "	0 0 10	0 5 10
Cream Tartar.....	at 1s. 3d "	0 0 2	0 2 6
Carbonate of Soda... at 4d. "		0 0 6	0 2 0
Levigated Antimony. at 6d. "		0 0 6	0 3 0
Common Salt..... at ½d. "		0 0 30	0 0 8
Peruvian Bark..... at 3s. "		0 0 4	0 12 0
Penugreek (trefoil).. at 7d. "		0 0 22	0 12 10
Total.....		20 0 0	11 13 8

The above articles are put down at the ordinary wholesale market price, but if purchased in large quantities, might be got much cheaper. The use of the best linseed cake is also assumed, when it is by no means improbable an inferior description is often used. However, be this as it may, a profit of 200 per cent. ought to afford the use of none but the best articles. Independently of the slight colouring with tumeric and flavouring with liquorice, coriander, aniseed, &c., and the medical compounds as before set forth, the main bulk of these manufactured foods is composed of the carob bean, Indian corn, and linseed cake. These form nine-tenths of its substance; and it is worthy of note, that of these, by far the most valuable, in point of both price and feeding quality, is linseed cake, and this is used in the smallest proportion. If, however, the farmer chooses to pay three or four times as much as the intrinsic value of an article, it is, of course, at his option to do so; but, inasmuch as the main object of farming is a remunerative profit, it passes my comprehension to understand how that object can be gained by feeding animals on substances that cost from £40 to £50 per ton.

The above ingredients, throwing aside all the medical and flavouring compounds, give, upon analysis, the following results:—

Water.....	13-01
* Nitrogenous (or flesh-forming substances)	14-97
Fatty matter.....	5-78
Starch, sugar, &c.....	54-40
Indigestible woody fibre.....	6-25
Mineral matter, ash.....	5-59

100-00

* Equal to nitrogen..... 2-36

Such a mixture as the one represented by the foregoing analysis could be made by a mixture

of barley meal, beans, and oil cake at less than one fourth of the price charged for the before-mentioned cattle food. As to the stimulating properties contained in these foods, I am inclined to think their constant use is very questionable, and very likely to be productive of harm.

Practical Expense and Results of Tile Draining in Canada.

COMMUNICATED BY HENRY J. BOLLTON, OF HUMBURFORD.

EDITORS AGRICULTURIST,—The report condensed for the columns of your publication of the 16th January, from an address by Mr. Dunlop, of East Zorra, evinces an active interest in that locality in a subject which deserves a general and constant attention, far beyond that which our farmers have as yet bestowed upon it. Why is it that of the many settlers among us, who in the old countries have experienced, or at least witnessed, the immense benefits derived from the underdraining of farm lands, so few come forward here to apply the practice on their own account, publicly to recommend it to their neighbours, and strenuously to aid and assist in procuring the adoption of such legislative measures as would remove the physical difficulties which impede it through want of general arterial open drainage, and would facilitate the introduction and distribution of capital, without which few, if any, of our agriculturists, can proceed in the work upon any large scale. It is now some two or three years since the matter was first submitted to public discussion, and though some progress has been made, still the steps in advance have been very slow and halting. Very few have dared the experiment, and these have failed to give publicity to their success. As it is only by the example of tangible results that a practical science, such as agriculture, can be improved or taught, all those engaged in this pursuit should not fail to make known such facts, occurring within their own experience, as may establish the benefit and practicability of any improvement sought to be introduced.

As in your paper all subjects of this nature receive careful and useful attention, no farmer in the country should be without a copy, and all should endeavour, by their own contributions, both in the way of statement of facts, and of explaining the rationale of different appliances of cultivation found to be beneficial.

As to the utility of thorough drainage of land, nothing would bring it home more forcibly to the minds of the farming community than a constant report being sent in by individuals, and published by you, of the extent, be it ever so small, to which it has been applied, and the practical results which have been observed to flow from it, not forgetting the actual expense

of the work. I would therefore call upon every farmer to furnish a statement of this kind, whether it be for publication or to enable the Editors of the *Agriculturist* to report from time to time the actual progress made in this most important work. As more is done and more is known, the examples previously given will be oftener and more confidently followed. To this end I wish to submit a statement of my own operations:

My first performance in this line was in the autumn of 1849, in the first wheat field which ever sowed, when I laid about 90 rods of drains in about 10 acres of land, though the lowest parts of the field with chestnut staves placed in the form of an inverted V upon a pine slab, this Δ . These drains, at an average depth of 30 inches, cost me 20 cents per rod, material and all, and are yet in very good order, though the land lay so low that I was obliged to draw the water up from the outlet all the way along the bottom of the digging, and the river into which they discharge is generally above the mouth of the drain, which is only kept clear by the force of the water in the soil above compelling it to boil out.

This was the first effort of a book farmer, and although the seed was sown upon an old worn out field, at an expense in pulling stumps, manuring, liming and draining, which would have frightened many an older hand, the crop repaid the outlay with a good return of increase, fully one-third of the crop having been saved by the drains. I wish all my farming operations had been continued as I began; but after this I followed in the track which so many have pursued before and since, of planting many acres of grain in an insufficient manner, and in many cases barely receiving back my seed. The farm which I worked upon was certainly in bad order; a well seeded grass fields; no good fences; plenty of stumps, and no buildings. However, after gaining a little experience, and getting about 120 acres into pretty fair order, I rented out the farm, and in 1854 removed to another worse, where I now reside. Here while diversifying my employments by dabbling for three or four years in mill-dams, saw-mills and grist-mills, thus extending my general information, but adding to the numerous body of those who having too many irons in the fire suffer accordingly, I again went through the ordeal of fencing, building, stump pulling and seeding, and again about 1856 began a few experiments in underdraining. At first I had recourse to my old acquaintance, the slab drain; then I made a bold move and bought one or two loads of horse shoe tiles, then a few pipes, laying in this way in small quantities on detached spots some four or five thousand tiles, or between two and three hundred rods. The labour of these alone cost me about 25 cents per rod, neither my men nor myself understanding the proper way to proceed. In 1858 I visited England, and having had opportunities of examining into these matters, I returned with some

and information on the subject. During the following winter about one hundred rods of trunk drains and secondary main drains of six inch and ten inch square wooden boxes, were laid in a camp of about eight acres, the soil of which is pure peat. These drains were subsequently to receive the water flowing from lands embracing with the swamp through which they pass, about twenty-five acres. This water is thus collected into one box drain, six inches square, which will probably have to be replaced some day with tile pipes. During the winter I purchased and drew home 40,000 2 inch and 1 1/2 inch pipes, and 4000 3 inch. The two former at \$1.50 per M., the latter at \$12.50. Now I was ready to commence operations with some effect, and I have little doubt that any farmer who once commences draining will never rest satisfied till every acre under his control which requires it has been so treated. The frost had not entirely disappeared in the spring of 1859, when I broke ground in a five acre piece of sandy bog lying below my barn on a slope of land resting upon a clay bottom, which almost cut off all communication with the portion of my farm beyond. This was an excellent schooling ground, and I came out of this field at the end of about three weeks work, a pretty accomplished drainer, for a more difficult piece of ground could hardly be imagined. After many failures however, and reverses, the things were caught and led captive down to the main drain, whence they are allowed to escape over the brow of a hill as pure and as musical silver bells. After a late crop of peas, this season, with the remainder of the field, a light sandy soil, in all ten acres, was rather roughly sown with fall wheat, and this year gave twenty bushels per acre, the bulk of the crop coming from the drained ground. The total cost, including tiles, of laying 250 rods of drains having a cost of \$187, or 75 cents per rod. This was certainly a great expense, but it was owing in a great measure to the work having been done so early in the spring when the land was full of water, and the earth therefore constantly fell in before the pipes were laid, and after getting through the clay to the lighter soil higher up the slope, which was a regular quick sand, the pipes were repeatedly filled up and had to be removed and relaid until at last I drew off the main drain of water by running a brush drain under the slope, and then ran my pipe up the slope to the brush drain. The pipe was ultimately choked with the quick sand, and the water now runs down the pipes, and the field is now laid perfectly dry where formerly one could hardly flounder through. In land of this description I found, after numerous misadventures, that the only way of securing the drain was by laying a narrow slat or board at the bottom on which to rest the pipes, which should be immediately covered with fresh clay as in any portion of the trench was opened. I could now do the same work for \$100, or 40

cents per rod, as the labour, from want of experience on the part both of myself and my men, cost twice as much as it ought to have done, and a great deal of it had to be done twice. The tiles can also be now had for 25 per cent. less than I then paid.

My next experience was upon 7 1/2 acres of clay, lying on a hard grey limestone clay subsoil. In this I laid 646 rods of drains—main drain at 20 cents per rod; branch at 17c., in all \$108.70; sundries, as carting tiles or laying do., and seven days extra work, \$44.85; 150 4 inch tiles, \$3.75; 5,000 2 inch, \$40; 5,000 1 1/2 inch \$35; 1,000 3 inch, \$12.50, in all \$244.80. By this expenditure upon an old clay field, which by constant cropping had fallen into the hardened baked condition usual after a series of years with such soils, I was enabled to raise without manure 3,664 bushels of mangel wurzel and carrots, the cultivation and harvesting of which cost \$5.25 per hundred bushels.

During the remainder of the spring I laid about 573 rods more in different parts of my farm, at an expense of all labour and materials, except tiles, of \$116.64. In December, 1859, I commenced upon another clay field, which had been ploughed into 33 feet lands for the purpose during the previous autumn, and by the 8th February, 1860, the men had laid 498 rods at a cost of \$84.86. Since this I have laid a few more on my own farm, and my account for drainage on my own land stands thus:

44,000 tiles.....	\$372.00
Teaming and distributing tiles at \$2 per M.....	88.00
5,000 feet lumber for box drains at \$8.....	40.00
Sundry expenses, carting clay, laying tiles, and strips or slats for bottom.....	84.66
530 rods digging and filling p. day.....	255.06
1923 " " per rod.....	311.80
<hr/>	
2433 rods, nearly 7 1/2 miles.....	\$1151.52

These drains average full four feet deep. A portion of one outfall was fifteen feet deep, of another eleven, of two others eight. All of these heavy diggings were done by days work, as well as all my first schooling operations, and this of course will account for the enormous difference between the expenses of the day work and of the piece work. In doing the latter, through greater skill on their own part and the work being better laid out and directed by myself, the men made better wages than when working by the day, in some cases as high as \$1.12 per day—the average being about 87 cents.

In addition to the above I have superintended the laying of 30,000 tiles elsewhere; 25,000 of which were laid in a field in Mrs. Forlong's property at Gore Vale, immediately in rear of Trinity College, Queen Street, Toronto, between

2nd March and 17th April. This work was all done by the piece, except carting and laying the tiles, and as I consider it a thorough specimen of the manner in which such work may be done economically to the land owner, and affording a full remuneration to the labourer, I subjoin a more particular account. The field lies very advantageously for draining, having plenty of slope and, except in one or two places, no veins of sand were found to impede the work. Nearly the whole of the land was of a very stiff clay, the upper portion of it especially, nearly eighteen inches of the bottom having occasionally to be removed with a pick axe, so that I allowed the men to run the upper third of some of the hardest of the drains only from 12 to 15 inches deep, the remainder of the branch drains being four feet, and the main drains 1 feet 6 in., and 5 feet deep. The land drained consisted of 15 acres, embracing a garden and orchard $1\frac{1}{2}$ acres, and a field containing $12\frac{3}{4}$ acres, which had been ploughed into nine pace lands the previous autumn. This was rather closer than necessary perhaps, but no disadvantage. The work was commenced on the 2nd of March, the ground being quite solid with frost every where except in the open furrow. These were broken into without much difficulty and the tiles laid therein.

The total cost was as follows :

1279 rods digging and filling at	
10d. cy.....	\$213.17
141 " " at 1s. 0d.	28.20
12 $\frac{3}{4}$ " " at 1s. 3d.	3.18
5200 $1\frac{1}{2}$ inch tiles at \$6.00.....	31.20
17780 2 " " 6.50.....	115.57
1920 3 " " 12.00.....	23.04
250 4 " " 20.00.....	5.00
330 5 " " 30.00.....	9.90
26 $\frac{3}{4}$ days labour laying tiles at 75c.	20.06
6 days extra work.....	4.20
Tools—wear and tear and repair..	12.25
Carting tiles from Yorkville, four miles, and distributing.....	48.30
<hr/>	
1433 rods, say $4\frac{1}{2}$ miles, at say	
\$114.12 per mile.....	\$511.07
\$34.27 for $95\frac{1}{2}$ rods per acre.	

About twenty different men were employed, and of these only three had done any work of the kind before, yet in doing 1163 rods at 10d.; 101 rods at 1s., and 13 rods at 1s. 3d., eight gangs of men earned by 303 days work, 59, 62, 67, 70, 77, 79, 84, and 37 cents per day respectively for each man in each gang. At the latter part of the work, several of the men earned a little over a dollar per day, averaging six rods per day.

This ground, with the rest of the farm, was rented on shares, and was planted with potatoes. The upper part of the field yielded at the rate of 210 bushels per acre, but the lower part, though naturally the richest land, from being

encumbered with some very heavy elm and other trees, did not yield nearly so well. The crop moreover, was carelessly cultivated, not having been worked amongst between the last harrowing, after the potatoes came through the ground, and their being earthed up with the plough, which too was done when they were in blossom. A very different yield would have been the result of proper attention between those periods. In the ease and satisfaction one experiences in the capability of thorough and deep cultivation of land, at all times after draining, that makes the treatment especially profitable, particularly in the case of clay land, which thus becomes not only dry but thoroughly aerated, whereby, as it were, decomposed through the action of the atmosphere admitted into it, the soil being so at all times and seasons in a mild, friable condition, well fitted for the germination and growth of any seed or plant, be it naturally ever so tender and delicate when young or at any other period.

