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THE  
CANADA FARMER:  
A MONTHLY JOURNAL

OF  
AGRICULTURAL, HORTICULTURAL,  
AND  
RURAL AFFAIRS.

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**VOLUME I.**

(NEW SERIES,)

JANUARY TO DECEMBER, 1869.

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Toronto:

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Vol. I. No. 1.

TORONTO, CANADA, JANUARY 15, 1869.

NEW SERIES.

## The Field.

### A Visit to my Neighbours to Find Some Way to Make Money and Mend my Circumstances.

The new year having arrived, with its customary festivities and consequent leisure and inclination to visit one's friends, I, among other restless spirits, who have nothing to do and plenty of time to do it, concluded to devote a few days to visiting my neighbours. In my opinion such recreation is absolutely requisite, as a farmer is much confined at home during the summer season, and the fall and early spring roads offer little inducement to leave home on visiting excursions. But, with good sleighing and a good fast horse, some time and a little money to spare, I consider it very advisable to see what others are about.

The present object in my mind is to acquire some insight into the management and feeding of cattle for the butcher, as well as a knowledge of how to raise the feed for so doing to the best advantage. It is manifest from the state of my farm accounts just balanced, that unless I make some alteration, either my wants must be fewer and less well supplied, or somebody will suffer. Growing grain alone will not pay. My farm is getting every year more foul with weeds and thistles, and the consequent yield of grain per acre less and less; so with a crack of the whip, away goes old piebald at a fast trot of nine miles an hour, to see what others are doing.

Just as I turned out of the side-line on the concession, I was hailed by my old friend Johnson, an intelligent Englishman, whose hearty halloo for me to stop at once decided my course for the trip. After some chat and explanation of my object, he asked me at once to turn back with him. He gave the reins to his son, and jumping into my cutter, we wheeled south instead of north, as my course formerly lay, and drove towards his farm, situated about ten miles off. Of course

we were soon talking shop, and I explained some of my difficulties. After listening attentively for some half hour or more, he said, "Your case is not singular, and was just mine three years since. I will give you the outline of my life and trials some years back. Four years since I could not meet my store account, which would grow in spite of all I could do. My wife did all she could to economise; our children were poorly dressed; the blacksmith's account in arrear; wheat all sold every fall, directly after harvest, to meet the absolutely necessary expenses, and each year for a while afterwards I felt a little easier. But about New Year's Day of that year, the store account came in, with a polite request for attention, and not to forget to call. Heaven knows, I attended to it enough, for it was never out of my mind, nor did I forget to call, but I did not call, for the very simple reason that it was no manner of use to do so, if payment was the object of the polite request for a visit. I talked to my wife, and we concluded that it was better for her to go, state facts and request time, offering my note for the amount. I have always felt mean ever since when I thought of it, sending my wife instead of going myself; but I had so frequently made excuses to account for irregular payment, that I felt more like running away from the village than visiting it. There was, however, no help for it, and the result of her explanations was that time was given, and I was once more comparatively at ease in my mind as to the future. But money must be earned, and how to do it was the question. As usual, when I wanted a bright idea, I consulted with my wife, who at once hit on the idea of taking a job from my next but one neighbour, of logging and fencing about 30 acres of land that some contractors had chopped, but failed to complete. A bargain was soon struck, and the terms, if I had a good season and fair returns, probably remunerative. I was to have \$4 an acre and the first crop for my work of logging, burning and fencing. I and my sons could, I knew, do the work, with one

hired man, and a good crop would make me forehanded. Early in the spring I got as many rails split and rail-cuts hauled off the fallow as would fence the land, and after my own seeding was finished we attacked the job with a hearty good will. The weather was favourable, and we soon had the job well on towards completion. My crop was good that year, and paid all my outgoings, and when harvest of the following year came, I had over thirty-five bushels per acre of fall wheat on the job lot, and sold the whole for \$1 25 a bushel. I had now a fair start, if I could only keep it; and after harvest was over, early in September, I ploughed up about ten acres of old grass sod. The work was carefully done, and in the spring, after spring seeding was over, I turned all my strength on this ten acre piece. My idea was that the half-rotted sod would yield a good crop of turnips. I dragged the land thoroughly, being careful not to disturb the sod, passing the harrow lengthwise over the land. I harrowed and rolled alternately, with intervals of a few days, until the 20th June, when I sowed the turnips in drills twenty inches apart. I was most careful never to get on the land unless it was quite dry, and in good order. The turnips came up well, and grew rapidly; and what gave me no little satisfaction was that the weeds did not grow. This fact I attributed entirely to the way I had worked the land; the constant stirring the soil had caused all the seeds, or most of them that were within the influence of the air, to germinate, and the following harrowing destroyed all that had vegetated. When the turnips were about two inches high, I made a small light harrow with wooden teeth, and passed it over the land driving across the drills. This course eventually completed the destruction of every seed that might have previously escaped. It had the effect of exposing as much as possible of the root of the turnip, which is the best remedy for "fingers and toes" I know of, and once hoeing completed the work. The result of that crop of turnips was about

eight hundred bushels to the acre, and as I had no root-house prepared, I was obliged to pit them in the field, calculating to haul them during the winter as required. I had four young three year old steers, about half Durham; and I bought on time eight more and on the first of November I tied them all up in the barn, out of one end of which I had thrashed the wheat to make room for the cattle. You will see from all this that I was hitherto all behind. I had no buildings for my stock, but I had a determination to make money somehow, and nothing daunted me. For three months I fed the steers with two bushels of turnip a day, and cut straw. But even here I had difficulties to contend with. The brutes would choke occasionally, and as I noticed they were in the greatest danger from holding up their heads with a piece of turnip in their mouths, I bored an auger hole through both poles that formed the brakes in which their heads were confined, and at feeding time I put a few wooden pins over the neck and through the poles, in such a manner that the cattle could eat, but could not raise up their heads with the piece of turnip in their mouths to such a height as to endanger choking. I never had any more cattle choked. My plan of relief when choking had taken place was to draw a flat piece of wood, with the corners rounded off, pretty quickly and with some force from the upper part of the throat to the lower, and in five times out of six this would pass the turnip down into the stomach. About the 1st of February I mixed cut hay with the straw, and soon found a sensible improvement. Some thrive well on straw; others not so thrifty did only middling; but by the 1st of March the cattle were all growing fat. I then added two quarts of pea meal each day, and sprinkled it over the damped food for a month or six weeks, after which time I increased it to three quarts each beast daily, one quart three times a day, and by the 1st of June the cattle were all first-rate beef, and weighed on foot fourteen to fifteen hundred pounds each. This I sold for \$6 a hundred on foot, for the Montreal market, and the drovers came and took them away and paid the money.

"I had kept a careful account, and found it stand as follows:—

"The hired cost of the turnips was, exclusive of working the land, just \$1 an acre for seed, hoeing, and pitting in the field. I did not reckon the work on the land, as a naked fallow would have required more ploughing and harrowing, and I had calculated to follow the field on which the turnips were grown. The hauling home was done when there was little else to do, and at odd times, so I do not think there was much increased cost here. The teams must have exercise, and as all clearing was done, we had little else to do during the winter months. By the last of the sleighing, I hauled all home and stored it in the barn, covered with straw.

But I determined to have a root-house the following year.

"The account stood as follows:

Cost of twelve heavy, thrifty, four year old grade steers, at \$30 each	Dr.	\$360 00
21 bushels of turnip a day for seven months consumed the crop of eight acres, cost of which, as before stated, amounted to		32 00
'06 bushels of ground peas at 60c		123 60
Straw I of course did not reckon.		
Half a ton of hay each beast, 6 tons in all, at \$8		48 00
Labour (that of myself and sons I, of course, did not include)		56 02
		<hr/>
		\$619 60
	Cr.	
Sale of 12 cattle, weighing each 1,400 pounds, at \$6 on foot		1,008 00

"Showing a profit of about \$32 on each beast, besides a very large and valuable heap of manure, such as I had never seen before in my yard. It was, I found, absolutely necessary to keep the cattle until June to realise the price of \$6 on foot. This course with some exceptions, I have pursued for some years past. As to the crop which followed this treatment, I had of spring wheat twenty-five bushels to the acre, where formerly I only averaged twelve, and after hauling out the manure and spreading it over the second ten acres of clover ley, the fall following, under the same treatment as to turnip culture, my crop of wheat was on an average thirty bushels an acre. From that time to this I have followed this course and with the same results, or nearly so. The cattle pay about \$30 each, and the manure which results produces fully fifteen bushels of wheat in excess upon any average I ever had before, with, of course, but little more labour.

"I found it absolutely necessary to have first class steers, as some Canada common cattle did not come up to the weight or price."

My friend Johnson having finished his account of turnip growing, we soon after arrived at his house, the result of which visit, and what I there saw and was told, I must leave for some future issue.

C.

### Selection and Change of Seed.

This is a matter of primary importance to the farmer, for however well he may manure and cultivate his land, his labour will be but thrown away if he neglects to obtain clean and sound seed of the most approved varieties, of whatever crop he intends to grow. It is the opinion of many practical men, that the crops of most kinds of grain will deteriorate when confined to selection of seed grown on the same farm, or even the same region of country, for many years in

succession. Others maintain that by always selecting the best seed from the crops grown on the farm, and taking particular care to have only such as is plump and well matured, the quality will improve from year to year. We think there is truth on both sides. We have known a farmer to sell off the best of his grain and reserve that of inferior quality for seed, remarking that, small as it was, it would grow, and that, he thought, was all that was necessary. Such an idea is a common but an erroneous one; as, although a plant will be produced from inferior seed, it will be wanting in the healthful vigour that is the characteristic of one grown from a plump and well-developed seed, which contains not only a large and strong germ, but also a full amount of the plant food requisite to support that germ until the young rootlets can eliminate food from the soil or the support of the plant.

It is the want of a proper appreciation of this fact that leads many to imagine that a change of seed, even between near neighbours, is of great value.

Thus, a farmer who does not take the trouble to select his seed wheat from the best portion of his crop when growing, and to separate and reserve it for future use, or who never frees his seed from the presence of chaff, cockles, or other noxious weeds before sowing, finds a great advantage in obtaining seed of the same variety from a neighbour who has the reputation of growing good crops, and who has a nice, plump, clean sample of seed grain for sale.

In such a case, the advantage gained is ascribed to *change*, when in reality it is due to *selection*.

But, on the other hand, varieties of grain, grasses, &c., have originated, or become common in one part of the country, and their introduction to another portion of the same or an adjoining country, proves of signal advantage to the cultivator of the soil, for a time at least. A farmer who takes an agricultural journal often reads in it an account of some new variety of grain, as yet unknown, except in some distant locality. He sends for a small sample, perhaps a few bushels, sows it, and soon discovers that it possesses some quality that gives it superior advantages over the varieties that have usually been grown in his neighbourhood. His neighbours find out this fact, and then comes a rush to him with, "Please let me have some seed of that new kind of wheat you grew last year." It is just here that we find the benefit of *change*, which is the discarding of one variety, for the purpose of giving place to another and better variety of the same article, and it would only be fair that the person who introduces and tests the qualities of any new variety of cereal should have a sort of patent right to make something out of his enterprise and outlay, by charging a higher price for the seed he grows than the ordinary price of the commonly grown sorts of the same article.

## Flax Culture.

(To the Editor.)

SIR,—Permit me to make use of your agricultural columns to make a few remarks on this branch of Canadian industry, which may not prove uninteresting to your numerous readers. During the last two years the price of this article has been much reduced, owing to the great fall in cotton since the American war; while barley, wheat, and indeed most other crops bringing high prices, several of the enterprising scotch millers have been induced to abandon the enterprise for a time.

Those practical scotch millers who continue their operations are now reaping a rich harvest this season. Owing to the failure of the crop in Ireland and other flax-growing countries last year, prices have become most remunerative, and brought our American neighbours into our market for their supplies.

It is strange that so many professing to take a deep interest in agricultural matters neglect this valuable branch altogether. It only requires a visit to the counties of Wellington and Waterloo to convince the most sceptical that the growth and manufacture of flax is one of our most important interests in the New Dominion. At St. Mary's will be found the produce of not less than five hundred acres—at Woodstock, at the fine mills of Mr. Brown, the produce of seven hundred acres, 300 of which, I am told, were grown by himself at Elora—the produce of other 500 acres at Baden, Conestoga, Stratford, Maryboro, and several other places. The most active operations are being carried on. Employment is given to from twenty to thirty hands at each of those mills, and a much larger number during the grasing season, which continues several months.

A new process has also been lately introduced which will increase the demand for labour, and a still larger number of mechanics and labourers will find work. This is the heckling process already commenced, by an extensive New York firm, at Stratford, and which I have no doubt will rapidly be followed by others, as by this process an immense saving will be made both in duty and transportation, while the fine heckled tow will find a ready market at any linen manufactory in the United States.

What is most wanted at the present time is an established market at some convenient point for shipping, and I have little doubt some of our enterprising neighbours will soon fill up this want also, so that we shall not have to depend on the periodical visits of those buyers who only find their way here when the article is scarce in other countries.

There are now at work at least twenty scotch mills. Some will produce this year fifty tons of clean scatched flax. At Woodstock, St. Mary's, Maryboro and Elora, a much larger quantity will be produced, but in round numbers, say each of those twenty mills will produce fifty tons. This would

make some 1,000 tons. At current rates, \$300 per ton, or 15 cents per pound, this would net the handsome sum of \$300,000 foreign capital brought into the country in a few months. The value of the seed also will amount to another large item, the price per bushel being from \$1 50 to \$1 60 for every 56 pounds.

Parties are becoming much more familiar with the mode of cultivation, and the difficulty of pulling, so much felt at a busy season of the year, has been overcome by the production of a machine for pulling, manufactured at Woodstock by Messrs. Oswald, Paterson & Co., which I am told will be so improved this coming season as to require only one hand to work it, a separator being attached which leaves the flax in proper quantities on the ground ready for binding. Those machines have generally been in use during the past year, and have been found to answer well, pulling from three to four acres a day, according to the quality of the flax.

I was sorry to observe the mills at St. Mary's were destroyed a few days ago by fire. Fortunately, however, none of the stock was lost, and I understand since that the proprietors, Messrs. Robertson & Black, are actively engaged in preparing to erect another mill with all the modern improvements.

In looking over the map of the Dominion, I find there are over some forty counties that have as yet to give the cultivation of flax a trial, but if each of those counties would only produce an equal amount to that now produced in Wellington or Waterloo we should have a handsome revenue coming into the country annually of from eight to ten millions of dollars for fibre and seed, to say nothing of the increased employment it would create, and help in a great measure to bring an industrious, skilful class of immigrants to our shores.

JOHN A. DONALDSON,  
G. I. Agent.

Toronto, Dec. 28 1868.

## Cost and Profit of a Turnip Crop.

Since the appearance of "Dewdrop's" letter in the CANADA FARMER for December 1st, we have received a number of communications, all concurring in the same general opinion, based on the results of actual experience. All put the cost of raising the crop lower than our first-named correspondent, and object to charging the whole expense, either of manure or labour in preparing the land, to the turnips, as the benefit extends to the succeeding crop. The chief advantages of raising roots, they unanimously set down to the improved condition of the land, the amount of cattle food, and the large production of manure. We publish one letter only, as it would involve a repetition of the same statements to publish the others. To all, however, we tender our sincere thanks

for their communications. W. R. from Cobourg, writes as follows:—

In the CANADA FARMER for December 1st, "Dewdrop" has some remarks on the cost and profit of a root crop. To one part of his estimate, I think exception may fairly be taken, that is the cost of manure. Correctly speaking, not more than one half of that, at most, should be charged to the turnip crops; the other should be charged to the following crops. This would reduce his estimate to \$36 per acre. Another thing must be borne in mind, the root crop is seldom cultivated for the direct profit they bring, but as fallow crop, preparatory to the following crops, and for the sake of the turnips as valuable food to improve the condition of the stock, and at the same time add greatly to the value of the manure.

In the CANADA FARMER for April 15, 1867, there is a communication from "Julius," York Township, in which he estimates the cost of his root crop at \$36 per acre, that they cost him 6 2-7 cents per bushel, and thinks they pay both directly and indirectly.

I condense from the *Cultivator* of May 1861, a statement of a crop of turnips grown by Mr. Brodie, of Jefferson County, New York, a gentleman known to many of our Canadian farmers. His account of the crop of 1859 is as follows:—

To Ploughing.....	\$2 00
" Cross ploughing.....	2 00
" Harrowing.....	1 00
" Drilling.....	1 00
" Covering manure.....	1 00
" Sowing and extra rolling.....	2 00
" 2 lbs. seed.....	80
" Cultivating.....	75
" 12 days' hoeing.....	12 00
" Cultivating.....	75
" 8 1/2 days' harvesting.....	8 50
" 2 days' drawing, horse and cart.....	3 00
" Rent of land or interest.....	6 00

Total cost for a little over 1 acre.....\$40 80

For this expenditure the return was 1,510 bushels of turnips, costing as above 2 cents and 7 mills per bushel. Mr. Brodie makes no account of manure; he considers the cleaning of the land in cultivating the crop a fair offset for the use of the dung the first year.

The greater the amount of bushels per acre, the less will be the cost per bushel. I cannot say what the average of the turnip crop is for Canada. By the last census the average crop for this township (Hamilton) was 377 bushels per acre, which, if "Dewdrop's" estimate is correct, after deducting perhaps the cost of manure; will make them cost nearly ten cents per bushel. The average crop of turnips in Scotland is stated at about 485 bushels per acre; the average crop for East Lothian at 568 bushels per acre.

In looking over the past volumes of the CANADA FARMER, I find turnip crops of all sizes, from 2,000 bushels per acre downwards, reported, but of course only large and premium crops are those noticed.

I may add that I have found mangel-wurtzels and carrots much more certain root crop than turnips.



## Farming in the County of Wellington

Meeting a friend from the county of Wellington, the first question asked after the usual salutations was, "Well, how do you manage about the frost now?" [Untimely frosts have been the great bane of farming in that district.] The answer was, "Better; the frost in summer has almost disappeared, and since we got the clay up, matters are mending every year. We cannot, however, depend yet on fall wheat; but we are getting into root crops and cattle. Our course is peas after clover, then plough during the fall for wheat the following spring, then fallow, well manured for turnips, then wheat, and again seed down to clover: let the land lie in clover two years, and then peas again. All we expect to get by our grain is pay for the labour we employ; the dairy pays the bare bill, and the turnip feed sufficient stock to bring in a moderate profit. There is hardly a farmer in the county of Wellington who does not now reckon from four to ten head of oxen, hence the continually increasing amount of fat cattle pouring in from that quarter."

This shows the great changes which clearing the land from the timber creates in the climate. Fifteen years ago, the frost was so bad in that county that many of the crops ordinarily grown could not be depended on, and the value of property decreased most materially. Things are now better, and cleared lands sell readily at from twenty-five to forty-five, and even fifty dollars per acre, according to the buildings. The worst township now for frost is Amaranth, and here on the low farms, where the soil is covered with black muck, the settlers have suffered greatly. Lather is similarly very much affected by frost, and so are the northern townships so far as the land remains either level, or trends towards the south and west.

The projected railroads will have a great effect in benefiting farmers in these districts. As the land is cleared, the frost will disappear, and the entire country rapidly improve.

The township of Erin, twenty years ago, was almost uninhabitable from this reason now it is one of the best farming districts, and its crops are not surpassed. Garafraxa was the next settled, and that is now almost free. So the frost cloud retires before the axe of the settler. Whether, with the frost, rains and necessary moisture will also retreat, is one of those questions which only time can prove; but we very strongly suspect that before many decades have passed, Canadian farmers will long for the moisture that has vanished with the forest and with the frost.

## Italian Rye Grass.

To the Editor.

SIR,—In your issue of December 1st, there is an inquiry from J. S. T. about Italian Rye Grass. In the fall of 1863, the Board of

Agriculture sent out several small parcels of grain and seeds, of which among others I received about three pounds of Italian Rye Grass Seed. It was sown in the spring of 1864, on a small patch along with oats, and grew and stood the winter very well. In the following summer I had a crop of seed of it, which was ripe and ready to cut before the 1st of July. A bushel of this seed was shown as an *extra* at the Provincial Exhibition at London that year. The grass had a fair after growth in the fall, some few of the seed stalks nearly ripening a second crop of seed. Very little if any grew after the second winter. Except in its after growth, I did not see that it was superior, or even equal to our common timothy grass for hay.

The seed is very light, weighing from 15 to 20 lbs per bushel, and according to Carter & Co.'s tables, they are about 400,000 seeds per lb. When sown alone, from three to four bushels of seed to the acre are used. From its early habit of growth, it is not very suitable for mixing and sowing with other grasses. Italian Rye Grass is the grass usually sown in Britain when town sewage is used, and where irrigation is practised, as from its early and quick habit of growth several cuttings can be made in the season. No doubt, could we irrigate, the same might be done here; but in ordinary cultivation our summers would most likely be too dry for it. This, however, can only be known by giving it a fair trial. In Britain this grass is sown either in April along with a grain crop, or in September after a crop of early potatoes or other summer crop. On rich moist land, or where irrigated, it grows most rapidly and luxuriantly. There is no grass which so soon forms a water meadow—indeed for water meadows it is invaluable.

W. R.

Cobourg, Dec. 26, 1868.

## The Use of a Turnip Crop.

(To the Editor.)

SIR,—I have before me the CANADA FARMER of Dec. 1st, in which I have been reading a letter signed "Dew-drop," on the unprofitableness of a turnip crop. In the first place, I do not believe in "Dew-drop's" figures; but that is not the point I wish to come at. Your correspondent (like many others) seems altogether to misunderstand the reason why turnips are sown. If he had read your paper carefully since its first issue, he might have found out by this time; but it is clear that the oft-repeated lesson must be inculcated again and again. Turnips are sown, not with the idea that any immediate profit can be got out of them, but, in the first place, to clean the land of weeds, and in the next place, to provide a stock of green feed for the cattle at a time of the year when there is nothing else of the kind. I consider that if a man gets paid for his outlay on the turnips by the increased value of his cattle he does well; for he has a clean field for his

barley, and a good stock of manure in the bargain for something else. Turnips in England stand in the place of the old-fashioned summer fallow; they are there to this day often called a fallow crop. I consider a man who has land at all levels should never summer fallow, but in place of that sow turnips or mangolds, carrots, rape, corn or buckwheat. The list is long enough, and there are even others that would do. By-the-by, some time since you expressed a wish to hear what farmers have to say about "Rape." I always sow it, and I find it useful for turning cattle on, to give the grass a chance. It is, above all, useful to the man who wants early lambs. I turned in ten ewes with the ram in the first week of October. I had nineteen good strong lambs, and raised eighteen. The nineteenth was killed accidentally. My turnips this year were by no means a bad crop; they were about the right size; had they been much larger they could not have been got in the turnip cutter, (Watson's, of Ayr). They had as much good dung as I could get ploughed in, as I put them in drills thirty inches apart, and thinned them out to twenty inches in the drill. They might have been better if they had been sown early enough. I sowed during the last week of May.

GREEN CROP,

Grey Post Office, Huron County,

Dec. 15, 1868.

## Platt's Midge-proof Wheat.

(To the Editor.)

SIR,—I have long felt the necessity of having a new variety of Spring wheat, as I am confident that the different varieties that we have been raising for a number of years are all deteriorating. When I located myself in Rice Lake Plains, about fifteen years ago, we had no difficulty in raising twenty-five bushels per acre; but of late years, with the land in a higher state of cultivation, our average is not over twelve. I have tried a great many varieties, but they all have come short of the required standard, except Platt's Midge-Proof. In the spring of 1867, I received one bushel from Mr. J. J. Watson, of Adolphustown, and I sowed it on three-fourths of an acre, from which I had eighteen bushels. It was entirely free from midge and rust. My Club and Fife wheat, with the same condition and on the same quality of land, only yielded twelve bushels per acre. If I had sown all the land I had in wheat in 1867 with the Midge-Proof, and sold it at the same price as other varieties, I would have made over one thousand dollars more than I did out of my crop. So well satisfied was I of its superiority over other varieties of Spring wheat, that last Spring I bought a sufficient quantity from Mr. Giles Moberly, of Adolphustown, at a high price, to sow fifty acres. I have just thrashed it, and I must say that it has fully come up to the expectation. Much of the

crop yielded over twenty bushels per acre—this, too, in spite of last summer's drought—and my land is naturally dry; consequently, the crop was injured to some extent. My neighbour, Mr. John McKinlay, had twenty bushels from fifty-three pounds of seed.