As to the results of drainage on my own land I have been disappointed in one particular, which I will remark upon presently, but in every other respect however, it has been eminently successful. I have been enabled to commence work upon my land of all qualities and in all situations high and low, clay and sand together, the moment the frost left the ground, in fact one day I harrowed before the frost was entirely melted. Upon all I have set my ploughs and other implements to work whenever it was not absolutely raining, whether it was upon clay or sand, high or hollows. This alone will be recognized as an immense advantage. No water is ever seen the surface of any of my land, though I do not limit the width of my furrows generally to two paces, for the convenience of turning on the headland, and in no case do I draw a water furrow across the field or open any between the furrows after seeding. I have also grown large crops of swedes, mangolds and carrots on clay lands formerly so stiff that potatoes could hardly be raised through the crust, and on low parts of such fields where formerly Indian Corn seed would rot in the month of June, and turnips would not attain but a sickly growth though sown near the water, and water weeds of the most noxious description would choke out the stronger grain crops, I have grown very large swedes, and spring wheat of straw $4\frac{1}{2}$ feet high, of the clearest and brightest yellow hue and of almost flinty hardness, each particle being laid though of such vigorous growth. Of the results upon the growth of wheat I have spoken above. This was grown upon land which to the present day has not been ploughed but twice—once for the purpose of draining, and once after harvest, preparatory to sowing the fall wheat seed; and though a portion of the field was of a sandy, mucous description, and the straw was six feet high, &c.

square was laid or any portion of it struck by rust. The yield of the drained ground was about at least 25 bushels per acre—the remainder of the field being a light, dry, rather sandy, and thickly studded with heavy pine trees—yet the average of ten acres was twenty bushels. I will now dwell upon my disappointment: I did think that by this means the midge would be successfully met, but I have found that in the case of spring wheat the evil was rather aggravated. Depending upon drainage as a thorough cure, I paid no attention to the times of sowing, but sowed last spring 48 acres of spring wheat, golden drop and other varieties, between the 31st March and 18th April. This, though the straw was enormous, was entirely destroyed by the midge, which was in full strength at the moment the blossom was formed. Every pollen of the grain was devoured by the insect, which numbered about three hundred to each head. What grain matured was of very inferior description, and averaged only six bushels per acre. Another field of seven acres sown during the previous winter, gave sixteen bushels per acre, sown on 8th May, from grain grown at Quebec, from grain imported from Canada in 1859 by M. Renaud. Six bushels of the same seed sown on undrained ground on 18th May, was so affected by rust that it gave no return at all. I also sowed 25 bushels of t. s. s. wheat, sown on sandy soil about 15th May, and some on clay, on the 26th, neither being drained, but the yield was 9 bushels and 12 respectively. You can easily imagine that I do not intend to sow any spring wheat except as a mere matter of experiment. Last year my fall wheat came into between the 1st and 5th of June, and the spring wheat about the 17th. What I now rely on, by underdraining to give an early growth to all wheat, so as to enable it to blossom at an early time before the midge appears, to place it beyond danger, and if drainage effects this advantage, I think my labour in this direction will not have been thrown away. I have 80 acres of fall wheat sown, and of these 20 are on a thoroughly drained ground, with this disadvantage however, that they were under spring wheat last year, part of the worst affected by the midge. This however was the only drained land available for the trial, to make which I did not resist the temptation to follow this exclusively unphilosophical course. I await the result of this year's harvest with great impatience. Last season I can not regard as a favourable one for comparing the condition of drained with undrained land, for the departure of the frost was followed by any of those heavy rains which so commonly drench our clay soils, which then go only by evaporation and the effects of our summer's sun, become almost as solid as ice in the icy bonds of winter. Instead of this frost and snow gradually and gently disappearing without rain, and none fell afterwards

beyond what was much needed, the general temperature at the same time being moderate. The flow of water from my main drains was not remarkably heavy even in the spring, and they all gradually dried up except one; neither did they run again during the remainder of the summer, and only commenced, about six weeks ago, a light discharge, which has been gradually increasing. From these causes the soil generally retained throughout the season that finely pulverised condition which results from the effects of our winter frost. To bring about permanently this state of things, thus produced exceptionally last season, is the special attribute of underdraining.

I trust that the minuteness of detail in which I have indulged may not be considered unnecessary, or deficient in interest to some of your readers, and that others who may have been disposed to cavil at the recommendations and doubt the practicability of the adoption of this apparently expensive but necessary improvement in our farming, may be brought to see that the opinions advanced on this subject are not the vain fancies of a chimerical theorist, but the sound convictions of a practical working man.

Humberford, Feb. 23rd, 1861.

Mowing and Reaping Machines.

For the Agriculturist.

Amongst the many useful implements and machines invented for the saving of manual labour in agricultural operations, there are few more useful than reaping and mowing machines, as they assist the farmer at the busiest season of the year, and in the most laborious operations of the farm; though they have now attained such a degree of perfection as to bring them into general use on lands prepared for their reception, yet, like many useful inventions, they had to pass through many years of neglect. As the utility of well constructed reaping machines to the interest of the farmer can hardly be overrated, we propose in this communication to notice briefly some of the earlier attempts at reaping by machinery, both in Britain and America.

During the long wars in which Britain and the other European nations were engaged during the early years of the present century, the country became drained of men, a scarcity of agricultural labourers began to be felt, and a desire for some other method of harvesting than the reaping hook, which, up to this period, had been the only implement used for that purpose, began to be expressed.

The earliest reaping machine that we have seen noticed was one brought out in 1812 by the late Mr. Smith, of Deanston, to whom agriculture owes so much. This machine was brought out to compete for a premium of £500, offered by the Dalkcith Farmers' Club "for an

effective reaping machine," and though not successful, after several trials, Mr. Smith received from the club a piece of plate of the value of fifty guineas, besides silver cups, and a gold medal from Russia. This machine appeared at intervals with different modifications until the year 1835, when it worked very successfully at the meeting of the Highland Agricultural Society at Ayr. At that trial it consisted of a revolving cutter, $5\frac{1}{2}$ feet diameter, composed of thin steel segments bolted to an iron ring, and the gathering of the cut grain was effected by two rakes placed on an upright cylinder, just above the cutter, which brought it off in a regular swath. It was used with two horses, working behind the machine, and cut a space $5\frac{1}{2}$ feet wide. In 1815 a Mr. Scott, of Ormeston, made a reaping machine somewhat similar to Mr. Smith's, but it received no encouragement, and shared the same fate as its predecessor. In 1820 or 1821, a Mr. Maun, of Raby, in Cumberland, invented a machine on a similar revolving principle, but the cutter was twelve-sided, instead of circular, and was used with a skeleton cylinder over it with rakes; but revolving independently, containing twenty-five rakes each having ten teeth of six inches long. A fixed comb was placed so that its teeth alternated with those of the rakes, and as the revolving cylinder turned once for seven times of the cutter, this fixed comb took the straw from the rakes at a certain part of the machine and deposited it in a swath. Unlike other inventors who had used the same form of cutter, he placed the horses before the machine, and they walked by the side of the standing grain, as with the machines at present in use. One horse in this machine cut down a breadth of three feet, and might average about seven acres a day.

In 1822 a Mr. Ogle, of Remington, near Alwick, invented a reaping machine which worked upon wheat and barley, but as it received no encouragement, only one was made. A description and drawing of it were published in 1826 in the fifth volume of the *Mechanics' Magazine*, and it is rather a remarkable circumstance that it answers in almost every particular to McCormick's machine that was invented ten years later and at the distance of 5,000 miles. In 1826 the Rev. Patrick Bell, Minister of Carmylie, in Forfarshire, invented a machine which has been used on his brother's farm ever since 1828, and which, in several trials, has proved fully equal to the American ones. It is pushed by two horses from behind, and its principles of action consist of a fixed bar of iron in front, to which are attached thirteen fixed shear blades, and twelve moveable ones are attached by a joint belt, and prolonged backwards in a tail-piece, till each rests in the revibrating bar between two pegs, which serve as a secure but simple loose joint; the cutting blades are fourteen inches long, sharp on both edges, and as the hind bar vibrates backwards and forwards, the

edges clip together like scissors. There are revolving vanes in front to catch hold, and retain the grain against the onward pressure of the cutter, but chiefly to assist in laying the grain on the endless web. The web conveys the cut grain to right or left, and delivers it upon the ground in a regular swath. The manner in which the driving wheel causes the endless web and the vanes to revolve, and the knives to vibrate, all at different speed, though simple, could only be understood from a plate. The machine cuts down a width of six feet, and as it is wrought from behind, can cut the grain in any direction without any previous opening being made for it. Professor Wilson in his speech at the Provincial Exhibition at Hamilton in 1853 states that "in 1835 five of these machines were made at Dundee, Scotland, and brought over to this country, and that some time afterwards Hussey's was brought out—the same as Bell's, with some few alterations. Though neither Smith's nor Bell's machines were generally used, we find them both advertised in Drummond & Sons, of Stirling, lists of agricultural implements. We copy the following notices from these lists, published in the appendix of Jackson's *Treatise on Agriculture* in 1840: "Smith's reaping machine acts with revolving cutters; propelled by two horses; cut down eight to ten acres per day, price £37. From the simplicity of the construction of the machine, and the excellence of its work, under ordinary favourable circumstances, it is likely to come into general use so soon as better cultivation shall banish the raised ridges, and uneven surface, which still so frequently occur." "Bell's reaping machine—cast iron frame; acts on the clipping principle; cuts down from eight to ten acres per day; propelled by two horses. £45—has been a good deal employed in the Fife and Dundee districts, where it is much approved and found very profitable."

Thus though several reaping machines were invented they were not brought into general use. Various causes may be assigned for this. The prejudice of farmers themselves, who have always been slow to adopt and encourage new methods of harvesting may be given as one.* The land too was at the

* To show how slow farmers are to adopt improvements in implements, we copy the following note by W. Chambers, Edinburgh, from Jackson's *Treatise on Agriculture*:

"I lately visited an arable farm of 150 acres in Surrey, on which, as usual in that part of England, there was neither a threshing machine nor fanners, the threshing being done by flail, and the winnowing by throwing the grain from sieves against the wind, which blew through the barn. The farmer never heard there being such an instrument as fanners, and would not credit the possibility of threshing with water or horse power. This was within ten miles of London in 1840."

riod mostly undrained, and, as the climate is very moist, deep furrows had to be made on each of the land to carry off the water—these rendering the effective working of machines difficult or impossible. Grain too, in general, is much softer in the straw in Britain than in this country, which makes it much worse to cut with machinery—but probably the chief reason of the little encouragement inventors met with, was at shortly after the close of the war in 1815, labourers became so plenty, and labour could be had at so cheap a rate, that there would have been a little or no profit in using a machine, over and labour. The state of society is very different from ours—there both men and women labour in the harvest field, and not only agricultural labourers but many tradesmen—there are men and apprentices, in the country, and villages, turn out to the labours of the harvest-field. And further, those who recollect how many threshing machines were destroyed by rural labourers on their first introduction into some parts of England, can have no doubt that reaping machines, had they been introduced at that period, would have shared the same fate.

We shall now notice some of the earlier mowing and reaping machines tried in America. In this country the case was entirely different from Britain. Such has been the condition of the people in this country—that in many parts of it manual labour has been found inadequate to the task of harvesting grain and grass in proper time and manner, while in all sections the cost of manual labour, where to be had, has often been found too expensive for profitable farming. We have seen a notice of a reaping machine that was invented by a Jeremiah Bradley, of Chester County, in 1821. It is stated that this machine answered the purpose tolerably well, and was used to some extent.

In looking over a file of the *Albany Cultivator* (from which excellent paper most of the following notices are taken,) the first notice we find is in the August number for 1835, where it is stated that “two implements have lately been invented; one we believe in Columbia, the other Montgomery County, for cutting grass by horse-power; we have seen the latter, but as we did not witness its operation, we are not prepared to speak of its merits.” In the April number for 1836 there is an engraving and description of Ambler’s mowing machine, in which it is stated that the grass is cut by a scythe extending along above the teeth or comb, $6\frac{1}{2}$ feet long, with an alternate movement to right and left when the machine is in motion—it cuts five feet wide, and about an inch and a half above the surface of the ground,—the grass is left upright where it grew, which facilitates its drying, and saves the labour of spreading,—it is furnished with three spare scythes, and can be fixed at pleasure in three minutes; it is stated that about 100 acres of grass were cut

with the model machine in 1835, in Columbia County, at the rate of an acre in two hours. The machine was drawn by two horses, which travel on the mown grass. The editor states that he had not seen the machine, but that gentlemen, in whose opinion he reposed confidence, assured him that the machine was a valuable acquisition to our husbandry. It was further stated in the May number for 1837, that this machine would cut from fifteen to twenty acres of grass per day—that it might be used in lodged grain with advantage—that it required but one person to tend it—that it weighed about 500 lbs.—that it was not more liable to get out of repair than a common horse-power—and that it would operate better on stony or uneven ground than the revolving horse-rake, and would cost \$130. In the September number of the *Cultivator* for the same year is a cut and description of “Wilson’s reaping and mowing machine,” invented by Captain Alex. M. Wilson, Rhinebeck. It is noticed thus: “this machine consists of a carriage on two wheels, propelled by one or two horses or oxen travelling in the rear and pushing it forward. In front, at the bottom, is a horizontal wheel upon an upright shaft; which shaft and wheel receive a rotating motion, communicated by gear from the main axle which revolves with the wheels as the machine moves forward; the diameter of this horizontal wheel, with the addition of the knives projecting from its edge, measures the width of the swath, which is cut with the knives, as the wheel goes forward, rotating rapidly, and lying close on the ground. The apparatus that sustains the cutting wheel is so constructed as to accommodate its height to any inequality of the ground, and to give it any inclination required. The knives are sharpened by their own operation, without stopping the machine. There is also attached to the upper side of the cutting wheel, a rim which gathers the grass as it is cut, and lays it in a swath more regularly than can be done with a scythe. The editor states that he had seen the machine in operation, and that he thought it well adapted to economize labour on large smooth meadows. In the September number for 1837, there is a certificate signed by eight names, (J. Buel, publisher of the *Cultivator*, being one of them) stating that he had witnessed the operation of this machine, propelled by one horse, on a brisk walk, through a thick meadow of timothy and red-top, somewhat tangled—that it cut a swath from $2\frac{1}{2}$ to 3 feet broad in handsome style—that they were of opinion that with a double team, the machine would operate well on smooth bottoms free from stones, and would effect a great saving in manual labour.

The next machine noticed is Hussey’s, now well known, which is thus noticed by a Maryland correspondent in the August number for 1839; “I know not whether the news may not

have already reached you, of a new mowing machine, invented by Mr. Hussey, which adapts itself to all surfaces, up hill and down, not encumbered with stones and stumps, and doing its work better than can be done by hand, to the amount in a day of what four cradles would accomplish." It is further stated that a Mr. Carroll had one or more of them at use on a large farm,—that his moving power was a pair of strong horses, but that the writer thought that before the thing was brought to perfection "we must employ the electro magnetic impulse that your last Legislature thought no humbug."

In the March number for 1840 there is a notice of Carpenter's (of wheat lands) harvesting machine, which seems to have been intended for cutting and threshing at one operation—to have cost \$600. It is stated "that the great saving in grain and labour, is in finishing the work without laying the grain on the ground—that it may be gauged to cut as high as the grain will admit—that the nine feet swathe streams from the cradles to the thresher so evenly that no more was required to finish 15 or 20 acres a day than was necessary to drive a common thresher—that it would save three-fourths of the expense of cutting, gathering, and threshing grain—that it was not difficult or expensive to keep in order." (This machine is, we believe, figured in the *Genesee Farmer* for October, 1839.)