THOS. WALKER,

Coldspring, County of Northumberland, Ont.

### The Dignity of Agriculture.

To the Editor.

SIR—It is the popular opinion much in vogue in society, and sometimes indulged in by writers, that agriculture does not receive the abilities or talent accorded to other professions and pursuits. There can be no greater mistake. The cities or professions do not receive all the country's talent; the farming community can furnish men endowed with natural faculties and ability to promote a nation's welfare and greatness, in as large a proportion as any other class.

Small lawyers can drain their clients, and unscrupulous doctors may drag their patients, with the exercise of little knowledge, their material to work upon being the common ignorant herd. The farmer, on the other hand, has to deal with all the infinite and immutable laws of nature and science. To be successful, he should not only have scientific attainments, but above all, must be conversant with the practical details of the thousand-and-one operations of his exhaustive art; the acquisition of which knowledge is sufficient to form the study of a lifetime. The successful prosecution of agriculture requires no mean talent, and that it does receive it, the thousands of successful farmers throughout our country amply testify.

The village shopkeeper, again, can measure tape, vend sweetmeats and patent mouse-traps to the gaping crowd, and turn many an honest penny (and some not so honest), with not a tithe of the study necessary to secure the success of the simplest operation in the cultivation of the soil.

The false ideas concerning the dignity and true worth of agriculture, constitute one of the greatest errors incident to the superficial society of our new country, being held generally by the less intelligent class, and sometimes affected by farmers' sons themselves, labouring under the innocent assumption that men of means and culture do not engage in so common and vulgar an occupation as the culture of the soil. Such a notion is altogether mistaken and delusive. Agriculture has for its patrons the highest and most intelligent of every country. The flower of English gentry, and even royalty itself, have shown a sincere delight in the pursuit, and an exalted appreciation of its position and objects: surely then it is worse than folly and affectation for Canadians to hold it in light esteem.

X. Y. Z.

L'Orignal, Dec., 1868.

### Notes on the Weather.

As all take an interest in that never-failing topic the weather, we keep a regular record of it. The past month, December, has been one of unusual coldness for the season of the year. The temperature has ranged from 6° below zero, on the 20th, the coldest day, to 48° on the 20th, the warmest day. There have been ten clear days, twenty one cloudy days, and seven days on which snow or rain fell. On the night of the 4th a heavy snow storm occurred which covered the ground, and made it passable for light sleighs. A snow-storm on the 7th and 11th, followed by cold nights, made the sleighing pretty fair for loaded teams, when a thaw set in, leaving the ground bare in places, though still passable for light sleighs, till the 20th, when a rain-storm washed the snow away. Our cows and horses have been eating hay since the 22nd October, but the pastures having a pretty fair top of grass, the sheep and young cattle could not be induced to quit them and take to hay till after the storm of the 5th December.

### How to Make Stone Boats.

A correspondent of the *Country Gentleman* gives the following directions for making a stone boat:—Procure plank two and one-half or three inches thick, (if of best oak timber, two inches is sufficient,) sawed eight feet long, six feet of which will be sawed straight—the other two feet at an angle of twenty degrees, for the purpose of giving sufficient rise to the front part of the "boat," to enable it to ride over stones or any other obstacles in its passage; these plank to be put together and fastened by cross bars of strap iron, so as to get the desired width—(30 to 36 inches is a proper width for moving stone.) At each side, pin or spike a rib piece, three inches square, to prevent stones rolling off. The front part should be rounded off, and strengthened by an iron band, well bolted, on to which rings may be fastened. Pass a short chain through these rings, so arranged that a crevis (if horses are used,) or a hook (if oxen,) may be attached, and it is ready for use. Large stones may be rolled on this "boat" and moved off, even on bare ground, by a yoke of stout oxen, that would otherwise perplex one to get rid of.

Another and cheaper mode is to get two small trees, about eight inches through at the root, that have sufficient crook to make sled runners; fit the crooks together in shape similar to the "wish-bone" of a fowl; cut the sticks off the desired length (six to eight feet;) put a stout pin of wood, two inches thick, through both crooks near the "nose," which wedge at each end; this holds them together. Put another pin, same size, about a foot below, which must also be wedged to keep its place; this is to draw by. Then pin on cross pieces or stout plank for a deck, with gunwales of sufficient height to prevent stones rolling off, and the machine is complete. Of course the bark must be peeled off the running side, to enable it to slip easily. This machine, without the deck, and with a beam pinned across the middle and notched in the centre, makes an excellent implement to draw logs—one end being loaded on it, the other, "barked," trailing on the ground.

By using the fork of a tree, cutting off the two branches at proper length, and pinning a floor across, a very useful and simple kind of sled may be constructed, without the necessity of bolting together two pieces, as in the last example.

### Making Farm Gates.

Field work usually takes so much of the farmer's time and attention in the warmer portion of the year that but very little thought is given to the small "carpentering jobs," and unless farm gates are made up during winter, the premises are very likely to be poorly supplied with convenient passways from one field to another.

If the gates are made up at this season they are ready to hang when spring comes, and the frost is sufficiently out of the ground to admit of setting posts. To make them requires but very little mechanical skill; the most essential point is, to construct them so that they will not sag upon the posts. A gate as commonly made will sag of itself, let the post be ever so firm.

A very good gate may be made as follows:—Take two pieces of three by four scantling, one piece four or five feet long, according to the height of the fence, and the other twice the length of the first, then let the boards into the uprights their thickness, and before nailing them, dove-tail a brace into the notches already cut, running from the top of the latch end to the bottom of the hinge end. This brace can be made of a three-fourth strip of board, and should be about four inches wide. After putting the gate together put on battens and nail them firmly to the scantling; also nail battens in the centre, and for these wrought nails should be used.

To give support, a three-eighth rod of iron should be fastened at the top of the hinge scantling and extend down to and pass through the top of the latch end, with a nut upon the end so that the rod may be drawn tight. After tightening up, cut the end of the rod off even with the nut.

Another way, and one constructed with less expense, is to dove-tail the brace from the lower end of the front to the top of the hinge scantling, nailing firmly where the brace crosses the boards with wrought nails. This dispenses with the use of the rod, but does not look as well for a road gate.

Set the post upon which the gate is to hang firmly in the ground, and let it extend a foot further above the earth than the hinge scantling is long. Use solid hinges, and put them on about fifteen inches from the ends of the long gate bar.

Gates made after the foregoing directions are not new or uncommon, but are just as durable and cheap, for all that.—*Ohio Farmer.*

### The Canada Thistle as a Subsoiler.

An intelligent and observing farmer writes us: "Many years since I cut a ditch into a well that was seven feet deep, and laid a pipe from that well to convey the water to a barn-yard. After 16 years the pipe required repairing. To make the repairs it was necessary to dig up the pipe. I found the earth that had been cast back into the ditch was full of the roots of plants. Canada thistles seemed to enjoy this subsoiled earth very much. The difference was so marked between the undisturbed earth on each side of the ditch and that within it, in regard to the presence of the roots of plants, that I venture the assertion that the most inveterate unbeliever in deep ploughing, if he could have seen this ditch dug the second time, would have admitted that there was one piece of land that deep ploughing would greatly improve. \*\*\* I spoke of Canada thistles in this ditch. This much-dreaded weed is a great subsoiler, sending its roots down to water, if the water is within reasonable distance. Take a rank patch of Canada thistles, plough it and cultivate as often as the thistles show a bit of top, for one year; then put on

a crop, and mark the rank growth on the ground in which these thistles' roots have been subsoiling for years. Put on this land red clover, and let the clover roots take the place of the thistle roots, and this old thistle patch will pay about as good dividends as any land you have." We have no doubt that deep tap-roots that descend into the subsoil bring up considerable quantities of plant-food, which, if the plants decay on the surface or in the surface soil, must add to its fertility. This is one reason why clover is such an admirable renovator of land "worn out" by superficial cultivation. But it is also true that in the case mentioned by our correspondent, "ploughing the land and cultivating it as often as the thistles show a bit of top" would in itself enrich such soil as he is the fortunate possessor of.—*American Agriculturist.*

### Deep Ploughing.

The following paper was read by Mr. Greeley before the American Institute Farmers' Club, Dec. 1, 1868:—

Many controversies result from imperfect definitions. The same words, the same phrases, convey different ideas to the rival disputants. Let me begin, then, by making myself clearly understood. To save time, I will define by negation or exclusion—as follows:—

All soils do not require ploughing to the same depth, because

I. A large portion of the earth's surface should never be ploughed at all. No wet lands should be ploughed until thoroughly, permanently drained; ploughing them while still wet, or certain to become so after rains, is throwing labour away. A very large area—consisting of swamps, marshes, bogs, fens, sea, lake, river and brook margins of intervals, frequently submerged or sodden—should never be ploughed until drained or embanked.

II. Then a great proportion of the rocky hillsides or crests, which consist simply of rocks thinly covered by and often protruding through the soil, should never be ploughed, but should be kept always in forest from which timber is taken from time to time, but never to such extent as to reveal its ruggedness. Westchester County alone has thousands of acres, now denuded and devoted to grazing, which should never have been cleared. Cut off the timber, if you are not content with cutting out, but keep such rough land always in wood. Its cultivation can never pay; its grass is burnt up by a sultry week; while stripping it of timber tends to render our springs and streams scanty and capricious. There is nothing worse in our rural economy than this uncovering of rocky steeps, that ought to remain timbered evermore.

III. There are, moreover, lands too sterile to be cultivated with profit, at least while so much good land lies idle and useless. These lands are often level enough and not too stony; but it will cost more to bring them to a proper state of fertility than they will then be worth. Some of these might be, and probably ought forthwith to be, sowed with nuts and tree seeds, and so covered with timber, probably the plough might be advantageously used in the process; but it would be unwise to subject them to other culture for ages yet, if ever.

IV. Then there are lands which have a good though shallow surface soil, but covering a poisonous subsoil, which must not be disturbed. Prof. Mapes found such a tract in West Jersey, where a stratum of Sulphate of iron (copperas) lay but eight inches below the surface. To plough into this, and mix it with the surface soil, arrested vegetation altogether.

I have thus fully conceded that deep ploughing is not everywhere requisite. Now let me show where and why it is needed:

I. It has been abundantly demonstrated here that the roots of plants are often found at a distance of several feet from the stem. Any of us may have seen that this is as true of Indian-corn as of Canada thistles: with a microscope and due patience, the roots of wheat may be traced from four to six feet. Of course, these roots seek nourishment and find it. Nature, in the broad view, makes no abortive, at least no wanton, effort. Roots wander in search of food not otherwise to be found.

II. Our subsoils are generally compact and repellent. Wherever a ditcher would naturally use a pick, there few roots can make their way except very slowly and by wasting effort. Few or no cereals or edible roots can feed and flourish on the penetration of such subsoils. And, while our sands and looser gravels are more easily traversed, they seldom contain the plant-food whereof the roots are in search. They either remain unpenetrated, or the effort is unrewarded by any gain of nutrition to the plant.

III. Our summers and autumns are often persistently hot and dry. The continuously torrid suns which this year destroyed half the later crops of Europe, are here encountered as often as every third year. Drought is one of the foremost causes of the failure of our crops. Our ancestors mainly emigrated hither from the British Isles, from Holland, and the coasts of Northern and Western Europe, where humidity is the rule, protracted drought the exception. Sixteen inches of soil in our climate is hardly equal, as an antidote to drought, to six inches in Ireland or Holland. And yet the best farmers in those countries agree in commending deeper ploughing.

IV. What we advocate is not the burying of the vegetable mould or natural surface-soil under several inches of cold, lifeless clay, sand or gravel. If the subsoil is not to be enriched, it may better remain the subsoil; but that does not prove that it ought not to be lifted, stirred, aerated, pulverized. The right thing to do is to enrich as well as mellow and aerate the entire soil to a depth of fully eighteen inches; though twelve may answer as a beginning. Use a Michigan or a subsoil plough, if you will, and keep the various strata where nature placed them; but give your plants, like your cattle, a chance to reach food and drink at all times. Let down the bars that would keep them from the life-giving springs.

V. Plants look to the soil for 1, anchorage; 2, moisture; 3, most of their food. If they cannot find these more certainly and more abundantly in twelve to eighteen inches of soil than in six, then reason is a fool, mathematics a conjectural science, and a farmer should prefer a balance in bank to his credit of \$600 to one of \$1,600.

VI. We are told that roots prefer to run near the surface, loving the warmth of the sun. Let them run there, then; we do not hinder them. Make the soil rich as well as deep, and let them run near the surface for warmth, or descend for moisture, or both, as they shall see fit. We proffer them freedom of choice. If a wet season attracts them to the surface, a dry one must constrain them to dive for moisture. It is our duty so to provide that they may flourish, however wayward the season.

VII. I have a steep hillside, which I choose to cultivate, the soil being warm and kind. Plough this six inches deep, and the first hard shower sweeps its soil in cart-loads into the brook below, where it is useless. Plough it twice as deep, and not a peck of soil will be flooded off in a lifetime.

VIII. In a wet season deep ploughing does, at the worst, no harm. In a dry season, it doubles the crop.

IX. Unless a small army is more effective than a large one, an empty pocket-book better than a full one, a lean crop preferable to a large one, then a deep soil must be more productive than a shallow one.

Every farmer should have a compost heap. Collect every kind of fertilizer, and to prevent any from liberating the gases, keep the whole covered with earth or muck.

MACHINERY IN HAY-MAKING.—A writer in the *Practical Farmer* estimates, from the actual cost of haying operations during the past year, that by the use of machinery he effects a saving, after making allowance for the cost of the machinery, of nearly \$500 in harvesting and stacking one hundred acres of meadow hay.

LEACHED WOOD ASHES.—An English farmer gives the following in regard to the value of soap ashes: "My opinion of soapers' ashes is confined to the application of it as a top-dressing on pasture land. About twelve years ago I agreed with a soap boiler for 150 tons of soapers' ashes. I used to apply about twenty waggon loads per acre, and a single bushing would let the whole in. I was laughed at and abused for my folly, the wise ones alleging that my land would be burnt up for years, and totally ruined; all of which I disregarded, and applied my soapers' ashes every day in the year, reeking from the vat, without any mixture whatever. I tried six acres mixed up with earth; but I found it only doing things by halves. My land never burned; but from the time of the application became a dark-green colour, bordering upon black; and has given me more, but never less than two tons per acre since."

PRIZE POTATOES.—An esteemed correspondent from L'Original, over the signature J. F. C., sends us the following communication, containing a correction for which we thank him.—In the item relating to Early Goodrich Potatoes, in the CANADA FARMER of December 1st, (page 351), read "produced at the rate of 20) per cent. more than the common 'Reds,' and 100 per cent. more than the 'Californians,' which are the proper figures, not '300 and 200 per cent.' as printed. The varieties yielded at following rates:—Common 'Reds' 200 bushels per acre; 'Californians' 300 bushels do; Early Goodrich 600 bushels. We may refer to crop viewers of our Township Agricultural Society for correctness of these figures, who saw the potatoes dug and calculated their yields, and awarded us first prize for the crop (Early Goodrich varieties.) Other Goodrich varieties yielded—Harrison, 400 bushels per acre. Calico, 375 bushels do., and Garnet Chili 250 bushels. The last four varieties are the best of all the seedlings originated and disseminated by the late Dr. Goodrich. All the potatoes were badly affected by the extremely hot and dry weather of the season, the soil being a light sandy loam, none of the varieties, it is believed, yielding a full crop. Of the Goodrich seedlings, the Harrison and Garnet Chili were worst affected, and their produce materially lessened. The Harrison is said to be the largest yielder, and best for a main crop."

## Stock Department.

### Winter Management of Live Stock.

The breeding and management of the domesticated animals, comprise several of the most interesting and important questions in relation both to the theory and practice of agriculture; and it will be found, on a careful consideration, that much of the profit or loss of a mixed system of husbandry depends on the manner in which this department is conducted. Serious losses are often incurred from want of information, judgment and systematic management. To do this, the most effectually and profitably, a knowledge of the relative feeding values of the different instances employed in the keeping of stock is indispensably necessary, together with some correct acquaintance with the laws that govern the health of animals, and the physiology of nutrition. An extensive experience, involving perseverance, careful thought and correct habits of observation, is a primary qualification in any one aspiring to become an enlightened and successful manager of his stock.

We sometimes hear or see it stated that the long and severe winters of Canada involve not only serious drawbacks, but insuperable objections to the raising of stock, except on the most limited scale, in this country. Most true it is, that if our winters were to become shorter and milder, a less amount of food would be required, and the farmer consequently relieved of some trouble and anxiety even, as to the healthy sustentation of his animals through this trying season. It should be borne in mind, however, in forming a correct opinion on this question, that if our winters were milder, more damp and changeable, the health and thrift of the domesticated animals would in all probability be deteriorated. The winter climate of Canada is unquestionably healthy, both for man and beast. The uniform character of the season, with its dry and bracing air, its light and sunshine, are conditions most favourable to animal health. It is a notorious fact, that our live stock of all kinds, if treated with moderate care and liberality, are not nearly so much subject to disease as they are in the British Islands and other countries, enjoying a much milder winter temperature. The first care of the Canadian farmer should be to procure a sufficient amount of nutritious food to carry his stock through the winter, and use all necessary precautions to economise the same, and to promote the cleanliness, warmth and thrift of his animals. It will be at once apparent how greatly dependent these conditions are on an efficient system of productive cultivation. These two great branches of husbandry are intimately connected, and mutually dependent.

We now proceed to offer a few practical hints on the management of live stock, which some of our readers may find seasonable and useful.

Next in importance to the supply of a sufficient amount of nutritious food, we should place, in a climate like ours, the proper sheltering of animals, a matter in some instances almost wholly neglected, and in most but very insufficiently regarded. This condition does not necessarily involve, as some no doubt will at first imagine, expensive buildings, which in a new country only few comparatively can obtain. A little thought will readily suggest to any man of ordinary aptitude, inexpensive artifices for protecting cattle against the inclemency of the weather. The chief thing is to keep them dry and free from cold draughts. In this way their comfort is not only promoted, but also their growth and strength; and these advantages are gained with a less consumption of food than would be required under opposite conditions. It has been proved by the physiological chemist that animal heat, or the temperature of the body, is sustained by a sort of combustion which a portion of the food undergoes by the action of oxygen in the living organism. The more exposed, therefore, an animal is to wet and cold, the more food it requires to keep up the natural heat of its body, and to repair its waste, or increase its size and weight. In practice, unhappily, this important fact is sadly neglected in reference to all classes of farm animals, the horse even in many instances forming no exception.

But whilst studying with sedulous care to keep his stock warm and dry, sufficient ventilation is a matter of equal importance. No animal can thrive or be healthy that is constantly breathing a vitiated atmosphere. A regular supply of pure air to the byre or stable is essential, avoiding as much as possible strong currents, and providing for the ready exit of air that has become vitiated by breathing. Sheep especially require to be carefully looked after in this respect, as they often suffer in winter from overcrowding in low and confined places. This animal, with its warm fleece of wool, is well protected against the cold of our winters, and with a moderate share of attention is seldom injured thereby. But the case is very different when sheep are closely confined, or exposed to wet, a condition far more injurious than even extreme cold. The pig too is an animal very sensitive to atmospheric changes, and will always repay for any pains bestowed in promoting his warmth, comfort and cleanliness. It is true that, in Canada, animals generally suffer much more in winter from too much exposure and neglect of cleanliness and regular feeding, than from confinement in tight apartments. Yet one occasionally sees brick stables so constructed that adequate ventilation is impracticable; a state of things most adverse to health and productive of disease.

In the winter management of stock, much more is required than the supply of a sufficient amount of food. We have seen already that such amount is a varying quantity, according to the physical conditions in which ani-

mals are placed, as regards dryness, ventilation and temperature, and we have now to add regularity and system in feeding. A smaller amount of food, given with regularity, will be more beneficial than a larger quantity supplied in a contrary manner. As farm stock in winter are in this country wholly dependent on the care and skill of man for their supply of food, this is a matter of very great moment. Animals accustomed to be regularly fed, have an unmistakable faculty of making their wants known when their meals are retarded; and the squealing of the pig is a remonstrance against the neglect of his careless master. This principle applies with still greater force to the feeding of fattening stock, which require to be kept as quiet as possible, as any nervous irritation occasioned either by irregularity of feeding or any other cause, injuriously affects the digestive and assimilating processes, and consequently retards the ripening of the animal. Further, a regular supply of *wholesome water* is of equal importance, especially to animals that chiefly subsist on dry food. There is too much reason to fear that they sometimes suffer greatly in this country, both in winter and summer, for want of a *regular supply* of this necessary element of life.

It may be further remarked, that a mixed dietary, consisting of different kinds of food, is as necessary and beneficial to the domesticated animals as it is to man. Without referring to physiological reasons and the results of carefully conducted experiments, experience and common sense have long since taught the farmer, that animals generally do not thrive so well when rigidly kept on one particular kind of food. It has also been found from experience that it is beneficial to alter occasionally the condition in which the same species of food is given to stock; hence the chaffcutter, boiling, and steaming have of late been extensively employed, with results unquestionably beneficial. The thin slicing of turnips was considered, years ago, a great improvement on the former condition in which that valuable root was fed to cattle and sheep; but of late the pulper has been introduced for reducing turnips to a fine, soft mass, intermixed with chaff or cut hay and straw, and occasionally with corn, barley or linseed meal; a mixture possessing many economical and feeding advantages.

The Canadian farmer must mainly depend on his own productions for the sustentation of his stock; hay, straw, corn, flax and roots, supply the materials for this important purpose. He cannot afford, if he had the opportunity, to purchase those various foreign productions of which British farmers now so largely avail themselves. By careful attention to the few hints here given, and to others that will readily suggest themselves to every practical man, the raising and preparing live stock for market in Canada can no doubt be much economised, and made to produce a profitable return.

### Fattening Sheep in Winter.

As a general thing, the price of mutton does not reach the point at which it will pay to fatten sheep in winter, till the winter is nearly over. Sheep that have attained a high condition on the late fall pastures will retain their condition far into the winter, if they get enough of clover hay, or pea straw, and comfortable shelter; and so long as most of our butchers can buy animals in even tolerable condition, at a cheap rate, they will not give anything like a fair price for those on which extra care and food have been lavished, in order to make them fat.

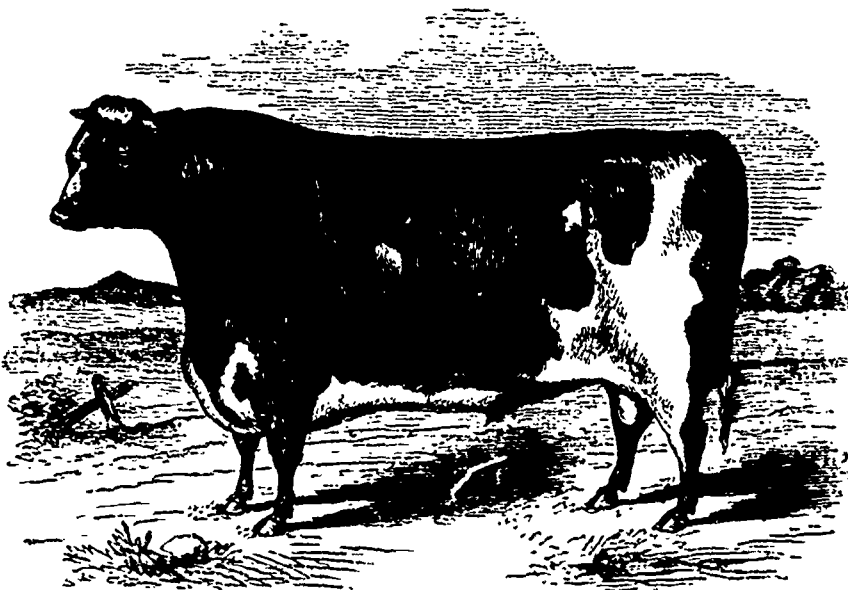
We have had some experience in the matter, and know sheep will fatten readily at moderate expense, if the right method is taken and proper animals selected for fattening. In England, where manure is of high value, it pays to fatten sheep to a very high point, and over a long period of time, the

object being not so much to make mutton, but rather to make use of the sheep as a cheap vehicle for transforming turnips and straw into a valuable and concentrated manure, in order to raise wheat.