In the June number for 1840, there is a notice from Sylvania, Ohio, of Vanfassen's patent grain cutter—for hand or horse power—the hand power to cut the grain and lay it in a swath—the horse machine also makes it ready for binding,—that with the hand machine a man would accomplish with ease as much in a given time as two or three could do in the ordinary way,—that the amount of work with the horse machine would be proportionably as the propelling force—that almost any boy that could manage a horse could work it—that it was so plain and simple—its cost would be comparatively trifling, and would be no obstacle to its general use wherever they raise large crops of grain.

In the May number for 1841, there is a cut of Hussey's, with a description, and some recommendations. Though it is evidently much altered, still it bears a general resemblance to those of his which are still in use, which are too well known to need any description here—it is there stated to have been in use several years.

In the *Cultivator* for December 1844, Mr. Hussey states, "that it was now ten years since he invented his machine, and that he had been constantly engaged in improving it."

The first notice we find in the *Cultivator* of McCormick's Reaping Machine, is an incidental one in the May No. of 1844, of a trial between his and Hussey's machine. Between the two inventors there seems to have been considerable rivalry. There is some discrepancy between the

dates given of the first invention of McCormick's Reaper. In June, 1845, there is a letter from Wm. H. Taylor, Cincinnati, noticing this machine,—when, after praising the use and performance of the "Virginia Reaper," he says, "Although invented and publicly exhibited in operation in the harvest of 1831 (two years before Hussey's machine was invented), as appears by a letter published by McCormick in the *Mechanic's Magazine* for May, 1834, he (McCormick) did not attempt to introduce it till 1840, since which time it had been rapidly making its way into public favour in Virginia. Then in a letter from McCormick himself, in Dec. 1832, on the then recent trial of machines at Geneva, N. Y., he states that he had been engaged on his machine since 1831. In May, 1846, there is an engraving of this machine, stated to have been patented in 1845. In January, 1845, there is a cut and description of "Esterly's Patent Harvesting Machine," which was propelled from behind by three horses, and was intended to cut only the heads from the wheat: the heads were received into a large box, which was taken to the barn and emptied. This machine claimed to cut 25 acres of wheat a day—to save from 1 to 3 bushels of grain per acre over the ordinary way, &c. &c. We believe that this machine was considerably used in the West, where it was invented.

Though machines for reaping and mowing were greatly more needed in this country than in Britain, their progress was not near so rapid as might have been anticipated. In looking over some of the proceedings of the N. Y. State Agricultural Society, we find no prizes offered for either Reapers or Mowers, up to 1847, that being the latest year that we have a list of the premiums offered by this Society. But though no prize was offered, this Society awarded a special prize of \$10 to Hussey in 1843, a diploma to Esterly's Harvester in 1844, and in 1845 they gave a gratuity of \$15 to Mr. Hussey, "as some compensation for the trouble taken to give the public an opportunity to examine this valuable Machine. The writer adds, "That he had never had the pleasure of seeing this implement in operation, but that farmers who were in the habit of using them, spoke of them in the very highest terms as a great saving of grain and labour over any other mode of harvesting." In 1846, though still no premium was offered, both Hussey's and McCormick's seem to have been exhibited; they are thus briefly noticed: "The Reaping Machines of Hussey and McCormick, both of which excited great interest, and a special prize of \$15 was awarded McCormick;—the same amount we see was given to a *Refrigerator and Show Bath*. At the Show of 1847 a diploma was awarded to Hussey, Hornster, and Ketchum's Mower, which appears to have been then shown for the first time. It is stated that "it was somewhat similar to the 'Hornster,' but is calculated

ran closer to the ground, and does not require so much force." In 1848 a certificate was given again to Hussey and Ketchum, which seem to have been the only ones shown. In some remarks on the Implements at the show, it is said, "The trials which have been made with various machines for cutting grain, has, we think, demonstrated the practicability of their success," and it is confidently anticipated that they will be brought into extensive use on smooth lands in a few years. It is also said that Ketchum's Mower was tried, and made very good work—that it was simple and strong, and it is hoped will yet be made to answer the purpose effectually. At the Show of 1849 no mention is made of either Reaping or Mowing Machines. In 1850 there is no notice of a Reaper—a diploma is awarded to Ketchum's Mower. At the Show at Rochester in 1851, there were five Reapers and a Mower, and in 1852, when this Society's great trial at Geneva took place, there seems to have been 11 entries of Reapers and 7 of Mowers,—several, however, were entered in both classes. We need not pursue their history in this Society any further—but, we may notice, as a proof of how slow their introduction into general use was, that John Johnston, Geneva, well known as one of the most enterprising farmers of the State of New-York, does not appear to have used one before the harvest of 1848.—Reaping Machines came more rapidly into use on the Prairies of the Western States, than any where else. There the level fields and sparse population afforded full scope for their successful operation. So early as 1849, the *Prairie Farmer* calculated that there were at work in the West over three thousand reapers and Harvesters, doing the work of nearly seventeen thousand men.

We are not aware who had the honour of first introducing Reaping Machines into Canada,—the first we saw was brought into the neighbourhood of Cobourg, in the harvest of 1841, by J. Wade, Esq., the late President of the Provincial Agricultural Association. In the following season another was brought in by Messrs. McEyes,—both Hussey's. Since then they have been gradually working their way into public favour, and are now to be found in almost all parts of the country, where the land is adapted to their use.

In looking over the pages of the *British American Cultivator*, the first of our Canadian agricultural papers, it is not till near the close of the 4th volume that there is any notice of reaping machines,—then there is an engraving of Hussey's, which the Editor of the paper had seen at Utica. In the April No. of the paper of 1847, the editor states that he had been instrumental in introducing four Reaping Machines to the neighbourhood of Toronto during the harvest of 1846, and also that an ingenious person was building a number of Machines for him

on an improved plan. In the following No. there was an engraving of the Machine, which very much resembles McCormick's. At the first Provincial Exhibition, held at Toronto in 1846, a premium of \$30 was offered for the best Reaping Machine, but none appears to have been shown; we do not recollect of seeing any, and no premium is awarded in the Prize List. At the Show of 1847, first and second prizes were awarded to Mr. Bell, Toronto, for Reaping Machines, and one for a Mower to Mr. Murdock, Ancaster. At the third Show, at Cobourg, in 1848, a first and third prize were awarded to John Helm & Son, for a Reaping Machine, who are said "to have made some recent improvements on them." We believe these first machines were made on the plan of McCormick's, but that they soon abandoned it and built them on the plan of Hussey's. There does not appear to have been any Mower shown at this Show. At the Show of 1849, there was one prize awarded to a Canadian Reaping Machine, Mr. S. Chesnut, Pittsburg,—and at Niagara, in 1850, there appears to have been only one, awarded to J. W. Ball, Niagara.

We have thus brought up our notices to 1850; since then many new and valuable machines—candidates for public favour—of every shape and form,—Reapers, Mowers, Self-Rakers, combined Machines, of many various patterns, have made appearance, and are now manufactured in different sections of the Province.

In the construction of all machines, four objects are particularly desirable,—1st, strength or durability of material; 2nd, simplicity of arrangement of parts; 3rd, exactness in fitting one part to another; and 4th, easiness and correctness of motion." As it is a general and well-recognized principle in mechanics, that the fewer the parts are in a machine, and the more simple the construction the better, a good Reaping Machine should not only be made upon a proper principle, but it should be made as light as is consistent with durability; it should also have as few parts as possible, and these so placed as to be easily repaired or replaced in case they went wrong. W. R.

Cobourg, February 1861.

Broad Cast Sowing Machines, &c.

Messrs. Editors,—As this is a terribly stormy day—the worst we have had this winter—I cannot employ my time better than by applying to you for some information.

1st. Can you let me know if there are any broad cast Sowing Machines made in Canada for a moderate price?

2nd. What do you think of "Hildreth's" Gang Plough with seed-box? Will it answer well as a sowing machine for wheat, peas, and oats on a 30 acre farm? Is it made in Canada?

3rd. I shall want to grow some 4 acres of turnips, carrots, or mangold wurtzel,—what kind of *seed drill* do you recommend, and the maker? and while on the subject of Roots, can you advise me as to the best plan for a Root House for say 4 acres Roots?—my land is *level clay*.

I was thinking of trying the following rotation for 24 acres arable land,—6 acres permanent pasture. Do you think it will answer, the stock to consist of 2 farm horses, 2 milch cows, and 50 sheep; the rotation to be in three fields of 8 acres each, and a three course rotation?

1st year,—8 acres spring wheat.

2nd year,—4 acres peas, 2 acres winter rye, sown after the peas, for spring fodder; 4 acres oats, seeded to clover.

3rd year,—2 acres turnips, after rye; 1 acre carrots; 1 acre mangal wurzel; all the roots to be manured; 4 acres clover.

To grow no grass hay; the oats cut up in the sheaf for the horses, with some carrots or mangal in the winter; the mangal and clover hay for the 2 cows, and the turnips and pea straw and wheat straw for the sheep.

This would leave the wheat and peas, and some roots, with mutton and wool, to pay expenses. Do you think it would? Or do you think I deserve the signature of, Yours truly,

"A GREEN HAND."

London, C. W., Feb., 1861.

REMARKS.

1st. Lloyd's Broadcast Sowing Machine is manufactured in Canada, and the price, we believe, is \$10. We cannot speak as to its efficiency, not having seen it in operation. If our correspondent should desire some information about it, and will write us privately, we will endeavour to furnish him with such particulars as are obtainable.

2nd, We are not acquainted with Hildreth's Gang Plough; if any of our readers are, they will oblige by furnishing the information.

4th. There are several kinds of drills for sowing small seeds, manufactured in the States. Hallcock's single drill is a good one for small farmers,—price \$5. Larger kinds are made, up to \$10. Mr. Fleming, Seedsman, of this city, has them on sale. A Mr. James Greig was manufacturing drills a year or two since, and we presume he still is, in Pickering, Co. Ontario, C. W. A cut and description of this drill are given in the *Agriculturist* for 1859, page 80. We think the price was about \$8, and believe it was found to work well.

A Root-House should be made as near the barn and cattle-sheds as possible. The side of a ridge, or rising ground is an excellent situa-

tion for a barn, and a root-house can readily be excavated under it, taking particular care to obtain perfect drainage and ventilation. We will keep this subject in mind, and prepare an article on it before the season for securing roots arrives. In the mean time we shall be obliged for any information from those of our readers who have had practical experience in the matter. Roots in general can be well kept in pits, chiefly above the surface in the open ground, but it is often inconvenient in getting at them during severe weather in winter. Swede turnips will keep well in this way, not requiring to be very thickly covered, especially at the top, where ventilation should be admitted. A portion of the parsnip crop had better be left in the ground all winter, and will come out quite fresh in the spring. They should be dug up as soon as the frost in the ground will admit, or they will rapidly commence growing, to the great injury of the roots for feeding purposes.

With respect to the above rotation on 24 acres, we are of opinion that our correspondent would have quite enough to do to sustain the amount of live stock mentioned in his communication. Liberal manuring, and deep and clean culture, on a naturally fertile soil, will sometimes accomplish wonders; but we are doubtful of our correspondent's project, either in a practicable or economical point of view. With full success in raising the crops mentioned, it might be possible to get the stock through the winter, but we believe it would be difficult, if not impossible, to keep them during the summer. Pea straw, especially if it is cut in a rather green state, makes very good food for sheep, but they would pay very little attention to the wheat straw. Again, grass seeds do not generally take very well with oats, the latter having generally, at least upon good land, rather too rank a growth, and thus smothering the seeds. However, with perhaps a slightly different arrangement of the rotation, and attempting to keep a somewhat less quantity of stock than proposed, our correspondent, if he did not succeed in all his expectations, would at least gain some valuable experience, and would soon become entitled to class himself as 'An Old Hand'

Peru is coming into the world as a Cotton-grower. Fifteen hundred bales of her cotton have just been sent across the Isthmus, most of it to Europe.

Agricultural Intelligence.

Specimens of Canadian Grain in England.

We find the following notice in a late English paper, of specimens of Canadian grain collected, and sent home last Autumn by Mr. Widder, Commissioner of the Canada Company here:—

The Canada Company have lately forwarded to the Committee of Council for Education, for exhibition in the Food Museum at Kensington, samples of various cereal products which obtained prizes at the agricultural exhibitions held in the Province this (1860) year. The wheat is very fine in quality, and fully bears out the oft-repeated assertion, that the soil and climate of Canada are eminently adapted for the cultivation of that important staple. The whole collection is worth the attention of our Agriculturists, and especially of such parties as may contemplate making Canada their future home. The Canada Company are liberal contributors to the agricultural societies of the Province. These institutions which are numerous and well supported, have proved of the utmost benefit to the farming interests of Canada, by stimulating discussion and inquiry among the settlers, and promoting the introduction of improved methods of farming, whereby the industrial productions of the colony have been largely increased, to the manifest advantage of the settlers themselves. The Blue Stem Winter Wheat, which received the Canada Company's prize at the Provincial exhibition at Milton in 1850, was grown in Brantford, U. C., and weighs 66½ lbs to the bushel. The White Jules Winter Wheat which took the prize at the Provincial Exhibition was grown at Nelson, U. C. The Fall Wheat which took the Canada Company's prize at the Perth Agricultural Society's exhibition, was grown in Downie, U. C., and weighs 67 lbs per bushel.

Destruction of Sheep by Lynx.

Probably many of our readers will be surprised to learn that so formidable a wild animal as the Lynx is to be found in some of the comparatively settled townships of Upper Canada. We learn from the following account in the *Guelphvertiser*, that animals of this species have been destroying a considerable number of sheep, and poultry in that neighborhood:—

A LYNX HUNT.—On Monday morning last, early before day break, Mr Peter Fife, of Pusch, was aroused from his slumbers by the usual barking of his dog. Getting up to ascertain the cause, his attention was drawn to a sheep-house, situated only a short distance from the dwelling. On entering this he found a number of his valuable ewes lying dead, besides a number of hens. On examining the sheep it was found that their throats had been cut, although the incision was so small as to be scarcely discernible, unless closely examined. Unable to

account for so peculiar a destruction of his sheep, he repaired to Mr Kenneth McKenzie's, who gave it as his opinion that it was the work of a Lynx. After daylight they examined and found the tracks of two Lynx, leading to McKenzie's swamp. Having ascertained that the animals had not left the swamp, they gave notice to their neighbors, and in a short time, although the rain was coming down in torrents, and the snow very deep and difficult to travel through, about twenty young men were assembled, with dogs and guns, and were soon on the track. They had not proceeded far in the swamp when up started one of the Lynx; several shots were fired at him, and he "squatted," wounded, in the snow, so that he could not be found, the dogs not caring to venture very near them. The other took a tree, when a couple of shots brought him down.