Other things taken into consideration, large sheep fatten more easily and profitably than small sheep, and full grown animals than those that have not reached maturity. Two year old wethers are the most profitable to fatten, and it is a matter of considerable sur-

prise to us that so few of our farmers breed them. Sheep will fatten readily in winter on good clover hay alone; we do not mean the dark-looking, burnt-up stuff commonly called by that name, but what an English farmer would call "hay," cut when in full bloom, and cured in such a manner as to retain all its sweet juices before they are turned into woody fibre, and of a good green colour. A sheep of, say, 120 lbs., live weight, will consume 21 lbs. of clover hay per week, and increase in weight 2 lbs. Allowing that it would ordinarily consume 14 lbs. to keep it in good stationary condition, an expenditure of 7 lbs. of hay extra will produce 1½ lbs. mutton, worth in the spring 10 cents, so that the extra feeding is literally realizing to the farmer at the rate of nearly \$30 per ton for his hay. No other stock, we think, will give such a return for the trouble of fattening as this. If it is desired to fatten sheep rapidly, the addition of a small quantity of oats to their other feed will be of great service; a gallon of oats,

once a day, among twenty sheep, will be a great help to fattening. Fattening sheep do not require very warm quarters, in fact they will not bear close confinement, but their quarters must be dry, well ventilated, and abundantly littered with clean straw; they must be fed regularly, kept quiet, have access to water, and an occasional taste of salt. It will be found that when the weather is very cold they will require to consume somewhat more food than at other times, in order to counteract the waste of substance used in generating heat for their bodies, otherwise they will lose, instead of gaining, on very cold, stormy days. Very few Canadian farmers have yet discovered how easy and profitable it is to fatten sheep for the spring and early summer market; first, because they do not generally raise wethers, and secondly they have not learnt how to make clover hay properly. When we state the consumption at 21 lbs. of hay per head per week, we sup-



pose that none of it is allowed to be wasted or trampled under foot by the sheep.

Kenwyn Farm.

J. M.

### The Short-horn Bull, "Sweepstakes."

Amongst the most prominent agriculturists in the Western States who have recently directed their attention to the raising of improved stock, Mr. J. H. Pickereil, of Harris-town, and Mr. W. R. Duncan, of Towanda, Illinois, have taken foremost rank. These enterprising breeders recently paid a visit to this country, to inspect our finest Canadian herds, and make purchases for the improvement of their own. To each of them Mr. Cochrane sold some of his choicest imported stock. Some of Mr. Miller's best animals were bred by Mr. Duncan. From a number of very fine photographic portraits which these gentlemen left at the office of the CANADA FARMER, we have selected one of the best bulls in Mr. Pickereil's herd for illustration.

"Sweepstakes," the subject of the accompanying engraving, is four years old, and has won prizes in Kentucky as a yearling, and in Illinois and Missouri, carried all before him on the two year old and three year old rings, besides winning sweepstake prizes both years, (1866, 1867) at the State and other fairs. The sum total of the premiums he has gained amounts to nearly \$1,500.

The interchange of choice stock between our neighbours and ourselves, will be to the advantage of both parties, and we may thus worthily stimulate and aid each other in the work of agricultural progress.

### Bits in the Horse's Mouth in Frosty Weather.

(To the Editor.)

SIR:—You often exhort your readers to treat with kindness what man terms "the lower creatures." They ought to do so. The highest of all authority says, "A merciful man regardeth the life of his beast." I am, therefore, encouraged to hope that you will allow me to say a word in behalf of a class of animals most serviceable to man—one, indeed, of the most useful which God has given him.

It is now winter—a season during which the weather, I need not say, is often intensely cold. It is well known that when what I may term frozen iron, is applied to a moist part of the skin, the metal and animal tissue stick so firmly to one another that, if quickly separated, the skin is left on the iron. Now, any one who has paid the slightest attention to a horse's mouth, knows that it is a most delicate structure. Of course, then, as can easily be supposed, putting bare bits into their mouths in frosty weather causes them great pain. It not infrequently happens that the skin is torn off, and the mouth made to bleed.

Speaking on the subject of this communication, you very properly remark, in one of the earliest issues of the CANADA FARMER, let a man put a piece of bare iron into his mouth, some day when the thermometer is far below zero, and see how he will like it. I would add, let him fasten a piece of cord to each end of the iron, and then jerk it about in his mouth. But many persons seem to imagine that, because the Creator has not endowed these poor creatures with speech, they do not suffer.

What then is to be done to remedy the frequent cruelty in this respect? The easiest

thing would be, to put no bits at all into horses' mouths; but I utterly despair of ever seeing the day when they will be dispensed with. I must, therefore, propose some other remedy. I am informed that the iron-work in the tower of the Parliament Buildings in England is covered with a composition which becomes very hard, and sticks so firmly to the iron that often, after an attempt has been made to separate them, the former takes a piece of the latter with it. Further, a way has lately been found out, by which stoves can be enamelled, thereby rendering the use of black lead altogether unnecessary. Now, Sir, it seems to me that if bits were treated in one or other of the ways just mentioned, a great advantage would be gained. The heat of the mouth would not affect the coating, and only a small part will be acted on by the teeth. What would thus be worn off could be supplied with a piece of cloth. This would not require to be done very often during the winter. The benefit thus secured would be more than an equivalent for the little trouble caused thereby. But there is a remedy within the reach of every one. It is to cover the bits with cloth. I need not repeat what I have just said regarding the action of the teeth. An acquaintance of mine, every winter, makes use of the last mentioned remedy. But I must not make this communication any longer. Let the end which I have in view be an excuse for the length of it.

#### CHEVAL.

**INDIAN CORN FOR FATTENING HOGS.**—In this county peas are used exclusively for fattening hogs, and probably impart a firmer consistence to the flesh than other feed, rendering it when cured well adapted for long keeping or transportation; but for home use we recommend a liberal allowance of Indian corn, wherever it can be procured, as giving a particularly rich, sweet, and pleasant flavour to the bacon and hams. Variety of food is always conducive to the health of the animal and the excellence of the meat; but hogs fed on corn and milk, as the staple of their diet, yield the most delicious pork, whether fresh or cured, and are unrivalled for family consumption.

Eight thousand sheep perished in a snow storm in south-eastern France, recently, causing their owners a loss of \$25,000.

## Natural History.

### The American Hare.

(*Lepus Americanus*).

In a former number of THE CANADA FARMER, we gave some notice of the Order Rodentia and its distinguishing peculiarities. We have already described several of the animals of this order, the Beaver, the Muskrat, the Wood Chuck and Squirrels. Hares, Rats and Mice, among "Canadian" mammalia, belong to the same order.

Rodent animals, our readers will recollect, are characterized by their front teeth, two of which in each jaw are very largely developed. They consist of ivory, covered in front with a layer of hard enamel. The teeth

white, but in winter the prevailing colour is white, with a few patches of bright fawn-colour over the legs and ears. The hind legs are about twice as long as the fore legs, a peculiarity which causes the characteristic jumping gait of the animal. The length of the adult is from twenty to twenty-five inches.

The change of colour in the coat is produced by the action of cold on the hair. A Lemming, an animal whose hair changes in a similar manner, was caught in the summer by a party of Arctic explorers. It was confined in the ship's cabin and kept warm, and no change took place in the colour of the hair till long after the usual period. But on the 1st of February, it was brought on deck, and exposed to a temperature of 30° below zero. In a few hours the fur began to change,

and in the course of a week was quite white. The Hare sheds this white coat in the spring and obtains a new one, which in its turn undergoes a similar change. The American Hare lives in dry pine forests, and seldom ventures into cleared land. Its food consists of grass, buds, bark, berries and leaves. It is said to be very fond of the leaves and berries of the various species of *Pyrola* and of the *Pipsissewa*, and is also sometimes accused of peeling or gnawing the bark from apple and other trees. But the smaller rodents of the mouse family do the greatest part of this



are constantly growing, but are worn away as fast as they grow by friction against each other, and from their being harder in front than behind, a sharp cutting edge is always left in front. These teeth have generally been considered to be incisors, but in the hare two small teeth are found between them in the upper jaw, and hence they are more likely to be canines, that is, the teeth which are so largely developed in the dog. If this is the case, the true incisors have become abortive in this order from the unusual development of the canines.

The American Hare (*Lepus Americanus*) was for a long time confounded with the Alpine Hare (*L. variabilis*), from which it is however quite distinct, but with which it agrees in turning white at the approach of winter. It is found from Hudson's Bay Territory to Pennsylvania. Its coat in summer is fawn-coloured or reddish-brown above, and white below. The edges of the ears are also

kind of mischief in the orchards. The stomach of the Hare resembles to a certain extent that of ruminating animals, and it is remarkable that in the Jewish law it was set down as one of the animals which chew the cud.

The American Hare does not burrow, but makes its nest of moss or leaves in a hollow tree or decayed log. From this retreat it is sometimes dragged by a process called "twisting," which many of our readers have doubtless seen. A long switch is thrust up until it reaches the animal, and then twisted round a great number of times until it becomes entangled in the fur so that the unfortunate hare can be dragged out. Mr. Gosse calls this practice "a curious but cruel experiment." An unusually large number of hares have been exposed for sale during the present winter. Without some moderation, many of our wild animals will soon become extinct, entailing on the country a more serious evil than the loss of sport.

### Hybernation.

We are all familiar with the wonderful winter sleep of plants. It is only a few months since the trees were covered with leaves and the ground was gay with flowers. Now all is changed. Winter has thrown her chill mantle over the earth. The trees are bare and leafless, the flowers have vanished from the scene, and all nature seems to be dead. It is, however, only seeming. A few months more, and the forest will again be green. The lovely little Hepaticas and Spring-beauties will herald the coming floral awakening. The Trilliums and Wood Anemones will soon follow; and vegetation, awakening from its winter sleep, will again flourish in wood and field. In certain animals an analogous process takes place. At the approach of the cold weather they retire to some nook or cranny, some hollow tree, or hole or cave, and there pass the winter months in a state of semi-torpidity. This winter sleep of animals is called *hybernation*. The frog and the turtle bury themselves in the mud, the snake ensconces himself in some hole in the ground or beneath a log or post, and the bear in the hollow trunk of a decayed tree or in some den or cavern in the rock, and prepare themselves for the long sleep which is to last till spring. The power which these animals possess of thus remaining for many months without food, depends upon a diminution in the activity of their vital processes during the winter season. This diminished vital activity causes the waste of the animal tissues, which is always proportioned accurately to the activity of the function, to be reduced to a minimum, and hence little nourishment is needed for their repair. A man who is working hard, who is constantly putting every muscle of his body into violent action, uses more nerve force (whatever that may be), causes greater waste in the system, and hence requires more food, than the man who, like the *lazzaroni* of Naples, spends his time in lounging about the streets, and in consequence finds a light repast of macaroni sufficient for breakfast, dinner and tea.

Another great cause for the demand for nourishment in warm-blooded animals, is the necessity of preserving a uniformly high temperature. But in hybernating animals this cause does not exist during the period of their winter sleep. When the temperature of the atmosphere falls below 50° the temperature of their bodies sinks in proportion, remaining however about 4½° above it. When the atmosphere sinks to this temperature they fall into a stupor, in which they continue till returning warmth awakes them from it.

That hybernation is dependent upon cold has been shown by numerous experiments on marmots, hedgehogs and dormice, which have been made to fall into a state of torpor in the middle of summer by placing them

in an icehouse. On raising the temperature to 52½° they awoke; and the same thing takes place if a hybernating animal be exposed to this temperature in the depth of winter.

The respiration of hybernating animals is very slow, sometimes not faster than four or five times in a minute. Indeed if the temperature fall very low, it ceases entirely, and the animal may be placed in carbonic acid gas without suffering any ill effects, although in the normal state the presence of this gas in the atmosphere, even in very small quantities, proves quickly fatal.