Although severely wounded, he beat off all the dogs and was disposed of afterwards with pitchforks. The other could not be found, although traces of blood were discovered where he had been shot. The captured one was raised on the point of a pole and carried off to Mr Ingram's Inn, Brock Road, where refreshments were partaken of after the morning's exertions. The captured animal measured three feet five inches in length, and two feet in height. The Township Council happening that day to be in session, resolved to offer a bounty for all such animals captured in the township, if no bounty is given by the county.

There have been fifteen sheep killed in this neighborhood during the winter and fall by these pests of animals, besides a great number of turkeys, geese, and other fowls. Mr. John McKenzie, 7th con., had nine valuable ewes destroyed by them last fall, and Mr. Hugh Reid, 8th con., three. It is high time to adopt some means to exterminate these destructive brutes, as it is believed they are getting very numerous throughout the country.

There were a dozen of sheep in the place, and it is believed they all would have been destroyed, but finding the hens easier prey, they abandoned the sheep and glutted themselves on the poultry.

Farming in New-Brunswick.

(From the Country Gentleman.)

The President and Directors of the Mechanics' Institute in the city of St. Johns, a short time since, proposed two prizes of fifteen and ten guineas, respectively, for the best Essays upon the subject—"New-Brunswick as a Home for Emigrants—with the best means of promoting immigration and developing the resources of the Province."

This drew out a number of Essays upon this, to us, interesting subject. They were subsequently published at the expense of the Government, and from one of them I send you the following account of the products of two of our New-Brunswick farms.

One feature, perhaps, you will be somewhat surprised at, viz., the quantity of turnips raised. In British husbandry, as you are aware, this esculent is an essential. But even in our climate, with a long cold winter, we have many farmers, principally however, natives of Great Britain, who raise annually from 1000 to 5000 bushels of turnips, which are used for feeding cattle intended for beef.

The farms are severally owned by Messrs. Ferguson, Rankin & Co., Bathurst, and Francis Ferguson, Esq., St. Johns.

First—Village farm contains 334 acres cleared land, well fenced, and without a stump, besides about 50 acres pasture land, partially cleared, but not fit for the plow. The bulk of the land has been reclaimed from the wilderness within the last fourteen years. The quantity under crop in 1859, was 136 acres, from which were

160 tons of hay.

300 bushels wheat—weight 61 lbs.

1,400 " oats. " 38 "

50 " barley " 48 "

3,500 " turnips "

2,100 " potatoes.

240 " carrots.

75 " man, gold wortzel.

17 pigs were killed, weighing 5,710 lbs.

8 head of cattle killed. " 4,710 lbs.

Besides 25 which were purchased from and fattened on the farm.

Stock on the farm Jan. 1860.

12 horses old and young | 46 head horned cattle,
27 sheep, | 13 pigs.

Ninety acres of land now plowed, ready for crop next season, 30 of which were stumped last year and plowed in October.

Second, or Somerset Vale Farm.—Containing 200 acres cleared land, well fenced and without a stump, besides a quantity partially cleared, and capable of pasturing at least 50 head of cattle. A portion of the above has been long under cultivation, but it is only within the last few years that an attempt has been made at systematic farming. Previous to that very little stock was kept on it, and the greater part of the crop was removed and consumed elsewhere.

Quantity of land under crop in 1859, was about 130 acres, from which were raised

150 tons of hay,

80 bushels wheat—weight 62½ lbs. per bush.

About 2,000 " oats " 39 "

3,000 " turnips,

750 " potatoes,

74 " carrots.

The stock on the farm January, 1860, consisted of

7 horses old and young, | 26 sheep,

41 head horned cattle, | 5 pigs.

72 acres plowed last fall for crops next spring.

J. D. M. KEATOR.

Hammond River, N. B., Dec. 10, 1860.

The Melbourne Prize Wheat and Barley.

The governor of Victoria has lately sent to the governor of this colony samples of the prize wheat and barley shown at Melbourne in April last, the former of which is said to have beaten the Adelaide prize wheat of February. These samples Sir Richard MacDonnell has kindly transferred to the South Australian Agricultural and Horticultural Society; and we need hardly say that they have excited considerable interest among our farmers, who, of course, are very anxious to see what grain their neighbors are growing, and to ascertain precisely how far the superiority of South Australian produce is real or imaginary.

The wheat sent from Melbourne is undoubtedly a very fine sample—the grain is small, regular, and beautiful in appearance. Its weight is 67 lbs. 2 oz. to the bushel, the weight of the prize wheat at the last Adelaide show having been 67 lbs. 8½ oz. to the bushel; but we are compelled to say that it is not perfect as a millers' wheat, being rather flinty. With regard to the weight per bushel, it is difficult to make any accurate comparison; for not only do the mode of filling the measure and the manner of striking off the surplus grain differ at different exhibitions, but even the measures which are used are apt to vary very considerably. We are not doubting the correctness of the measure used at Melbourne, nor the artistic method in which it was filled and struck—of these we know nothing; but there is sufficient disagreement between the reports from different exhibitions in South Australia to prove that the returns of one place cannot always be safely compared with those of another. For example, the wheat shown at Adelaide on the 29th of February was shown again at the Mount Barker's Agricultural Society's exhibition on March 8, and the weights taken at the two places differed by more than one pound to the bushel.

The sample exhibited at Melbourne was not a portion of the wheat actually shown in Adelaide, but a sample from the same lot procured afterwards from the grower. It is by no means certain that the second sample thus taken from the bulk was fully equal to the 12 bushels originally selected for exhibition. To say the least of it, the Melbourne chosen sample was placed against the residuum of the Adelaide lot.

The Adelaide prize wheat was not, in the opinion of many of our most competent judges, the best sample which South Australia had produced. The judges at the Adelaide exhibition placed it first in order, but decision was reversed a week afterwards by the judges at Mount Barker and by those at Woodside, both of whom preferred the wheat which had taken the second prize to that which had taken the first prize in Adelaide. Not only so, but both the lots of Adelaide prize wheat were purchased by one

firm largely engaged here in the corn trade; and that firm sent the whole of the Adelaide second prize wheat to different English correspondents in preference to the Adelaide first prize wheat. We are justified, therefore, in supposing that the South Australian sample which was shown at Melbourne was not the best which had been shown in South Australia.

Of the Melbourne prize barley we have no remark to make, beyond saying it is a highly creditable sample. Its weight, as recorded at the show, was, we believe, 56 lbs. 4 oz., the weight of the first and second prizes at Adelaide having been 56 lbs. 3 ozs. and 55 lbs. 9½ ozs.

Friendly competition, upon terms involving the least possible doubt, will be exceedingly useful to both colonies; and we hope that a system of exchanging prize samples will be commenced and continued. By this means not only will the farmers of each colony be enabled to estimate correctly their own productions and progress, but any new variety of wheat imported—"created," as our friend, Mr. John Frame, could say, will be experimented upon simultaneously in Victoria and South Australia.

Already the Melbourne prize samples have fallen into the hands of many of our farmers, and our coming harvest will include some dozen patches of them. No doubt the agriculturist of Australia Felix will be glad next year to try in the same way the samples of Adelaide wheat, which we hope that the society here will be careful to place at their disposal.—*Adelaide Observer, South Australia.*

RUSSIAN AGRICULTURE.—At a recent meeting of the Chemico Agricultural Society of Ulster, J. Hodges, chemist of the association, read a paper from J. E. Scriven, Esq., Bondville, Kansas, the secretary of the Imperial Economic Society, St. Petersburg, with copies of the annual of the Society, &c. Dr. Hodges translated several portions of the journal, from which appeared that recently the first bone mill had been erected in Russia, and that Hanson's potato digger, introduced in Liban, had not given satisfaction. He alluded to the zealous efforts of the present emperor to develop the immense resources of the Russian territories, and the desire to promote agricultural improvement which is exhibited by the Russian nobility.

Dr. Hodges had made analyses of oat refuse, proving that this matter possessed considerable nutritive qualities. The Doctor, however, cautioned farmers against giving it in too large quantities. He alluded to the balls which occasionally formed in the stomachs of horses about 1½ lbs., one of these, which had produced the death of a horse belonging to Messrs. Andrews, Comber, weighed no less than 7 lbs., and was found to be composed mainly of the fine hairs of the oat formed into a compact mass. He exhibited a ball taken from the stomach of a sheep, formed of particles of wool.

THE BREED OF HORSES.—The horses are often the weakest class in the shows of the society. It was greatly to be regretted that too little attention was paid to the breeding of horses—an absence of correct principles too frequently prevails. He well remembered, a few years since, when officiating in the same capacity as he had filled that week, at a great agricultural meeting in Ireland, the judges, on taking a preliminary survey, observed in the class for "agricultural stallions" one animal, the lightness of whose crest and general docile appearance, awakened the suspicion, which, on examination, proved to be the case, that in certain essentials to the discharge of his vocation he was deficient. On turning to the Irishman in attendance on the horse, with that look of severity so becoming in judges, they asked how he could think of attempting so barefaced an imposition? The Irishman, not in the slightest degree abashed by their frowns, replied with all the coolness in the world, "Och, your honours, he was such a nice-oun, we thought you would overlook it." (Great laughter.) He mentioned that anecdote not merely for the purpose of raising a merry laugh, laughable as the incident may be. Whenever the lame, the old, and the infirm instead of the young and the healthy, are devoted to the stud merely because they are unfit for any other purpose, or when a farmer possesses a valuable mare which he wishes to breed from, and accepts the services of the first weedy or faulty brute who may chance to look over the farm gate; in such cases as these the owners act on the principle of the Irishman, and fancy that nature will kindly overlook it. (Laughter.) Nature, however, never overlooks—never forgets; it was equally true in physiology, as it was in morals, that the faults of the parents should be visited on the children, "down to the third and fourth generation."—*Mr. Spooner, at the Dorchester Meeting.*

THE CULTIVATION OF IRELAND.—The proportion of waste land in any country would probably surprise the most intelligent of its inhabitants if the quantity were actually measured. For instance the returns of the Registrar General of Ireland, for 1860, show that less than one-third of that green isle is under cultivation. The area of Ireland is 31,874 square miles, which is equal to 20,469,360 acres, and there were under crops this year 5,967,970 acres. Of this area, 2,637,557 acres are devoted to cereal crops; 1,607,483 to green crops; 1,594,486 to meadow and clover; and 128,444 to flax. Maine contains 32,851 square miles, New York 47,000.—*Scientific American.*

BENEFITS OF IRRIGATION.—The *Boston Cultivator* states that Mr. Ephraim Mastin, of Sutton, N. H., raised the past season herdsgrass which grew five feet nine inches in length, with heads 7 inches long. It was taken from a field where the twentieth successive crop grew with-

out the application of any manure, except the semi-annual deposit of a small stream from Kearsage mountain, which has been turned upon it in the spring and fall."

WHITCHURCH AGRICULTURAL SOCIETY.—The above society has recently published, in sheet form, the result of the examination by the judges, of various root crops, within the bounds of the Society, entered for competition, and judged in the field. Some twenty-two questions were asked the various competitors, and their answers were all given in the table before us. Accompanying it, we have all the rules of the Society, and we understand every person becoming a member of the Association for the current year, is presented with one of these documents.

There were thirteen entries for prizes in Turnips; six for Carrots; and three for Wurzels. The first prize in Turnips was awarded to Mr. John Richardson, who had 1130 4-6th bushels per acre; second prize to Mr. P. W. Playter, who had 1013 2-6ths bushels for acre; and the third prize, to Mr. Hugh Walker, who had 970 4-6th bushels per acre. Amongst the various competitors for Turnips, the crop varied from 832 to 1136 4-6th bushels per acre.

In Carrots, Mr. Charles Brodie took the first prize, and had 1184 bushels per acre; the second prize was awarded to Mr. Alex. Brodie, who had 1066 4-6th bushels per acre; and the third prize to Mr. Joseph B. Willson, who had 906 4-6th bushels per acre.

In Wurzels, Mr. John P. Davis took the first prize, and had 1706 4-6th bushels per acre; Mr. Charles Brodie the second prize, and had 1493 2-6th bushels per acre; and Francis Smith the third, who had 821 2-6th bushels per acre.

The table also shows the kind of soil—how often plowed—the kind of manure used, and what quantity, together with the time of sowing—how far the rows were apart, and many other important facts. This step on the part of Whitchurch is altogether a new one, but is a very useful and practical one, calculated to effect much good. No one can examine the table before us without learning much practical information—well worth the price of membership, were there no other advantages to be derived.—*New Era.*

The Late Harvest in Europe.

We are indebted for the following facts to Mr. THOMAS CARR'S ANNUAL HARVEST REPORT, dated Rostock, January 22nd, 1861. This document being compiled with much care from personal observation, and an extensive commercial correspondence, is always looked to by persons engaged in the grain trade with much interest and deference:—

ENGLAND.—Smaller breadth of land under wheat in 1860 than usual, in consequence of the high price of barley. In consequence of cold and wet ripening proceeded extremely slow, and

crops never so late and unsatisfactory in harvesting since 1816. Much of it got in, in very bad condition, which must be kiln-dried before it can be ground, and some is totally unfit for human food. Norfolk and Suffolk districts most favoured. Foreign wheat will be required to a great extent, to mix with English,—the proportion last year, about one quarter old to three quarters new, will this year be reversed. Twenty-two sacks of flour, instead of, as is customary, twenty-seven, is got out of twenty quarters of wheat. The yield in quantity much below an average Barley an average, but in most places much injured by the weather. Peas deficient; beans better, but badly harvested. Oats middling, and very variable. Potatoes, particularly in the midland and northern counties, very much rotted; so much as, perhaps, as in the noted year of 1847

SCOTLAND.—Breadth of wheat sown last year one-fourth or fifth less than usual. Yield under an average; but, on the whole, of better quality, than most of the English. Weight 62 to 65 lbs. best, and good ordinary runs 60 to 62 lbs. Barley sown more than usual, quite an average yield per acre, and much of it secured in good condition; mostly chevalier, from 51 to 56 lbs. per bushel. Oats an average, both as to quantity and quality—from 40 lbs. to 46 lbs. per bushel. The severe storm of October 3rd greatly injured such as were standing in the field. Up to this period the weather in Scotland had been less unfavourable than in England, but afterwards the outstanding crops were nearly destroyed. Potatoes but partially diseased, and turnips and mangold about an average crop.

IRELAND.—Crops generally very deficient. Wheat is both inferior in quality, condition and yield; not more than one-third of the crop will prove of fair and average quality, and thus cannot make satisfactory flour, and the yield is fully one-fourth below an average. Oats very variable,—some good, while others have been so injured by the weather as to be fit only to be cut up for cattle-feeding. Barley about an average, but this grain is not much cultivated in Ireland. Beans good, but badly secured. Turnips and mangold poor crops. Potatoes much diseased, although a much larger breadth sown, yet it will prove only half a crop compared with last year's growth.

FRANCE.—Crops, as in Great Britain, suffered from untoward weather. The yield of wheat is best in the south, south-east, and south-western departments. East part of the central and western tolerably good; the greater part of the central, and part of the north-western, under an average, and very defective in quality and condition. Brittany, average and moderately good quality. North and north-east about an average. The weather was most favourable in the southern departments, in the northern much the same as in Great Britain. Wheat from 61 lbs. to 63 lbs per bushel. Barley, crop large, but much of it injured by weather—from 51 lbs.

53 lbs. Other crops middling. Potatoes very variable; in some places much diseased.

HOLLAND.—Wheat in quantity nearly an average, but much injured in colour and quality. Rye a good average yield, and quality fine. Barley a small yield, and quality bad, much sprouted in some places. Oats a good average yield, at quality very poor, and much discoloured. Potatoes diseased to a great extent.

GERMANY—AUSTRIA.—Wheat about an average; fine quality and colour good. Rye, barley, and oats were in general good crops. In Bohemia, rye was a good average, and wheat and oats tolerably good. Potatoes much diseased, and hay and grass crops bad. In Moravia, wheat yielded well, and very good in quality—7 lbs., and upwards, per bushel. Wheat was above an average in Galicia; quality good, but in some cases not free from sprout. White from 50 lbs to 62 lbs. per bushel; red, 60 to 61 lbs. per bushel, a rich crop, weight from 57 to 59 lbs. Barley a small yield, and not good in quality; weight from 48 to 50 lbs. Oats a good yield, but suffered from wet, and weight very light. Peas and vetches satisfactory. In Saxony, wheat and rye a moderate average, and potatoes more or less diseased. Silesia—wheat a good yield; quality pretty fair, some sprouted, weight 61 lbs. Rye a good average, and middling quality, weight 57 lbs. Barley moderate yield, quality inferior, weight 48 to 50 lbs. per bushel. Oats a good yield, and quality fair. Potatoes only a quarter or one-half a crop. The above will more or less apply to other parts of Germany. In the Rhine provinces the crops as to quantity, are about an average; quality, weight and color are various, but better generally than in Belgium.

SWITZERLAND.—Crops, on the whole, much worse than last year, and will, as usual, require considerably more aid from Germany, &c.

DENMARK.—Wheat above an average yield, quality indifferent, suffered much from wet, weight from 56 to 60 lbs. Rye and barley prettily good, but indifferent in color—former from 49 to 53 lbs. per bushel, and the same for barley.

RUSSIA AND POLAND.—Immense damage was done by locusts in some parts, but in southern Russia the crops were large in quantity, but various in quality. In the *Odessa* departments the wheat was a full average, but 62 lbs. for wheat is more than the rule. Rye and barley good crops, and well secured. In the *Riga* and *Archangel* districts, the crops generally were indifferent; which was also the case in the *St. Petersburg* departments, occasioned by the intense heat in July. In *Poland*, the yield is not satisfactory, particularly in the *Warsaw* districts, there is much sprouted grain.

TRKEY, MOLDAVIA, WALLACHIA, AND HUNGARY. In these countries there was generally a full average of grain, notwithstanding the immense damage done by the locusts. Moldavia crops suffered from the intense heat in July, and again from heavy rain. Barley is light, averages about 44 lbs. a bushel. In *Hungary*, wheat

about an average, somewhat injured by wet, from 60 to 62 lbs a bushel. Oats a full average, rye very indifferent, and barley almost a failure.

SPAIN AND MEDITERRANEAN PORTS.—In Spain the harvest was very variable, good in the two Castiles and La Mancha, but indifferent in the districts of Seville, Alicante, and Andalusia. Wheat varies from 64 lbs to 61 lbs. a bushel. Crops in the Sicilies and in Portugal are less than expected. Algiers, Constantine, and Oran owing to the excessive heat at blooming time, the crops are very indifferent.

EGYPT.—Crops are represented as yielding most splendidly; quality fine, and particularly of *Saidi* wheat.

From the foregoing synopsis the reader will perceive that in many parts of Europe the late harvest was deficient, both in quantity and quality; and that this was particularly the case with the British Islands. Fortunately for Canada and the United States, the crops have proved generally most abundant, and immense quantities of wheat have already been shipped to Europe, where it is evident, all the first quality that we can spare, will be required before another harvest to mix with their damaged grain, before it can be manufactured into flour. It is highly probable that as spring advances our really good wheat will command higher prices, especially, as is most devoutly to be wished,—if our neighbours should be able to adjust, in a satisfactory manner, the alarming difficulties with which they are now beset. There is another rather important element in this consideration of prices:—owing to the continuous rains in the British Islands, and portions of the continent, up to the very commencement of their unusually severe winter, wheat sowing had been seriously retarded; the seed-bed of next harvest is indifferently prepared, and it is said more than one-half of the heavy lands, intended for wheat, has not been sown. The last accounts were more favorable as regards the weather, and much will depend upon the character of this and the succeeding month. There is too much room to fear from analogy and a combination of causes, that the next harvest in Britain may also be a deficient one. Our farmers therefore, need not indulge in any apprehensions that wheat, for at least some time to come, will not maintain remunerating prices.

Horticultural.

Plants in Rooms.

The culture of flowers in rooms is a practice that happily seems to be increasing, as it tends in some degree to relieve our long winters of their monotony. What more agreeable to the feelings, when all nature without is covered with a white mantle, completely obscuring that rich

variety which at all other seasons adorns her bosom, than to behold the contrast of the growth and maturity of flowers in a warm, snug room? Ladies frequently evince much good taste and delicacy of moral feeling in these little attractions of domestic life. The following remarks from a recent number of the *Horticulturist*, are well-deserving of attention:—

We should be glad to do or say something to increase the number of those who grow room-plants. It is true that plants cannot be as well grown in rooms as in a well-constructed greenhouse; but, notwithstanding, there are some kinds that may be grown and flowered in a manner quite satisfactory, and with results highly gratifying. Certain conditions are necessary for the best success, and these it is our object to point out. The greatest obstacle to success is the dryness of the air: this may in a measure be overcome by a table suitably constructed, and the selection of plants best adapted to a dry atmosphere. The table should be the length of the window, and two or three feet wide, the boards being tongued and grooved. Around the edge nail a strip three inches wide, making the corners fit tight. The table is then to be filled with two inches of clean white sand. With a table of this kind, the foliage of plants can be frequently syringed or sprinkled with water, which keeps them clean and promotes their health: the drippings and surplus water are caught and absorbed by the sand, and the floor of the room is thus kept clean; the sand, indeed, ought to be kept constantly wet, and even watered for this purpose, if necessary. The evaporation from the sand will diffuse itself among the plants and through the room, and thus overcome, in a small degree, one of the chief obstacles to the successful culture of plants in rooms. The table should be fitted with rollers, to facilitate the operation of watering and cleaning the plants, and also for the purpose of moving it back from the window during very cold nights. The flower-stands in common use are altogether unfit for a room; the surplus water, dead leaves, &c., fall on the floor, injuring the carpet, and giving the room an untidy appearance. The table above described is free from these objections, besides having positive advantages for the successful growth of plants which no ordinary flower-stand can possess.

All rooms do not possess equal advantages for growing plants. A room with large high windows, looking to the south, is the best; the next best is one with a south-east or south-west exposure; next, east; next, west; and the least desirable of all, one looking to any point north. A large bay window with a southern exposure possesses many advantages for growing plants, quite equal in many cases, and superior in some, to these structures absurdly called "plant cabi-

nets," unless the latter be intended for the preservation of dried specimens, the only purpose for which most of them are fit. A basement window with a southern exposure will sometimes answer tolerably well, but a room in the upper part of the house is always to be preferred.

Plants cannot be well grown any where, or under any circumstances, when crowded together; it is always more satisfactory to grow a few well than to grow many indifferently. During very cold nights the table may be moved to the middle of the room; and if the plants should unfortunately get frozen, darken the room and throw cold water over them repeatedly till the frost is drawn out, and then expose them gradually to the light. In this way we have saved plants when the ball has been frozen as hard as a brick. Room plants should not be brought into the house till the nights get frosty, and while out of doors they should have a sunny exposure. Insects should be looked after, and destroyed on their first appearance; a little attention in this way will keep them free from such pests.

The Fruit Tree Business—Caution to the Public.

EDITORS OF THE CANADIAN AGRICULTURIST.—Permit me through the columns of your widely circulated journal, to give a word of caution to the public, at least to that portion of them who are making arrangements to plant out orchards, or ornamental trees, the ensuing season. It appears that at the present time, owing to the unsettled state of affairs in the Southern States, "Yankee tree peddlars" who usually spend their winters there taking up orders for trees, have made Canada their field of operations, and at the present time probably there is not a florist, or nurseryman, throughout the length and breadth of the land that has not been visited by these gentlemen. Their whole stock in trade consisting of a beautifully illustrated Catalogue; a Book of Portraits of Fruits and ornamented trees highly colored &c. Now these men are not the agents of any of the respectable Rochester Nurseries, for the establishments they represent are what in Rochester are called "one horse nurseries," to whom many of our citizens have already been victimized; or they are mere speculators, who take up orders throughout the winter, and send them to the nurserymen in the Spring, for which they are allowed from 25 to 30 per cent on catalogue price, and often more. Now the nurseryman not having the same responsibility as if the order was sent direct to himself, generally sends the stuff he can spare most of, without reference as to whether it suits the climate or not. The agents are then employed to deliver the trees for which they receive cash or approved notes, which they get discounted here, and this is the last that will be heard of them. The purchaser finds when it is too late, that he has been sold

and he has no remedy, but purchases again from the next agent that passes, and is again deceived, until at last he gives up planting in despair and imputes his failures to every cause but the right one, namely giving his orders to irresponsible agents who have no reputation to maintain, that have not been heard of before, men who are obliged to get a certificate from the mayor of Rochester, knowing that the establishments they represent have not been heard of before; as it is a well known fact that these "small fry," generally change the name of their nursery and proprietors every two or three years. Moreover, these agents are making use of the names of our most respectable citizens, showing large orders that they pretend to have received from them; and the paintings of fruits, &c., they show their victims are well calculated to deceive the public.

Now sir, I wish to say a few words as to the sorts of trees the purchaser receives. No doubt they are to all appearance, in some cases, handsome, well grown trees; but the climate and soil in which they have been raised, is so favorable to the growth of fruit trees, and the land has been so highly manured in order to force the trees into a luxuriant growth, in order to make a quick return for the labor bestowed on them, that when these trees are removed into a more ungenial climate they receive a check to their growth that they seldom recover; besides, many of the varieties are entirely unsuited to the climate of Canada. The apple trees are invariably root grafted, that is they have been grafted upon small portions of the root of the seedling apple; they are then planted in the nursery rows, more particularly in the "small fry of nurseries that surround Rochester," at the distance of two or three inches in the row. If they all grow, which they are apt to do, they remain in this situation until they are fit for sale; they stand so close together that they are forced up into an unnatural growth of six or eight feet in the course of a few years. The writer of this, once having visited one of these apple tree manufactories, as I may call them, made the remark to the proprietor "how could he expect such trees ever to grow if removed into the climate of Canada." The proprietor said he, these are just the sort of trees the Canadians like, good tall trees that they can lough under without interfering with the ranches, and besides they are the just the sort he can sell most off to the pedlars that go South and North, the roots not being large they are tightly packed, consequently the cost of transportation is considerably reduced. The pear trees, I would not have such trees as a present, generally sent over here, budded on the stock principally the Fontenay Quince) are entirely unsuited to our climate, and the varieties are in most cases such as are not suited to a Northern climate.

The Cherry Trees, also, are mostly of the heart or Bigarreau class—free growers, that are

generally ready for sale at 1 or 2 years from the bud. For a Southern climate, of course there is no class of cherries to compare to these, but they are entirely unsuited to our colder climate. No nursery man would think of recommending his customers to plant such Trees, except under the most favourable circumstances of soil and situation.

The Duke and Morella Cherries being of a very slow growth and hardy habit, are the only kinds that will succeed here, but they are not such fine looking trees as the Bigarreaus, consequently they are discarded by the tree-peddler.

The Plum Trees also sold by these pedlars are budded on the Peach stock, because it is the cheapest and easiest raised. The kernel is planted in the spring of the year, and is budded the following autumn. The trees are ready for sale in a couple of years, whereas, if they had been budded on the native plum, (the only stock capable of withstanding the severities of our winters), the cost would be double. Most purchasers never think of asking the question, What stock are they worked on? but are content with the fine appearance of the Trees. Now as the Peach itself will not live in this part of Canada, how can you expect the Plums that are budded on it to live long. This is one of the causes why nearly all the imported Plum Trees are dying all over the country. Then there is the Lawton Blackberry, which these pedlars are selling at from 50 cents to a dollar each, the price of which at any respectable nursery is only \$8 per 100, but which no respectable nursery-man would think of selling under any circumstances, except they are especially ordered, because he knows they are not hardy enough, as he has to cover them during the winter, otherwise they would be winter-killed.

As to Ornamental Trees,—look into any of our hotels, you will there see flaming placards bordered with portraits of Arbor Vitæ, Balsam Firs, &c. &c. Now if they mean the "Chinese Arbor Vitæ," it is well known that we have to make it one of the ornaments of our green house for the winter, as it will not live in the open air. If it is the Canadian Arbor Vitæ or White Cedar, you can get as good specimens in any of our swamps any day. The Balsam Firs are natives of the country; they are taken over south of the lakes, and planted into nursery rows there for a few years, and then sent back to us fine evergreens, and sold at enormous prices.

Now Mr. Editor, I will give you an instance (and I could give a great many, but it would occupy too much room in your valuable paper) how parties have been victimized by these impostors. A gentleman in Weston made a purchase of \$150 worth of trees and shrubs from one of these agents. The prices he was charged were enormous,—Tulip Trees 3 feet high, \$2 each, and others in proportionately high prices, the ordinary nursery prices for such trees being seldom more than 25 cents, or 50 cents at the

outside. In the fall of the year the gentleman said he would be glad if any one would offer \$40 for the lot: he had no remedy, but put up with the loss. Now the remedy I would propose for all this, is; Let the intending orchardist, instead of giving his orders to one of these agents, send direct to some respectable Nursery-man, who has a reputation to maintain; he will then have some guarantee that if failures should take place, or errors be committed, he will know where or who to apply to for a remedy. The Nurseryman, for his own credit, will see him righted: but let him avoid the "Tree-pedlar" as he would the plague, except he finds "the pleasure is as great in being cheated as to cheat."

I am, Sir, your obedient servant,

A FRUIT GROWER.