The circulation of the blood is also very much reduced in rapidity. Mr. Prunelle, who has studied this subject very carefully, says that the heart in the bat, during hybernation, beats only fifty or fifty-five times during a minute, whereas it usually beats about two hundred times in the same interval. He also states that the arterial blood is less bright in colour during the winter sleep than at other times. Sensibility is also much reduced, and in some cases altogether wanting.

These animals, however, are not entirely without food during their period of inactivity. In the autumn they store up a large quantity of fat, which serves by its gradual absorption to supply the small waste of the system which takes place. Bears, it is well known, retire into their winter quarters in exceedingly good condition, and emerge in the spring in a deplorably emaciated and inconveniently hungry state. This fat is especially abundant in the neck, and was at one time supposed to be the cause of torpor, by pressing on the nerves of respiration. The fact, however, that artificial cold will produce the same condition, shows this not to be the case.

The bear is only an imperfectly hybernating animal, and does not exhibit such a profound stupor as some of the other animals. He is said to amuse himself in his winter retirement by the interesting occupation of sucking his paw—an amusement which is, to say the least, more innocent than some of Bruin's other proclivities.

The wonderful power of retaining their vitality under trying circumstances exhibited by most seeds is well known, and a similar power to an almost equal extent is possessed by some of the lower animals. Some of the lower forms of life will endure exposure of a degree of cold far below the freezing point without injury. The common wheel animalcule may be reduced to complete dryness and kept in this state for some time, and yet on the addition of a drop of water he will appear as fresh as ever.

Still there is a limit to this sort of thing, and the stories of frogs and toads being found in hermetically sealed up holes in the rocks, depending as they invariably do on the testimony of those entirely unused to the accuracy of scientific investigation, cannot for a moment be credited. In all probability a small cranny existed in such cases, through which in its younger days the frog had crept, and which permitted the entrance of fresh air and flies, upon which the unfortunate frog had lived so well, that his increased dimensions would no longer permit of his egress.

Had the creature really been shut up in his narrow prison since the stone was first formed, as the relations of the stories would have us believe, his birth must in most such cases date back, we know not how many thousands of years before the creation of man.

### A Plague of Rabbits.

A Melbourne correspondent of the *Times* writes:—"The short-sightedness of man on this side of the world has recently become unpleasantly very remarkable in connexion with one of his efforts at acclimatizing English animals in this country.

"The rabbit, which you are aware is not indigenous to Australia, is now threatening to become a plague of almost Egyptian magnitude in the distant and thinly-populated plains of the west. Only a year or two back not a rabbit was to be seen here save as a curiosity in a hutch; but the wild rabbit, most prolific of importations, has now so increased in numbers in some parts of the country that they threaten to starve the very sheep out of their runs.

"Mr. William Robertson, a large landholder and squatter near Colac, has been put to a cost of £1,000 or £5,000 in the as yet abortive effort to exterminate these now considered vermin, and he estimates that it will cost him £10,000 in wages to trappers and killers before he will have achieved any marked success in abating the nuisance. At the same time they are spreading more or less in all parts of the country, and I have seen them scampering about even in gardens near Melbourne. As food they greatly affect some of the most beautiful of our flowers—nothing, however, coming amiss to them—and they are, therefore, becoming the terror of horticulturists. Now that the plague is on us in full force, we can, of course, all very easily account for what no one foresaw. Any equally prolific animal, equally well circumstanced as to climate and feed, must become equally numerous in any country as thinly populated as ours. In England, the wild rabbit meets with many destroyers; here there are very few. In England rabbit-killing is sport; here it is generally work to be paid for. Dead rabbits are daily hawked about the streets at sixpence each, and the market is always glutted."

PINE GRO-BEAK.—W. C. from Belleville sends us the following note:—"A paragraph appeared in our local paper the other day, referring with surprise to the presence of several robins flying about the town. I accidentally saw a day or two after, a number of birds which at first sight certainly appeared very much like what is called the robin here. But on a closer examination, they turned out to be not robins at all. There were five in all, four hens and a cock, the former being of a dun or drab colour all over, and the latter of a similar colour on the lower parts, but above the tail and on the back and on each side of the breast of a magnificent bright scarlet, tinged with magenta. They were in a mountain ash tree and were feasting gloriously on its bright berries, scattering wantonly twice as many as they ate. They have been known to come for five winters past. I think they must belong to the Gro-beak family." Our correspondent is no doubt correct in his conjecture, and from the description given, the species was probably the Pine Gro-beak, (*Strobiloplocaenicator*), an occasional winter visitor. They have been more numerous than usual during the present season. The females ordinarily greatly preponderate in numbers. They are extremely fond of the mountain ash berry.

## Horticulture.

### On the Culture of the Apple.

D. W. BEAPLE, EDITOR.

("Vice et Disc.")

The Fruit Growers' Association of Ontario offered a prize for the best essay on the cultivation of the apple in this Province, and the Committee to whom the several essays were referred, mentioned with high commendation the following essay, remarking that had a second prize been offered, it would certainly have been awarded to this, and that the committee considered it so valuable that they recommended that it be published. It was written by Mr. J. T. Duncan, of Bayfield.

#### GENERAL REMARKS.

An apple orchard is so easily obtained, and is so profitable, if properly managed, that it is strange that large portions of Ontario are not vast orchards. The want of enterprise shown by us in this respect, in comparison with our neighbours of New York State, can only be accounted for on the supposition that there is a lack of knowledge, not only of the profit of apple orchards, but also of the proper mode of management. That this is very much the case, is proved by the state of many orchards throughout the country. We see them planted out, growing and thriving in a way that shows what the soil and climate would do were their kindly efforts seconded by the hand of man; yet they are allowed to run wild or are injured by injudicious treatment.

To remedy this defect, to supply the information, at least, required for success in this, the most important branch of Horticulture, will be the endeavour of the writer in the following pages.

In relation to the profitableness of an orchard, some editorial remarks in the CANADA FARMER will be found most conclusive. "Take a piece of ground containing 20 acres; it will require, to plant it 40 feet apart each way, 600 trees. These can be had of the best quality for \$20 per hundred. Planting, say \$40, cost of cultivation \$150 per annum, rent \$8 per acre. The expenses for the first year then will be \$470, for each succeeding year \$310. At the end of 5 years we will have expended \$1,710. The fruit will be worth, the 6th and 7th years, 25 cents per tree, for each year, the 8th, 50 cents, the 9th \$1, the 10th \$1 50, and 11th \$2. This very moderate estimate will give, at the end of the 11th year, cash received \$3,300, cash paid \$3,570, leaving a balance of \$270 against the orchard; another year's crop of \$1,200 will cover this, and any unforeseen expenses." We have thus an investment which has not only paid itself at the end of 12 years, but has also given an annual rent of \$8 per acre. The article above quoted goes on to show, that not only

will the orchard give after this a clear annual income of \$1,000, but also that there is no danger of depreciation in the value of apples, but a probability of its enhancement.

No one who gives attention to those candid calculations, can doubt that in a large portion of Ontario the elements of wealth are suffered to lie dormant.

The selection of a site will require the exercise of judgment. The best soil is a clay loam, with a warm, not too tenacious subsoil, and good natural or artificial drainage. Other soils may be made to produce good results however, by proper management, enriching the sandy, and thoroughly working and draining the tenacious clayey soils. It should, if possible, be in such a position as to be free from all danger of being infested with insects from contiguous orchards. It is also desirable to have it well fenced, not only to keep excursive animals out, but so as to be able to keep pigs, &c. in it, which are very useful in a large orchard.

The best exposure for tender sorts, and in the colder parts of the Province, is undoubtedly the South, but in most localities any exposure will be found to answer, especially if a row of trees protect the orchard on the side from whence the prevailing cold winds come. This matter of protection is of more importance than is generally supposed, and will increase the value of an orchard 25 per cent.

#### WHAT KINDS TO PLANT.

This depends entirely on the locality and the purpose for which they are planted. If, in a good locality, and for market, the three most generally valuable varieties undoubtedly are Baldwin, R. I. Greening, and King of Tompkins Co. These are winter kinds, however, and if summer and fall sorts are wished, Early Harvest and Red Astracan among the summer, and Gravenstein and Hawthornden, among the fall varieties, are highly to be recommended. Fameuse (snow apples), and Wagener are among the first class, hardy, and exceedingly suitable for colder localities.

It is an entire mistake for the general orchardist to plant a large number of different kinds; the amateur, the nursery man, the one for curiosity, the other for trade, may plant many varieties, but for profit, there is nothing like one or two leading kinds. Tastes differ, however, and although I think that almost all excellence pomologically may be found in the above list, it may be well to give a more extended one, that all may be satisfied. It is part of the list of the Upper Canada Fruit Growers' Association.

#### HARDY.

Duchess of Oldenburg,  
Esopus Spitzenberg,  
Fall Pippin,  
Golden Sweet,  
Sweet Bough,  
Roxbury Russet,  
Rambo,

Northern Spy,  
St. Lawrence,  
Talman Sweet.

#### PREPARATION OF THE GROUND.

In many of the horticultural works, measures are recommended which the majority of fruit growers cannot attempt to carry out. In most of them underdraining and subsoiling are represented as almost necessary to success in orcharding. In some localities I have no doubt they are indispensable; in any they are useful; but any one who possesses a suitable soil, with good natural drainage, may be most successful in raising an apple orchard without performing those expensive operations.

To prepare the ground properly, it should be thoroughly summer fallowed the year preceding planting, to kill as many weeds as possible, and to render the soil in fine tilth. If the soil is moderately rich, it is better not to apply any manure until after planting; if, however, manure must be applied before planting, it should be old and well rotted. Plough it deeply in the fall, taking care to lay the edges so as to facilitate the escape of the water, mark out the ridges the same width as you intend to put the trees apart, throw the crown well up, and run the dead furrows deeply; run also cross furrows where needed.

#### GETTING THE TREES.

It is a very important point to get the trees from a reliable party. The price is altogether a secondary matter. What sensible man would hesitate to give for first-class trees, "true to name," 5 or even 10 cents more per tree than he would for trees which might turn out to be the finest of Newton Pippins, or with at least equal probability the most insipid of pumpkin sweets, or something worse; and I would say, that having dealt with both Canadian and American nurseries, I find the Canadian to be much the most reliable; among these may be mentioned, as leading and excellent establishments, the St. Catharines, Toronto, Windsor, Hamilton and Paris nurseries.

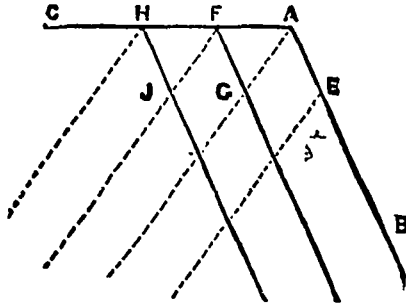
#### STAKING THE GROUND.

The ground must now be staked out so as to have the trees range every way. The best distance between the trees is two rods (33 feet). There should be this distance left too, between the trees and the fences, on all sides; not merely for convenience of passage, but to give an opportunity for planting shade or ornamental trees round the orchard. If the piece intended to be planted is square, it is comparatively easy to stake it correctly; if angled it is more difficult, but by the following plan it can easily be accomplished on any shaped ground.

Thus, as shown in the diagram, measure along two sides of the piece, first from A to B, then from A to C, putting in stakes at the distances the trees are intended to be apart, taking care to have the rows A B and A C quite straight. Then with two lines of equal



and proper length, let one be held at the stake E, the other at the stake F, then the point at which the lines meet will be the correct place to put the stake G; then proceed-



ing, let one of the lines be brought to G, the other to H, and insert a stake at the point of meeting, I. If this is done carefully it will be found that the stakes all range most beautifully, no matter from where viewed, and on almost any shape of ground.

#### PLANTING.

When the trees are received, if from any cause it is not wished to plant immediately, they may be heeled in by simply digging a trench, laying them in in a sloping position, and covering the roots with earth.

When the ground is dry enough, (and by all means do not plant when it is wet), planting may be done. The hole should be wide enough to allow the roots to be spread out evenly without any crowding, but should not be dug deeper than one foot, or just about the depth of the surface soil. The subsoil may be loosened, but not taken out. The roots of the tree should be carefully trimmed of all broken or bruised pieces, and the top reduced to corresponding limits, cutting it as much as possible in a regular form, so as to form a good foundation for the future top. All spurs and suckers should also be removed, and the stem trimmed up to the height at which it is wished to form the top, five feet being about right. Every unnecessary limb that appears likely to crowd or grow across the others, should also now be removed.