WINTER MULCHING.—At the commencement of winter, those who have young trees liable to be injured by cold, and which need high culture, will find an especial advantage in applying a winter mulching of short manure. This treatment is eminently useful for *dwarf pears*. Protecting well the part below ground, is of use to the exposed portions above—in the same way that a man's feet and ears have been found to keep warmer on a cold day, when his body is well clothed.

The best times in the year to manure trees, is late in autumn. If applied earlier, it prevents proper cultivation; and if spring, its protecting influence is lost, and the liquid portions do not become so well diffused through the soil by the time that growth commences. The manure should be *short*, (not necessarily old or rotted,) to prevent attracting mice; or if short manure cannot be had, a small cone of fresh earth should be raised around each tree eight or ten inches high, which will effectually exclude the mice. In the spring, the manure is spaded in, if in a garden, or worked under by means of a gang-plow, if in an orchard kept clean by horse power.—*Rural Affairs*.

WINTER PROTECTION.—It is best not to cover raspberries, grape vines, etc., till winter is close at hand, as they will ripen and harden better if exposed till that period. Grape vines are often sufficiently protected if simply lying flat on the ground—or at most, with an inch or two of soil. The same remark will apply to the raspberry and blackberry. Caution is needed in the use of straw around fruit trees, as it may encourage the depredations of mice. If covering the stems, it should not be closely tied about them, as the circulation of some air is best. Evergreen boughs placed about any tender trees, afford the best and safest protection. The thicker the coat they form, the more complete will the covering be.—*Rural Affairs*.

RABBITS FROM TREES.—A correspondent of the *Prairie Farmer* says trees may be protected from Rabbits by a wash of soft soap, in which is mixed sulphur. A little clay in the mixture will prevent the soap from washing off by winter storms. Put it on with a paint brush or a stiff whitewash brush.

CANKER ON FRUIT TREES.—We have seen it recommended to cut off the diseased parts of the limbs, dig a trench around the tree and fill with new rich soil. Dig down and cut off the perpendicular roots. This has cured the Canker.

GRAFTING PEACH TREES ON PLUM STOCKS has proved in many cases to be an unfortunate practice. They are liable to be broken off by the wind at the junction of the graft. In a windy country this will prove a serious objection.

THE VALUE OF THE BLACK CURRANT.—A correspondent calls attention to the following extract from "Le Jardin Fruitié du Muséum," recently published in France under the auspices of the Government:—"The planting of the black currant bush was commenced in 1841 at Dijon, and a small portion of the liqueur was then made. It was so well liked, that since then near two millions of current bushes have been planted, covering a space of ground occupying twenty miles in length, by from one to four miles in breadth, and this exclusive of several other districts of vast extent; the most remarkable feature being that the principal plantations have been, and are making, in the district producing the fine Burgundy wines; in some instances the vine giving place to the currant. In the department of the Cote d'Or alone there are thirty manufactories for the fabrication of the liqueur de cassis. The trade is rapidly increasing, and the supply not equal to the demand. Each bush yields from 2 to 5 lbs., the manufacturer paying from 25s. to 30s. per cwt. The acre yields a profit to the agriculturist of from £22 to £40. The wholesale price of the liqueur is about 2s. 9d. a quart. In the town of Dijon, upwards of a quarter of a million of gallons are produced, yielding a large revenue. The bushes are planted in trenches, 4 feet 3 inches apart, and 15 inches deep; the plants being placed some distance asunder. The soil most suitable is chalk and clay." The climate of these countries is better adapted to the growth of currants than France. We can produce them cheaper and larger, and, no doubt, good culture will improve the flavour. In an agricultural point of view, the information is important; in a commercial, even more so.—*Mark Lane Express*.

A machine has been invented in England which, being attached to the stern of a ship, pumps her out with a rapidity in ratio to her speed.

Domestic.

TO KILL COCKROACHES, ANTS, &c.—Equal parts of dry red lead and sugar, well mixed, is given as a certain and sure exterminator of cockroaches, black and red ants, and other pests. As every household is more or less plagued with these vermin, this recipe, so easily provided, should be tried. The simple mixture should be put in places infested by them. Care should be observed in the use of it, as the lead is poisonous.

The Poultry Yard.

FATTENING TURKEYS.—A writer in the *German-town Telegraph* furnishes that journal with the following statement:—Much has been published of late in our agricultural journals in relation to the alimentary properties of charcoal. It has been repeatedly asserted that domestic fowls may be fattened on it without any other food, and that too, in a shorter time than on the most nutritive grains. I made an experiment, and must say the result surprised me, as I had always been rather skeptical. Four turkeys were confined in a pen, and fed on meal, boiled potatoes and oats. Four others of the same broods were also at the same time confined in another pen, and fed daily upon the same articles but with one pint of finely pulverized charcoal mixed with their meal and potatoes. They also had a plentiful supply of broken charcoal in their pen. The eight were killed on the same day, when there was a difference of one and a half pounds each in favor of the fowls which had been supplied with the charcoal, they being the fattest, and the meat greatly superior in point of tenderness and flavor.

Veterinary.

THOROUGH-BRED.—We have often objected to the use of this term until it could be settled what it means, which as yet has not been done. It is a high sounding phrase, but frequently serves no other purpose than to deceive ignorant people. Hear what the well-known writer "Cecil" says about it in a paper on "The Physiology of Breeding," written for the *Farmer's Magazine*: "The term thorough-bred is an expression not clearly defined, as regards any of our domestic animals, but it would be very desirable to have some rule established. It may be accepted as a principle that breeding from animals endowed with certain properties and perfections through several generations, constitute he claim; though there is no adopted rule to determine how many generations are sufficient to establish the title.—*Boston Cultivator.*"

Transactions.

Abstract of Report of Agricultural Societies received in the year 1860.

Continued from page 127.

HALTON.

COUNTY SOCIETY.—Two hundred and twenty-five members; amount of subscription, \$266.50; balance in hand from previous account, \$436.46; deposited by township branches, \$439.50; Government grant, \$599.96; grant from County Council, \$100; admission tickets, \$79.67; special donations for premiums, \$50; total receipts, \$1942.09. Paid township branches, \$799.69; paid in premiums at ploughing match and shows, \$787; expenses and sundries, \$149.01; balance in hand, \$206.39.

TOWNSHIP BRANCHES.

ESQUESING.—One hundred and twenty members; amount of subscription, \$183.40; balance from 1858, \$12.18; share of grant, \$92.13; total received, \$287.71. Paid in premiums, \$169; expenses, &c., \$48.45; balance in hand, \$70.26.

NASSAGAWEGA.—Ninety-six members; amount of subscription, \$124; share of grant, \$86.37; total, \$210.37. Paid Treasurer balance from previous year, \$7.68; paid premiums, \$108.75; expenses, \$21.70; balance in hand, \$72.24.

NELSON.—One hundred members; subscription, \$114; balance from 1858, \$34.18; share of public grant, \$78; grant from township Council, \$20; fees, &c., \$15.62; total received, \$261.80. Paid in premiums, \$203.50; expenses, \$27.05; balance in hand, \$31.25.

Extracts from Report.

The soil of this township is mostly a clay loam, some of it tolerably hard, with a tight clay subsoil. There is a mountain range running across from south to north furnishing any quantity of lime stone, with free stone in sufficient quantity for building purposes, and the most delightful spring water, and which is also well timbered. The land adjoining is of the best description for wheat. Along the lake shore there are a few sandy farms of excellent quality. Part of the grant to the late Joseph Brant is of this kind, on which is the village of Wellington Square.

Water Power—The Twelve Mile Creek runs from west to east through the township, affording a large amount of valuable water power. On this stream there are five grist mills in operation, running from two to four run of stones, and two of these are splendid mills. There are ten saw mills on this stream within the township doing a fair business. There is also on it a foundry, at Lowville, Mr. McLaren, proprietor. Most excellent ploughs, stump machines, straw cutters, mill irons, &c., are turned out from these works. The Canada Powder Company's Works are worked by this stream, situated near Cummingsville. They were erected in 1855, at a cost to the company of eighty thousand dollars. The mills are built on the most improved principles, and are capable of manufacturing one hundred and fifty kegs of powder per day. The mills were in successful operation the first two years after they were built, and the company found a ready sale for all they could manufacture; but since the commercial crisis came on and improvements and public works have been checked, the company have not been able to find sale for all the powder the mills are capable of turning out, and consequently they found it necessary to curtail production, running the mills only for five or six months in the year. The company manufacture all descriptions of powder, and it is said that the quality is quite equal to the best brands of the imported article.

Farms—The following statement of four persons, who are among our best farmers, will give a correct knowledge of the proportion of land under the different kinds of crops:—1st. Peter Fisher has in his farm 200 acres, say meadow and pasture 55 acres; wheat, 30 acres; oats, 10 acres; fallow, 15 acres; roots, 5 acres. 2nd. Thomas Alton has 300 acres; meadow and pasture 96 acres; wheat, 57 acres; oats, 12 acres; fallow, 30 acres; peas, 12 acres; turnips and potatoes, 4 acres; barley, 11 acres. 3rd. John Fothergill, 350 acres; meadow and pasture, 100 acres; wheat, 50 acres; spring crops, 50 acres; turnips and potatoes, 50 acres. 4th. Robert Ireland, 300 acres; meadow and pasture, 80 acres; wheat, 30 acres; fallow, 20 acres; spring crops, 30 acres; potatoes and turnips, 12 acres.

Manner of Cultivation—Fallow is generally ploughed three times. First break up early in the season; then cross plough the

latter part of July, after having harrowed it lengthways and then crossways, or gone over with the large cultivator. Now it is again harrowed smooth and then ridged up for the seed, which is sown broadcast, and harrowed in; $1\frac{1}{2}$ to 2 bushels per acre. If it is to be sowed with grass, timothy is sown in the fall and clover early in the spring. Much wheat is sown after barley and peas; then it is only ploughed once, soon after those crops come off.

Roots—Mangel wurzel, carrots, turnips, &c., are often sown on stubble ground, by manuring well, ploughing and harrowing at least twice, then drilling $2\frac{1}{2}$ feet wide, and sowing with the hand or seed drill, cultivated with the small cultivator or plough, cleaning and thinning with hand and hoe. There is far too little of these crops sown.

EXPORTS FOR 1859.

Fall Wheat (Bushels)	125,192
Spring Wheat.....	27,190
Oats.....	25,000
Barley.....	35,460
Peas.....	8,000
Bbls. of Flour manufactured out of above.....	12,353
Butter (kegs).....	100
Lumber shipped (feet).....	2,500,000
Lumber at Port Nelson and Wellington Square ready for shipment	1,000,000

IMPORTS FOR 1859.

We only give two articles:

1st, Salt, of which there were 1,500 bbls. the past year from Oswego, and sold at Wellington Square for one dollar to one dollar and twenty-five cents per barrel, of excellent quality.

2nd, Plaster of Paris, of which there were 1,000 barrels imported from Oswego, and sold at 80 to 87½ cents per barrel. The Grand River Plaster was decided to be the best by a full board of Directors without one dissenting voice.

NURSERIES.—There is one Nursery in the Township—that of Dunning, Campbell, & Co., whose sales are from 15 to 20,000 trees annually, about three-fifths of which are Apple, the remainder Pear, Plum, Cherry, &c. Sales are increasing, and the business paying very well.

MARKET GARDEN.—Only one general Market Garden, property of Mr. Dale, &c.

the lake shore. His sales amounted to \$1,200 during the past year; the business not so good as two or three years ago.

DRAINAGE.—The value of draining does not seem to be much appreciated in this part of the country. The following statement has been kindly furnished us by Mr. David Ghent, who has given his attention to the subject for fifteen years past.

Mr. Ghent's system is composed of two methods, which he considers valuable on account of their cheapness and simplicity:

1st. The drains are dug about sixteen inches at the top, and nine inches at the bottom, being about from twenty-four to thirty inches deep; then stones are gathered from the fields or brooks, and small ones about two or three inches thick placed on each side at the bottom, and those of a larger size laid over the top, leaving a free passage of about three or four inches for the passage of the water, when the dirt is filled in. Now this is easily done with any kind of rough stone, not being too large to fit down into the drain, and will cost about sixteen cents per rod. This method, although it took but little stone, yet required more than could be easily supplied, when in some fields of six acres, it would be necessary to make six or seven drains the whole length of the field.

2nd. We now come upon another plan in order to save stone. The drains were dug as in the first, with this difference, say dig the right hand side at the bottom perpendicular, or a little under, four inches from the bottom, and making the same side of the bottom two inches lower than the other, forming an acute angle at the right hand side, in the bottom. Now take stones that will reach from five to seven inches and set them on the end or edge with the widest end upwards, and take smaller ones to fill up any holes at the back. Now the dirt is put in with care at the first, until the stones are completely covered, then it may be ploughed in, leaving a clear passage for the water. We have found these drains to answer every purpose, and have never had one to stop or get choked. It is the cheapest method of making them by hand, especially where thin flat stones can be easily procured, costing about ten cents per rod.

TRAFALGAR.—One hundred and thirty-nine members; subscription, \$159.50; balance from previous year, \$160.99; grant

from oakville village, \$100; public grant, \$103.53; fees, &c, \$33.75. Total received, \$557.77. Paid premiums at Show and Ploughing Match, \$417.50; expenses \$89.22; balance in hand, 51.05.

HAMILTON.

ELECTORAL DIVISION SOCIETY.—Two hundred and seventy-seven members; amount of subscriptions, 310.50; balance from 1858, \$16.52; Government grant, \$240; grant from City Council, \$300; admission tickets, \$201; total receipts, \$1068.12. Paid in premiums, \$431.25; hurdles for use at shows, \$75; miscellaneous expenses, \$561.87.

NORTH HASTINGS.

COUNTY SOCIETY.—Seventy-eight members; subscriptions, \$78; balance from previous year, \$289.38; deposited by township branch, \$96; public grant, \$307.80; received from sale of Alsike clover seed, \$18.12; received from use and sale of Bulls, \$137.75; total receipts, \$927.05. Paid for three Bulls for Society, \$200; expenses removing and keeping do., \$184.17; paid township branch, \$192; paid for copies *Agriculturist*, \$33; paid for Alsike clover seed, \$25.30; premiums, \$201.90; incidental expenses, \$28.20; balance in treasurer's hands, \$63.48.

TOWNSHIP BRANCH.

RAWDON.—Sixty-two members; subscriptions, \$63; balance from 1850, \$60.23; share of grant, \$96; received for clover-seed sold, \$41.30; total received, \$260.53. Paid for clover seed, \$49; premiums, \$148.20; expenses, \$260.53; balance on hand, \$35.68.

SOUTH HASTINGS.

COUNTY SOCIETY.—One hundred and eighty-three members; amount of subscriptions, \$210; balance on hand from previous year, \$4.62; government grant, \$415.16; admission tickets and sundries, \$94.38; total receipts, \$754.16. Paid for *Agriculturist*, \$50; premiums, \$406.90; expenses, 158.82; balance in treasurer's hands, \$138.44.

Extract from Report.

On reviewing the proceedings of the past year, there appears to be great cause to congratulate the Society and those generally who are interested in farming pursuits, upon the progress which has been made towards the attainment of a right understanding of the state and prospects of Canadian Agriculture; and introducing the knowledge thus acquired into successful operation.

The old practice of raising grain-crop after grain-crop, in uninterrupted succession, is gradually giving way to a system approaching more nearly to that adopted in those countries where the experience of long years, united with the discoveries of modern investigation, has almost raised agriculture to the level of an exact science. It is amply proved, by the sad experience both of States and individuals, that the successive cultivation of the harder grains, especially of wheat, gradually exhausts from the soil on which it grows those elements which are necessary to its productive capabilities; and that this exhaustion goes on, until the produce ceases to be remunerative, and the farmer has only the alternative of suffering his land to go out of cultivation, and seeking for a new location upon a virgin soil, or of supplying to his fields, in the shape of costly, and, in this country, almost inaccessible manures, the ingredients which have been abstracted by a long course of injudicious treatment.

The introduction of an increased breadth of hoe crops, involving, as it does of necessity, a corresponding increase of the number of animals kept by the farmer, goes far to eradicate this evil, or at least greatly to mitigate its effects upon the constitution of the soil, and the profits of its occupants. Not only does the cultivation of an enlarged quantity of green fodder and roots enable the farmer to raise and fatten a greater proportion of live stock than before, but it in a manner compels him to do so, in order to the profitable consumption of his produce; while at the same time it furnishes him with an increased supply of the staple, and, all things considered, the most valuable pabulum for future crops, farm-yard manure.

The presence of hoe-crops gives the farmer an opportunity of clearing his land from noxious weeds; and of reducing it by well applied labor, to that state of tillage which experience has proved so largely to augment its productive powers; while the frequent disturbance of the soil tends to turn out from their snug nests beneath the surface, and expose to the scorching rays of the sun, and the appetites of the feathered tribes, the larvae or grubs of these insect destructives, which, when suffered to multiply undisturbed, commit such terrible devastations, and destroy the hopes of the husbandman, by converting his promising crops into barren straw. The great breadth of land devoted to

production of hoe-crops in the County of Hastings, and we believe in Canada generally, during the past year, affords therefore a legitimate subject of congratulation, both to the Society and to the country at large, as it shows an approach to a more healthy and general appreciation of those great principles, the application of which to the practice of husbandry has so vastly increased the produce and augmented the profits, of the farmers in other countries within the last twenty years.

Another indication of progress in this direction is afforded by the greater number and improved quality of sheep bred and fed in the county, as compared with those of former years. Many of the animals of this class are such as may be shown with pride by their owners, and viewed with pleasure by their visitors; and it is to be hoped, notwithstanding the dicta of those who affirm that Canada is not a suitable habitat for the sheep, that wool may yet take a place among our staple products.

The attention of our farmers has also been directed to the raising of horses and cattle, and in consequence a marked improvement has taken place, both as to breed and condition, in the latter; while the horses of the County of Hastings, which have long enjoyed a high and merited reputation, are likely to be more sought after in future by buyers from the neighboring country; and bring more remunerative prices to their owners, thus constituting another important item in the agricultural returns of the county.

The introduction of machinery of an improved description, to a much greater extent than was formerly the case, forms also a gratifying feature in our review. Straw-cutters are now generally in use, and it is a good omen to observe with what avidity the improved forms of this machine are brought up by the farmers of Hastings. Indeed every improvement in agricultural implement which tends to lighten labor, or make its application more effective, whether the production of native talent, or introduced from other countries, is sure, if possessed of intrinsic advantages, to meet with abundant patronage, and we hope to see the day when Clod-cutters, Norwegian-harrows, Grubbers, and Bone-mills, shall be as common in the older Townships of the County as they are in the best parts of England and Scotland.

While the Farmers of Hastings have be-

thus active in out-door improvements, their wives and daughters have been by no means idle at home. The dairy has engrossed a large share of their attention, and the quantity and quality of the butter and cheese they have turned out, has kept pace with the other improvements we are so happy to notice, and we feel confident that they will go on with increased ardour, as the augmented number of cattle gives them more and more material to work upon, until production shall have reached its utmost limit; which we are sure will only be determined by their ability to undergo the necessary amount of labour.

Last, but not least, we have to notice the great amount of draining done within the last twelve months, which exceeds that of any former year in a double or even a three-fold proportion. This is one of the most important and beneficial improvements that can be made upon land, as it not only removes one of the most serious obstacles to the growth of the crops upon which we depend for our subsistence, but even tends to ameliorate the climate in no small degree, for the presence of water continually evaporating under the influence of the sun and the atmosphere lowers the temperature of the air and strikes cold to the roots of the plants and stunts their growth, while in its subsidence into the soil it carries down the soluble substances from which they derive their food, to a depth to which the roots cannot penetrate, and the noxious matters existing in the soil are brought to the surface by evaporation, thus exercising a double action equally judicious to a healthy vegetation.

On the whole, we repeat that the past year's transactions have exhibited a most gratifying amount of progress; and though we admit that much of it is owing to the wholesale destruction of the grain crops for the years past by that pest of the agriculturist, the wheat midge, whose ravages have compelled our farmers in self-defence to seek the more reliable system of conducting their business; yet we trust that the late severe season may eventuate in establishing a more remunerative, less exhausting, and less arduous state of agricultural production; we venture to express our hope that the increase of its peculiar food, and the improved mode of tillage, which we anticipate from the changes we have recorded, may have the effect of gradually decreasing the numbers of midges and its kindred destroyers, and

perhaps in course of time, of reducing its ravages among our crops to a thing of the past and a subject of history.

HURON.

COUNTY SOCIETY.—Eighty-three members; amount of subscriptions, \$89; deposited by township branches, \$471; Donation from Canada Company, \$60; government grant, \$479.98; received from premium wheat sold for seed, \$47.68; received for turnip, mangel wurzel and clover seed, \$155.37; sundries, \$97; total receipts, \$1395.43. Paid balance due the treasurer from previous year, \$86; for clover and other seeds, \$165.77; township branches, \$743.87; premiums, \$234; expenses and sundries, \$156.46; balance in treasurer's hands, \$9.33.

Extract from Report.

Taking the County of Huron as a whole, we have a soil and climate not surpassed, and rarely equalled by any county in Canada. The means and methods employed by the great bulk of the farmers are not in proportion to these advantages, but there are some good practical farmers in Huron—men who understand their business and attend to it in the proper way. The abundant results of their superior farming may incite others to follow their example, and in time the County will be as noted for its well cultivated farms as it now is for the richness of its soil, and the salubrity of its climate.

One illustration of the improvement of this county is the large yearly increase of the quantity of wheat exported, and that of a quality not inferior to any in Canada. The farmers in this county no longer labour under the disadvantages of bad roads. During the last eighteen months there have been (running through different sections of the county) about 150 miles of road gravelled. These roads lead generally through the most thickly settled and best cultivated parts of the county, and add another feature to the many improvements that are yearly taking place.

TOWNSHIP BRANCHES.

ASHFIELD & WAWANOSH.—Forty-three members; subscription, \$46; balance from 1853, \$48 42; grant, \$24; sundries, \$1 87; total received, \$120 29. Paid premiums, \$60 50; expenses, \$8 63; balance in hand, \$51 16.

BIDDULPH.—Fifty members; subscribing \$1 each; no further report.

CLINTON.—Fifty-three members; subscription, \$71; share of grant, \$29; total received, \$100. Paid in premiums, \$85; expenses, \$16 85.

EXETER.—Eighty members; subscriptions received, \$74; balance from 1858, \$28 59; grant, \$41 70; total received, \$144 29. Paid premiums, \$107; expenses, \$24 28; balance in hand, \$13 01.

HARPUREY.—One hundred members; subscriptions, \$100; balance from previous year, \$36 27; grant, \$58; sundries, \$14 10; total, \$208 37. Paid in premiums, \$168 25; expenses, \$32 27; balance in treasurer's hands, \$7 85.

HAY.—Forty-four members; subscriptions, \$15 50; balance from 1858, \$24 15; government grant, \$40 56; total received, \$14 21. Paid premiums, \$80; expenses, \$16; balance in hand, \$14 21.

HOWICK.—Thirty-nine members; subscriptions, \$73; awarded in premiums, \$117 50. Report defective.

MCGILLIVRAY.—Fifty-eight members; subscribing \$1 each. No further report.

STANLEY.—Eighty members, subscribing \$1 each. No further report.

Miscellaneous.

An English Dog Show.

At the late Birmingham Cattle and Poultry Show, there was one notable novelty,—an exhibition of Sporting and other Dogs. This feature of the Show is thus described by the *Tines*:—

“Under the presidency of Lord Carzon and the management of an impartial committee, prizes of large amounts are competed for by some 300 dogs, in the Horse Repository of Messrs. Bretherton and Harrison. No such complete classification had ever been attempted before. Viewing the strange diversities in form, capability, and disposition of the dogs in this whining, growling, menagerie, we can scarcely admit the doctrine that the animals are varieties of one species, and that all have been developed by differences of food, circumstances, and training from a single original pair; or, as some say, are collectively a tamed derivation from the lean and savage wolf. In this gathering of all descriptions of hounds, for instance, what extraordinary differences are observable in the nature and uses

of the several breeds. Whatever of swiftness in pursuit of nimble game, of miraculous keenness of scent for a hidden or flying enemy, of untiring patience of search, of lithe agility and enduring speed, may be required for hunting over the open field, across the deep flood, in the barrowed entrenchment or the recesses of the rock—in short, whatever excellencies and peculiar instincts are valuable in the mighty hounds that chase the antlered deer; in the keen, swift and sturdy hound that seeks the wily fox; in the slender, facile greyhound, all elegance and ease in rapid flight and leap; in the shaggy, half-amphibious otter hound; in the terrible blood-hound, with his pendent lip; in the clever pointer and careful retriever—all are illustrated by perfect and unusually fine examples among numbers of the highest superiority of breed. The blood-hounds form a very grand class, to which the Earl of Bagot contributes the most magnificent specimens, remarkable for their character of head and expression. The foxhounds would have been a larger class at any other season of the year. Viscount Carzon and Earl Grosvenor are the prize winners. Harriers and beagles are but few. The large rough-coated deerhound make a fine show, each a seeming original of Landseer picture. There are some specially fine greyhounds. The large pointers are the principal class, most of them of great merit; and the small pointers, especially the bitch class, still more extraordinary—the Hon. H. W. Popham, Mr. J. S. Soreby, Mr. H. Gilbert, the Earl of Derby, and the Earl of Lichfield carrying off prizes. The English setters are highly thought of. The Irish setters are not so grand a class, though the prize dogs are very fine. See setters and spaniels shown by Mr. Bardett, considered unequalled. The retrievers are exceedingly good, Mr. Brailsford and Lord A. Pagwinning the prizes. There is a good class. Clumber spaniels, used for cover shooting. Mr. Doales and Earl Spencer exhibit the most marvellous. Turning to the other division of the show, we have the majesty of the massive furred mastiff, ferocious as a tiger to strange, sagacious “as a Christian” in detecting thievery and chicanery, gentle as a lamb to the hand that feeds and loves him, and we have the wretched slim Italian greyhound, in form suffering from internal and external stricture, yet all grace and tenderness; shivering at the end of a ribbon or a watch-chain, and incapable of stronger exercise than the hunting of a guinea-pig. There is the nobility of the Newfoundland, with colossal paw—humane savour of wrecked mariners from the swallowing wave; and there is the antic loving toy terrier, ridiculous for its littleness, delighted to be caressed upon his hind knee. There is the iron-jawed bulldog, with stealthy spring and unrelenting grip, fierce, flinching unto death; and there is the C. spaniel, which loves to be nursed and dandled.

pers timidly out of the shelter of his mistress's
 off. There is the active black and tan terrier,
 a more enemy of all four-footed vermin; and
 here is the lazy, curly King Charles, in an un-
 usually state of plethora of good living, able to
 saddle after a comely dame or repose upon her
 handsome heartbrag. There is the homespun,
 plain, intelligent sheep-dog; and there are the
 sleek, negro-featured pug, and the Skye-terrier,
 little like a ferret, and shaggy beyond recogni-
 tion of head or tail. The mastiffs are a superb
 class; the black Newfoundland equally good;
 the bull-dogs repulsive, yet interesting from the
 extravagance of sullen savageness and latent
 ferocity in their expression, and for their well-
 known pluck prize-ring qualities. Sheep dogs
 are fairly represented; the terriers attractive
 and maintaining the credit of their order. One
 rough customer' of a Scotch terrier is indeed a
 marvel; he is said to weigh less than three
 pounds, yet is over two years old, and a day or
 so ago killed a fierce big rat, and his selling
 price is fifty guineas. One imitably ugly pug,
 at as a lapdog would by contrast give charms
 as a gorgon, is priced at a thousand guineas. The
 alban greyhounds and diminutive toy terriers
 of course attract more attention from the fair
 visitors. The Alpine mastiffs, St. Bernard dogs,
 and the rough Russian terrier, the rare Maltese
 dogs, and the Borzoi and fox dogs are also a
 source of great interest."

A STRANGE PET—Although Buffon was of
 opinion that the weasel was an animal incapable of
 domestication, we have the following interest-
 ing account of one in a letter of Mademoiselle
 Laistre:—"If I pour some milk into my hands'
 she, "It will drink a good deal; but if I do
 pay it this compliment, it will scarcely take
 any. When it is satisfied it generally goes
 to sleep. My chamber is the place of its resi-
 dence; and I have found a method of dis-
 peling strong odors, by perfumes. During day it
 lies inside a quilt, entering by a place that is
 covered in its edge, which it accidentally dis-
 covered. At night I keep it in a wired cage,
 which it always enters with much reluctance, but
 leaves with joy. If the servant sets it at liberty
 and I am up in the morning, after a thousand
 adieus, it comes into my bed, and reposes on
 my hand, or on my bosom. If I am up before
 it is let out, it will fly to me in rapture, and
 in half an hour in caressing me, playing
 with my fingers, and nibbling at them with its
 tongue like a little dog, leaping on my head and
 round my neck, and then running round my arm
 with the softness and elegance of a squirrel."—
Cassell's Popular Natural History.

THE WAY TO GET WEALTHY.—Never was
 money so scarce, everybody says, and everybody
 believes, is justified in making the remark.
 It may be plentiful in bank, gold may be

abundant at Frazer River, but neither can be
 picked up along the streets by men too indolent
 to work, or women too extravagant to study
 economy. They will now discern that

'Tis a very good world that we live in,
 ' To lend, or to spend, or to give in;
 But to beg, or to borrow, or to get a man's
 own,
 'Tis the very worst world that ever was known."