Everything being now ready, set the tree in the hole, ranging it in two or three ways with the stakes; this will enable you to put the tree in the exact spot it ought to be. Now spread the roots carefully with the fingers, separating them from each other, and giving them as much as possible a lateral direction.

Now fill in with finely pulverized soil, choosing the dark parts from which to take this soil; clayey, white, hard earth being quite unsuitable. Cover all the roots nicely, leaving a slight elevation round the tree. By all means do not allow any fresh strong manure to come in contact with the roots of the tree; many have been lost in this way. If the weather and ground are quite dry, it is very useful to pour a half pailful of water around the roots, shaking the tree gently to bring the small roots in contact with the

moistened earth, then filling up with earth as before stated; but if the soil is in proper order, and mulching be done immediately after planting, this is quite unnecessary.

When planting, never leave the roots to be dried by the sun and wind. If carrying a few along to plant, it is well to lay them down and cover their roots with earth to keep them fresh; and it is ever well to bear in mind that 10 trees well planted are better than 100 badly done.

#### MULCHING

Should be delayed as little as possible after planting. Various things may be used for this, such as partially rotted straw, leaves, weeds, cut grass and sawdust. One of the most convenient and best mulches for summer, I find to be straw from the stack or barnyard; and if too dry, so that it will be likely to blow away, a little earth thrown over it will keep it in its place. Very strong barnyard manure should not be used for this purpose, as the rains might wash portions of it down to the roots, thereby injuring. The mulch should extend 2 to 3 feet on each side of the tree, and be from 6 inches to 1 foot in thickness.

After this, means should be taken to keep the ground clean and mellow. No weeds should be allowed to get ahead; they should be destroyed when young. If the soil is rich enough, a root crop may be taken from between the rows, but it is now very generally conceded that the truest economy is to let the orchard have the whole of the ground for five years from planting. Keep the soil clean and mellow, occasionally giving a dressing of well rotted manure to be harrowed in over the surface, and the growth of the trees at the end of that time will surprise every one.

Many will think this plan too expensive. If it is determined to grow anything between the rows, a good space should be left around each tree, which must be kept perfectly clean.

It is important, too, not to disturb the growing roots through the summer by ploughing frequently; after ploughing in the spring, let the cultivator be passed often among the trees; this will be far better and more quickly done than ploughing three or four times in a season.

#### PRUNING.

Pruning, in order to become proficient in it, requires a good deal of practice, combined with close observation, but by careful attention to the ends sought to be attained, anyone can achieve a gratifying amount of success in this, one of the most important, as it is the most neglected, of the duties of the orchardist.

The first and most important point is to keep the head properly open so as to permit the fruit to receive the benefit of the sun and air; the next is to keep the limbs growing upwards so far as possible, and not hanging

or dragging on the ground, thereby making it impossible to have any kind of animals among the trees; and the last is the regularity and beauty of the tree.

Summer pruning is one of the methods of attaining these ends; it gives vigour to the tree, promotes its early bearing, and is easily done when the trees are young. In July the young trees should be examined, shoots that promise to grow across others, and buds about the forks of the limbs, should be rubbed off to secure openness of the top; downward growing shoots should be removed, to give the branches an upward direction, while the too vigorous branches should be nipped in, and the side buds on slow growing limbs removed, (this will cause them to overtake their faster companions) to give regularity and beauty to the trees. If this is properly attended to, there will be very little need to use the saw and chisel in the orchard.

Should it be necessary, however, to resort to heavy pruning, (as when trees have been neglected while young) it should be performed in the fall. The best tools to use for this purpose, are, 1st a good 1½ to 1¾ inch socket chisel, and 2nd a lighthand maul. Into the socket must be put a stick for a handle, with a ring on the end to keep it from splitting; the handle may be made at a length to suit the trees; about 4 feet will reach anywhere in an ordinary sized tree. By placing the chisel against the branch desired to be removed, and giving one or two blows on the end of the handle, the limbs will come off easily and quickly. They should always be cut outwards.

The advantages of this plan are many, among which may be mentioned, the rapidity with which pruning can be accomplished by it; the ease to the operator as he is always on the ground, and the consequent superiority of his work, as he is always able to view the whole tree.

In pruning large trees it is not well to take out too much wood at any one time, better to spread the operation over two or three years than to take away a large mass of wood at once. By observing this rule, the tree has not to sustain such a shock, and has time to recover itself and adapt its energies to the new order of things. In all pruning it is well to have a small projection proportionate to the size of the limb removed, as when it is trimmed close the rotten part extends into the limb.

But I would earnestly advise all who have young trees carefully to prune them annually in summer, thus performing the work much more easily, besides obtaining the fruit sooner, and having larger, finer trees.

#### INSECTS.

Among the most formidable enemies of the orchardist are those insects popularly known by the very general term "caterpillars," also

more specifically as "army" and "tent" caterpillars, but properly named, according to Dr. Fitch, forest caterpillar.

This pest has been very prevalent and destructive, both in Ontario and the States, causing immense loss, as well as giving pain to every lover of the useful and beautiful. All this for want of a little trouble, a little well directed labour at the proper time. A short account of the habits of these insects may be useful in showing how they may be destroyed. In autumn the moth deposits its eggs in a ring around a small twig, generally near its extremity (after the fall of the leaf these may be seen). These are covered with a waterproof substance which completely preserves them through the storms and cold of winter, until the genial showers of spring, softening their covering, and the little worms to escape. When sufficiently large they collect in a fork of the tree, when they begin to form those tents or webs which are as it were the unmistakable signals of approaching defoliation. Soon it comes—armies of full grown caterpillars issue from every tent, every leaf disappears as though a fire had run through the branches, and the whole orchard is left "naked and leafless," a "desolated waste." After having accomplished this, each worm spins a cocoon, and resides in it a short time. It leaves this in the form of a moth, which deposits its eggs, as before stated, in autumn, in a bunch round a twig, which if not destroyed, will be all life and activity the following spring. The first method of dealing with this troublesome pest, then is, of course, to cut off and burn those twigs which support the nests of eggs. If this is done carefully, it is obvious that there can be no caterpillars bred in the orchard during the following year, and if apart from any neighbouring orchard, it will be perfectly free from the worms. As those little nests are quite visible from the time of the leaves falling, all through winter until spring, thus affording ample time and opportunity to pass several times among the trees to cut off the twigs, (with a hooked knife on a pole if the trees are high), a man is hardly excusable who allows the caterpillars to come to maturity.

If, however, through any neglect they should be allowed to form their tents, they can be destroyed by cutting off the fork containing the web, burning it, or crushing the contents completely.

Should any worms make their appearance from a neighbouring orchard, the diligent horticulturist may still save his trees in a great measure, by jarring them sharply. The caterpillars will spin to the ground, where they may be crushed or prevented ascending the trees by a ring of gas tar round the trunk.

Any one who knows how simply these pests may be got rid of, is culpable who allows any to come to life; and should the pleasure and

profit of seeing his trees crowded with foliage and bending with the weight of fruit not be sufficient to induce all to give attention to this matter, it may be necessary to invoke the aid of the law for the protection of the thrifty and careful orchardist.

Another formidable insect enemy is the borer, less to be feared perhaps than the caterpillar, but destructive enough in some parts. It chiefly infests young orchards; one or two in a tree will make it sickly, while several will completely girdle, and cause its death.

These little beetles can best be discovered in spring by the small heaps of castings which they will have thrown out by their working in the tree. Very often it will be necessary to remove the earth to discover them; they generally commence to work in the collar of the trees. If a hole is discovered, then follow it by means of a small gouge; they generally work upwards, sometimes to 18 inches above their first entrance. Usually, however, they are found but a short distance up, and very often may be punched to death by means of a flexible twig or wire. If, however, they are out of reach in this way, a small gouge, as before stated, or a sharp knife may be used in following them up. Their track will be found near the bark. They may also be found in summer (June and July), and exterminated in the same way. A coating of soft soap round the base of the tree is, according to the "Rural Register," useful in checking, although not an infallible preventive.

#### GRAFTING AND BUDDING.

Grafting succeeds best when done just before the leaves appear. The scions should be cut a month before using them, packed in damp moss and laid in the cellar, or one end inserted in the ground about two inches.

Grafting wax is generally used, and may be made as follows:—Beeswax, 3 parts, resin, 1 part, and lard 3 parts, these well mixed while warm. But grafting clay, when properly made, is fully equal to the wax, and is generally more easily prepared. It is made as follows:—Clay loam, 3 parts, fresh stable manure, 1 part, add a little salt to prevent it cracking, and mix it well a few days before using.

Whip grafting, which is commonly used on small stocks, is performed as follows:—The stock is cut off at the place where it is desired to graft, then a clean slanting cut from one to two inches long made in an upward direction; a small cut should now be made downward in this cut so as to form a tongue in the centre of it, the scion should now be cut in the same manner, making the slanting cut if possible with one stroke of the knife; form the tongue so as to fit the other, then placing them so as to meet the bark exactly, tie them round (with bass strings or woollen yarn) and clay or wax, then carefully cover. On one side at least, the bark should meet

nicely; they must be firmly tied, and every part of the wound covered with the mixture.

Cleft grafting (for larger stocks) is done by splitting the stock, inserting a scion at each side of the stock, and then waxing it over. The scions should be cut wedge shape, and a little thickest at the out edge.

It is best in grafting large trees to graft one half one year, the other the next, thus avoiding the risk of destroying the tree in one year.

The following directions concerning budding are condensed from McMahon's "Gardener's Calendar." Budding is generally performed in July and August, but whenever the bark will rise freely from the stock, the work may be done. It is best to bud on a cloudy day and on the north side of the tree. The branch to be budded should be from  $\frac{1}{4}$  to 1 inch in diameter. With a very sharp knife make a cross and downwards cut, exactly like the letter T, clean to the wood, then raise the two corners of bark a little with the point of the knife, then take off the bud intended to be put in, (having previously trimmed off the leaves, leaving a footstalk an inch long). The bud should have half an inch of bark below and the same above it, a little of the wood should also be taken with it. Now place the footstalk between your lips, raise the corners of bark on the stock still more, slip the bud nearly down, cut the top square off, and it will fall neatly into its place; draw it (by means of the foot stalk) up till it meets the upper bark, tie it with either bass or yarn, and the operation is complete. They should be examined in 3 or 4 weeks; those that appear plump should have the tying loosened, those that are shriveled are dead! The branch above is to be cut off the following spring, they will then shoot vigorously. These excellent directions will, as I have proved by experience, enable those who carefully follow them to bud successfully.

#### PICKING AND MARKETING.

Picking is often done carelessly, and with such a total indifference on the part of the producer as to the state of the fruit after it leaves his hand, that it is a wonder he does not suffer more than he actually does at the hands of the dealer.

If the grower carefully harvested and marketed his apples, and considered that the interests of the public were identical with his own, not only would he save a large sum of money, but would escape the annoyance which many of the farmers have to undergo in getting clear of their bruised fruit. Some remarks by a correspondent of the "Country Gentleman" on picking and storing are excellent. He says.

"What I wish to say to farmers is, pick your apples; if they are worth gathering at all they are worth picking. Apples ought to be handled as carefully as eggs, for if an apple is bruised, it is spoiled for long keeping.

"To pick apples you need some light ladders, and a basket or bag slung conveniently by your side; when the basket is full, do not pour them from the top of the barrel as you would a basket of potatoes, but lower them down and empty them carefully in. When the barrels are full, if they are to be headed up, there should be some holes to admit air. They should be stored in sheds or other airy places until there is danger of their being frozen, then they should be taken to the cellar, which should be cool, airy, frost proof, and dark."

In spring the market is generally better than in the fall; by this means they can be kept safely until then.

It is believed that it will pay to assort all apples intended for market. Not only is this a more honest plan than mixing good and bad together, but it has been found that the cash returns are better when the apples are thus put in two classes; it is found thus to be best for both buyer and seller. Bags should not be used for taking fruit to market. Barrels may be used, and should be shaken gently as the fruit is being packed, and headed up tight enough to keep the contents from shaking.

CONCLUDING REMARKS.