The proverb is an old one, but just as applicable
 to our times as those of our ancestors. Poverty
 has not much credit in bank parlors, though
 wealth is frequently less reliable, unless accom-
 panied by honest principle. The only thing to
 be depended upon in these days is industry.
 That is the best financial institution. It never
 fails. Abstemiousness and frugality are the
 best bankers. They allow a handsome interest,
 and never dishonor a draft drawn on them by
 their humble customers. That's our opinion
 of the matter.—*Old Jonathan*

THE HORSE IN ARABIA.—The horse is involv-
 ed in the most ancient superstitions of the peo-
 ple of Arabia. They believe him to be endow-
 ed 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 spe-
 cial 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 his back; and the most mer-
 itorious 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 descend-
 ed from five favorite mares of the prophet, on
 which he and his friends fled from Mecca to Me-
 dina.—*Cassell's Popular Natural History.*

OUR CHANGING CLIMATE.—The frequent
 changes of our uncertain climate give rise to
 many forms of disease, and we often murmur and
 repine at their suddenness. But there is a bright,
 as well as a dark side in all the ordinances of
 nature, and Washington Irving has painted the
 bright side of the sickle season in the following
 glowing terms:

"Here let me say a word in favor of those vicis-
 situdes of our climate which are too often made
 the subject of exclusive repining. If they annoy
 us, they give us one of the most beautiful cli-
 mates in the world. They give us the brilliant
 sunshine of the south of Europe, with the fresh
 verdure of the north. They float our summer
 sky with gorgeous tints of fleecy whiteness, and
 send down cooling showers to refresh the pant-
 ing earth, and keep it green. Our seasons are

full of sublimity and beauty. Winter with us hath none of its proverbial gloom. It may have its howling winds and chilling frosts, and whirling snow storms, but it has also its long intervals of cloudless sunshine when the snow-clad earth gives redoubled brightness to the day, when at night the stars beam with intense lustre, or the moon floods the whole landscape with her most limpid radiance.

And the joyous outbreak of our spring, bursting at once into leaf and blossom, redundant with vegetation, and vociferous with life; and the splendor of summer, its morning voluptuousness and evening glory, its airy places of sun-lit clouds piled up in a deep azure sky; and its gusts of tempest of almost tropical grandeur, when the forked lightning and bellowing thunder volley from the battlements of heaven and shake the sultry atmosphere; and the sublime melancholy of our autumn, magnificent in its decay, withering down the pomp of the woodland country, yet reflecting back from its yellow forests the golden serenity of the sky. Truly we may well say that in our climate, "The heavens declare the glory of God, and the firmament showeth His handiwork. Day unto day uttereth speech, and night unto night showeth knowledge."

HOW THE BEAN CLIMBS THE POLE.—Professor Brewer, of Washington College, Pa., communicates to the *American Journal of Science and Arts* the result of some experiments made by him on climbing vines—the hop, the Lima bean, and the morning glory. He finds that they will climb around a transparent glass pipe just as well as anything else, and that they are warmest in their embraces when the pole is warmer than the surrounding air. During the day, the vine is all attracted toward the light, but at night, especially on cool nights, it turns to the pole. He learned, also, that the color of the pole makes no difference; the caressing instinct of the vine has no prejudice against any shade. The element of constancy is very largely developed, the vine, after it has reached its pole, showing a much stronger tendency to wind around it than it did before to reach it.

SELECTION OF BREEDING HOGS.—What we western men consider the main point, is this:—We want a hog with a good constitution, and the hog with the best constitution is the one with the largest and most perfect lungs; for if they have large lungs they will be thick through the shoulders; and my word for it, if you get a hog with thick shoulders, you will have a hearty hog, and one that will fatten at any age. The hog should be thicker through the shoulders than through the hams.

On the contrary, a hog that is thicker through the hams than the shoulders has a poor constitution, and hardly ever fattens well, and should never be selected to breed from.

There are other points or qualities to be taken into consideration, viz., size and color; how-

ever, color is only a matter of fancy. I prefer a white hog. But the size required depends upon the uses that the pork is to be put to; for instance, if for family use, a hog that will net 200 lbs., at twelve or fifteen months old, is large enough. If for market, I would prefer a larger breed, viz., one that will net 300 to 350 pounds, at eighteen to twenty months old.—*Ohio Valley Farmer*.

FROGS.—Somebody who has watched the amphibious creatures, says in *Chambers' Journal* that male frogs make the most noise, being furnished for that purpose with a kind of bladder in the neck, or double action bag pipe; but the voices of the females are the hoarsest and most aggravating. When, however, intent on doing the agreeable, they have another tone of voice—soft, sweet, and plaintive, like a bell in the stillness of a summer evening; from which some naturalists have inferred that it is of the married couple's, and old maids and bachelors whose voices are so harsh and grating, courting and honey-moon tones being pitched in a different key. Although frogs have tailors' or milliner's bills, they follow the fashions in having a new suit every week, fortnight during the summer, and in casting the old skin as frequently. They are admired as food not only by Frenchmen and gourmets but by snakes, eels, pike, trout, aquatic birds, hawks, owls, moles, and weazles. Those most esteemed by epicures frequent deep, clear pools and are not easily caught by hand.

CURE FOR IN-GROWING NAILS.—It is stated by a correspondent of the *Medical and Surgical Journal*, that cauterization with hot tallow is an immediate cure for in-growing nails. He says,—“The patient on whom I first tried it was a young lady who had been unable to get on a shoe for several months, and decidedly the worst case I had ever seen. The disease had been of long standing. The edge of the nail was deeply undermined; the granulations formed a high ridge, partly covered with skin, and pus constantly oozing from the root of the nail; the whole toe was swollen, and extremely tender and painful. My mode of proceeding was that I put a very small piece of tallow in a spoon; heated it over a lamp until it became very hot and dropped two or three drops between the nail and granulations. The effect was magical. Pain and tenderness were at once relieved, and in a few days the granulations were all gone, diseased parts dry and destitute of feeling, the edge of the nail exposed so as to admit of being pared away without inconvenience. The cure was complete, and the trouble never returned. I have tried this plan repeatedly since, with the same satisfactory results. The operation causes little if any pain, if the tallow is properly heated.”

CARE OF SEEDS.—Many sorts of seeds will continue good for several years, and retain their vegetative faculty, whereas others will not grow after they are one year old; this difference is in great measure owing to their abounding more or less with oil, as also to the nature of the oil, and the texture of their outward covering. All seeds require some share of fresh air, to keep the germs in a healthy state; and, when the air is absolutely excluded, the vegetative quality of the seeds will soon be lost. But seeds will longest of all preserved in the earth, provided they are buried so deep as to be beyond the influence of the sun and showers. The dry kinds of seeds are best kept in their pods or outer coverings. When seeds are gathered, it should always be done in dry weather, and it is an excellent plan to hang them up in bags in a dry room, so as not to deprive them of air. In the common method of sowing seeds, there are many kinds which require to be sown after they are dry, and there many other which lie in the earth a year, sometimes two or three years, before the plants come up: hence, when seeds brought from distant countries are sown, the earth should not be disturbed, for at least two years, for fear of disturbing the young plants. In sending seeds from one country to another, great care is to be taken to preserve them from moisture, and preserve them dry, otherwise they will mould and decay. Various expedients have been used to restore to, to this end; but all seeds require some share of air to preserve their vegetative quality, a simple plan—where there is no other ready convenience—will be found to be, to put the seed into a bag, and hang it in a dry place, or put it into a trunk, where it will be no vermin.—*N. Y. Mercury.*

Editorial Notices &c.

BLACKWOOD'S MAGAZINE FOR FEBRUARY.—THE **EDINBURGH REVIEW FOR JANUARY.**—Leonard & Co, New York: H. Rowsell, Toronto. We are in receipt of two excellent periodicals, issued from the American press, within a month or two of their first appearance in Britain. *Blackwood* is more than ordinarily interesting this month, and the articles, *School and College Education*;—*Spontaneous Generation*;—*The Transatlantic Telegraph*, are of a very high order of merit, while there are others not perhaps less interesting and important. The new number of *Edinburgh* is also above par in the interest and attractiveness of its articles. When all are agreed it is difficult to select; the beauty of these periodicals is that they embrace so wide a range in literature, politics, science, and art, that every body finds something suited to his taste and wants. Church expansion

and Liturgical Review; The Victoria Bridge; Political Ballads of England and Scotland; Ocean Telegraphs; The Kingdom of Italy, may be mentioned among others as the topics most likely to interest general readers.

This is a seasonable time to commence subscribing to these unequalled periodicals, as new volumes have just commenced. The four Reviews and *Blackwood* can be obtained for the very low price of \$10 a year. Each, however, can be procured separately.

TORONTO NURSERIES.

Fruit and Ornamental Trees, &c.

AS the season for transplanting Trees, &c, is approaching, I beg to call the attention of the public to my Large Stock of Fruit and Ornamental Trees, Flowering Shrubs, &c., comprised for the most part of the following Nursery productions, viz: *Apple Trees*, Standards and Dwarfs; *Pears*, Standards and Dwarfs; *Plums*, Standards and Dwarfs; *Cherries*, Standards and Dwarfs; *Peaches*; *Nectarines*; *Apricots*; *Gooseberries*, all the best English varieties; *Currants* of all the new kinds; *Raspberries* of all sorts; *Strawberries*, three varieties, including new sorts; *Grape Vines*, 12 Foreign varieties, grown in pots for Vineries, &c., and for out-door culture the following proved varieties, *Diana*, *Concord*, *Delaware*, *Hartford-Prolific*, *Rebecca*, *Isabella*, *Clinton*, and *Catawba*, with all the other new kinds highly recommended in American Catalogues; *Rhubarb* of all sorts, *Asparagus*, *Sea-Kale*, *Horse-Radish*, &c, &c. Also; upwards of 200 varieties of choice Hardy *Roses*, including many new varieties now on their way from England; 100 kinds of *Dahlias*, amongst which are some new ones imported this year; 40 varieties of *Phloxes*; 1000 Plants of *Chinese Paonies* of 40 different kinds; a large collection of Flowering Herbaceous Plants; and 1000 Plants *Dielytra Spectabilis*, the FINEST Hardy Herbaceous plant in cultivation. The following Hedge plants are cultivated largely:—*Buckthorn*—the best Hedge plant for Canada—*White Cedar*, *Red Cedar*, *Hemlock*, *Privet*, *Barberry* and *Tartarian Honeysuckle*. The Ornamental Tree department will not be found wanting in any particular. All orders punctually attended to Packing done in the best manner by experienced hands. All packages delivered free of extra charge at the Steamboat and Railroad Stations. Descriptive priced Catalogues sent free on post-paid application. Address

GEORGE LESLIE,
Box 364, Toronto.

Toronto Nurseries, March 1st, 1861.

P. S.—BEWARE of *American Tree Agents*, who sell inferior stuff, at higher prices than Canadian Nurserymen. All Agents for these Nurseries have my signature to a certificate to that effect.

To SUBSCRIBERS.—We occasionally receive and hear of complaints from parties who were in receipt of the *Agriculturist* last year, that they have not received the paper this year, when in fact they had not ordered it to be continued. To all such we beg to repeat what we have several times already stated, that we stop all papers without distinction at the end of the year; and do not forward them again till we receive the order to do so. Any other system would not answer with a paper published at the very low price of the *Agriculturist*. We have still plenty of back numbers on hand of this year.

The Agriculturist for 1861.

The *Agriculturist* is published semi-monthly, each number consisting of 32 pages, and forming a volume of 768 pages.

The *Agriculturist* is exclusively devoted to Agriculture, Horticulture, and similar subjects. It is the cheapest paper of the kind in North America, and specially adapted to the circumstances of the soil and climate of Canada.

The *Agriculturist* is Post Free.

The terms of subscription are: Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars; Thirty-three copies for Fifteen Dollars, &c. Payment always in advance.

CASH PREMIUMS.

As a further reduction in price on the largest orders, the following money premiums will be paid on copies ordered and paid for prior to or on 1st April next, viz:—

To the officer of any Agricultural Society, member of a club, or other person who shall send in the largest list of subscribers, accompanied with the cash, on or before the 1st April next, a money prize will be paid of. . . \$20	To the person sending the next largest list, a prize of.	19
The next largest.		18
The next largest.		17
The next largest.		16
The next largest.		15
The next largest.		14
The next largest.		13
The next largest.		12
The next largest.		11
The next largest.		10
The next largest.		9
The next largest.		8
The next largest.		7
The next largest.		6
The next largest.		5
The next largest.		4
The next largest.		3
The next largest.		2
The next largest.		1

BOARD OF AGRICULTURE
Toronto, January 1861.

Contents of this Number.

Prepare for Spring Work.	PAGE
Salt and Lime as Manure.	123
A new Artificial Manure.	131
Botanical Society—Recent discoveries in Botany and the Chemistry of Plants.	133
Advertized Cattle food.	133
Practical expence, and Results of The draining.	134
Mowing and Reaping Machines.	137
Broad-cast Sowing machines, &c.	141
AGRICULTURAL INTELLIGENCE:	
Canadian Grain in England.	143
Sheep destroyed by Lynx.	143
Farming in New Brunswick.	143
Melbourne Prize Wheat and Barley.	144
Russian Agriculture.	145
The Breed of Horses.	145
Cultivation of Ireland.	145
Benefits of Irrigation.	145
White-horn Agricultural Society.	146
The Late Harvest in Europe.	146
HORTICULTURAL:	
Plants in Rooms.	146
The Fruit Tree business—Caution.	146
Winter Mulching—Winter protection.	147
Canker on fruit trees,—Grafting Peach trees.	147
Value of the Black Currant.	147
DOMESTIC.—To kill Cockroaches.	148
THE POULTRY YARD.—Fattening Turkeys.	148
VETERINARY.—Thorough bred.	148
TRANSACTIONS:	
Reports of Societies in Halton.	148
Report of Hamilton Society.	148
Reports of Societies in North Hastings.	148
Reports of Societies in South Hastings.	148
Reports of Societies in Huron.	148
MISCELLANEOUS.—An English dog show, 157. A strange pet, 157. The way to be wealthy, 157. The Horse in Arabia, 157. Our changing mate, 157. How the Bean climbs the pole, 157. Selection of breeding hogs, 158. Frogs, 159. Cure for ingrowing nails, 158. Care of	
159.	
EDITORIAL NOTICES, &c.	1

The Agriculturist,

OR JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA,

IS published in Toronto on the 1st and 15th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, whom all orders and remittances are to be addressed.

Printed at the "Guardian" Steam Press, King St. East, Toronto.