In addition to what is mentioned under the preceding heads, it may be stated that after 5 years of cultivation, the orchard may be seeded down and mowed, if care is taken to return sufficient manure to the soil. It is an excellent plan to keep a herd of pigs in the orchard, for they not only manure the land, but pick up and eat all half formed and wormy specimens as they fall to the ground, which would otherwise have to be done by hand, for if allowed to lie, the worms would soon increase to a large extent.

The orchard, so long as the trees seem in a vigorous growing state, may be left seeded down, which will save trouble; but any appearance of loss of vigour should be promptly met by more manure or breaking up, as the case may require.

The trees should be washed every year (twice a year is better, spring and fall), with some alkaline fluid: weak lye, soft soap, (2 or 3 quarts to a pail of water), and soda (1 lb. to a gallon of rain water), are all good for this purpose; the last is best.

All suckers should be carefully removed. It will sometimes be necessary to remove the earth from the roots in order to do this effectually; it is said that if they are broken off they are less liable to sprout again than when cut.

In concluding this little treatise, I would express a wish that all who are intending to grow, or who are already within the fascinating domain of horticulture, would remember, and remembering act upon the adage which says "What is worth doing at all is worth doing well."

Meteorological Influences Affecting the Grape.

(To the Editor.)

SIR,—The November number of the *Gardener's Monthly* for 1865 contains an article upon this subject, given by Dr. J. Stayman, of Leavenworth, Kansas, which should be committed to memory for its genuine worth. The true merits of successful grape culture, through this and similar articles, will very soon come to be understood to depend not so much upon this or that man's peculiarity of soil, system of pruning, training or selection of varieties, &c., as upon given quantities of heat, light and moisture. These conditions we know do vary, yet are reducible to certain laws, which if more generally understood would be of great practical utility to fruit-growers. I therefore hope your paper will copy the entire article for the benefit of its readers, because its true worth is not confined to the grape only, but is equally beneficial to fruit culture generally. The Doctor says: "If there is a less average than 55 degrees of temperature for the growing months of April, May and June, and a less average than 65 degrees for the maturing months of July, August and September, and less than an average of 50 per cent. of clear sky, there can be no hope of success. But when the temperature averages 60 degrees for the former months, and 70 degrees for the latter, and there is an equal proportion of clear sky, and no change of temperature of more than 50 degrees in 24 hours, other conditions being equal, success will be certain. And where the temperature averages 65 degrees for the first months, and 75 degrees for the latter, other conditions being equal, fruit of the greatest excellence can be raised, and wine of the greatest body and finest quality can be produced." Then he proceeds to give the meteorological condition of various places, both where the grape succeeded the best, and where it did not succeed, conclusively showing that these results were governed by fixed laws, easily understood, and now happily within the reach of all cultivators who will take the trouble to make application at the meteorological stations of the Province. I am not prepared to agree, however, with the doctor's standard, that "there can be no hope of success" where the average is below that above quoted. This, in my opinion, should always be qualified by the statement that success depends quite as much upon the amount of rain fall and clear sky, as upon the condition of temperature. Now, I think I shall be able to show, that over a period of three years, round about Hamilton, in latitude 43, and longitude 79, with an elevation above the sea of 325 feet, although the temperature is below that given above, grapes of admitted superior excellence can be successfully cultivated, subject, however, to the amount of rain-fall and clear sky. It would be highly satisfactory to hear from

other points of the Province. I am of the opinion, that in many sections of Ontario, men need not fear to go largely into the cultivation of the vine, where wine of the greatest body and finest quality may be produced. A great deal depends upon the early ripening of the fruit, as well as the conditions above set forth. Take, for instance, the Delaware, several of the Rogers' hybrids, and some others which have lately been introduced, the wine from one of these, (the Delaware) is admitted to be of the finest quality. This grape has never failed to perfectly mature its fruit, since it was first cultivated here, except in 1866. July, August, and September of this year stand almost unprecedented as regards amount of rain-fall, temperature and clear sky, clearly proving that upon these essential conditions hinges success; that therefore we may confidently rely upon meteorological facts to guide us in grape culture. I beg to acknowledge the kindness of A. Macallum, Esq., M.A., meteorological reporter for Hamilton station, for the following abstracts:—

The average of total rain fall for April, May, and June of 1866, was over three inches, for July, August, and September, over 4½ inches, while the average temperature for the first three months was 53 degrees 42 minutes, and for the latter 61 degrees 38 minutes, with only 47 per cent. of clear sky for the first three months, and 50 per cent. for the latter. This is far below the average laid down by Dr. Stayman; both in rain-fall and temperature, and the result was, as might be expected, a total failure in the ripening process. But now follows the record of 1867 and 1868, both of which are slightly below the Doctor's average in temperature, yet above it in rain-fall and clear sky, and the result meteorologically indicated success. We did indeed have in 1867 as fine a ripening season as any I have any previous recollection of. Both Catawba and Isabella, late maturing grapes, were this year successfully ripened, and all other and earlier varieties had their saccharine qualities well developed, sufficient for wine of great excellence. Here is the record for 1867:

April, May, and June, average rain fall in inches	2.3678
July, August, September, average rain-fall	1.5537
April, May, June, average range temperature	52° 49"
July, August, September, average range temperature	67° 61"
April, May, June, per centage of clear sky	42
July, August, September, per centage of clear sky	56

You will now observe, that the success of this year depended upon the small average rain-fall, both during the growing months of April, May and June, and the maturing months of July, August and September, together with the large per centage of clear sky during these latter months. But you will also observe that the temperature was under the average laid down by the Doctor

for the growing season, and over it for the maturing season. Now, it may be claimed that the loss in temperature to the one was compensated by gain in the other. It may be so, yet I think the small amount of rain-fall played the most important part. Let us see how the matter stands for 1868, being another season of success. Here is the record:

April, May, June, average rain-fall of, in inches .....	3.0377
July, August, September, average rain fall of, in inches .....	2.0123
April, May, June, average temperature of .....	51° 79"
July, August, September, average temperature of .....	69° 53"
April, May, June, per centage of clear sky .....	41
July, August, September, per centage of clear sky .....	52

The year 1868, as compared with 1867, shows a greater average heat, more rain-fall and less clear sky. This would again indicate a compensation of the conditions of success. But when the aggregate goes below a certain standard, as it did in 1866, then failure is inevitable. But comparing the aggregate conditions of these two last successful seasons of grape culture, we find an extremely slight variation. Yet, upon the whole, it may be considered as not coming up to the average conditions laid down by Dr. Stayman for success. Yet we had it. This does not, however, affect the Meteorological qualifications required for success, which may at all times be confidently relied on, when once the standard is established by experience. Therefore, let me commend this subject to the earnest consideration of all Fruit Growers.

WM. H. MILLS.

Hamilton, 19th Nov., 1868.

### Hardy Apple Tree.

There are some portions of Canada in which the winters are so severe, that but a limited number of the valuable varieties of Apple in ordinary cultivation can be grown. It is very desirable to increase the number of very hardy varieties of excellent flavor, good size, and abundant productiveness, and it is believed that there may be some such varieties already in existence, but which have not been brought to the notice of our pomologists. Already the Directors of the Fruit Growers' Association of Ontario have had this subject under consideration, and have been trying to devise some plan whereby these really valuable native Canadian apples may be brought to the light, have their merits made known, and, when found deserving, be placed in the hands of our nurserymen for cultivation and dissemination. They have offered an honorary medal to the originator of any new fruit that shall be found to possess qualities that render it worthy of general cultivation; but inasmuch as the thorough testing of a new variety of apple involves considerable lapse of time, and the person who finds in his orchard

some really valuable apple may not be and usually is not the originator, the offer of a medal does not meet all the wants of the case. A premium might be offered for the largest collection of really good native Canadian apples, with a further prize for any and each variety found in any of the collections entered for competition which the judges might consider worthy of trial, coupled with the condition that the exhibitor shall furnish to the Directors full replies to any questions they may propound, and scious of the variety for the use of the Directors. Meanwhile, there doubtless are many among our intelligent fruit growers who have had their attention arrested by the valuable qualities of some apples growing either in their own or neighbour's orchard, and we not only invite but urgently request them to make their observations known through this journal or the CANADA FARMER, giving such particulars concerning the characteristics of the fruit and tree as have favourably impressed their minds, and when practicable sending a sample of the fruit. In this way we may hope to diffuse information with regard to many really very valuable varieties of apples now nearly or quite unknown, and to direct the attention of the Directors of our Fruit Growers' Association to them, who we are confident will spare no pains fully to investigate the merits of each, and ascertain their value for Canadian planting. Will those who take an interest in advancing fruit culture among us do what they can to help on the work, and bring to notice not only such apples as they think to be worthy, but communicate freely such thoughts and information as they may have to offer?

### How to Grow Fine Roses.

BY S. REYNOLDS HOLE, IN "THE GARDENER."

Mr. Hole had been invited to attend an exhibition of roses grown by the working men of Nottingham, and being most agreeably surprised at the perfection, both of the display and of the specimens, thus concludes his very interesting account.

How was it done? From the abundance of the heart—from a true love of the rose. "It's more than a mile from my house to the garden," said one of these enthusiasts to me. "but I have been here for weeks, in the winter months, every morning before I went to my work and every evening when I came from it, and not seldom at noon as well, here and back, and my dinner to get between twelve and one o'clock." How do you afford I inquired of another, to buy these new and expensive varieties? And I would that every employer, that every one who cares for the labouring poor, would remember the answer, reflect and act on it. "I'll tell you," he said, "how I managed to buy them—by keeping away from the beer shops."

From a lady who lives near Nottingham and goes much among the poorer classes, I heard

a more striking instance of this moral devotion than from the florists themselves.

While conversing with the wife of a mechanic during the coldest period of a recent winter, she observed that the parental bed appeared to be scantily and insufficiently clothed, and inquired if there were no more blankets in the house. "Yes, ma'am, we've another," replied the housewife, but ———" and here she paused.

"But what?" said the lady.

"It is not at home, ma'am."

"Surely, surely it is not in pawn."

"Oh dear no, ma'am; Tom has only took it—just took it —"

"Well, Bessie, took it where?"

"Please, ma'am, he took it—took it—took it, to keep the frost out of the greenhouse; and please, ma'am, we don't want it, we're quite hot in bed."

It would be very easy to multiply proofs, that in rose growing, as in everything else, earnestness and industry, born of love, must achieve success.

At a flower show at Onndle, and at which I acted as one of the judges, the hero of the day was a Northamptonshire butcher, Thorneycroft, of Floore. He told me that by rising early, sometimes at 3 a.m., and by working late, he had not only carried on an extensive trade, but had found time to put up three glass houses with his own hands; and that in addition to his plants, fruits and vegetables, he had in cultivation six thousand rose trees, all of which he had pruned and cared for himself.

Passing from the blue coat school of rosarians to the black, we floral ecclesiastics may congratulate ourselves thankfully and happily upon our status in the world of roses. And here again, how often will the poor curate, with something more than a good gardener's wages, and something less than a good gardener's house, show what earnest love can do. Whenever I see at an exhibition a white tie behind a box of roses, I know that, as a rule, bright gems shine within that case. And ah, who but he can tell the refreshment, the rest, the peace, which he finds in his little garden, coming home from the sick and the sorrowful, and here reminded that for them and him there is an Eden more beautiful than the first, a garden where summer shall never cease.

What tender memories, solaces and hopes may be brought into darkened homes by the brightness and sweetness of flowers.

The weary woman stays her task,  
That perfume to inhale,  
The pale-faced children pause to ask  
What breath is on the gale.  
And none that breathe that sweetened air,  
But have a gentle thought;  
A gleam of something good and fair  
Across the spirit brought.

THE GRAVENSTEIN apple is one of the most valuable of the autumn sorts. It is of large size, handsome appearance, and superior quality, and sells for the very highest price in the Montreal market.

### New Hybrid Perpetual Roses.

The following are some of the very best of the new Hybrid Perpetual Roses of 1868-69, taken from the list of Monsieur Eugene Verdier:—

**ADOLPHE BRONGNIART.**—Very vigorous, flowers large, well formed and of a lively carmine red, very fragrant.

**ANDRE LEROY D'ANGERS.**—Flowers very large and full, well formed; colour deep violet. A superb rose.

**BERTHE BARON.**—Flowers large and well formed; colour delicate rose lightly shaded at the edges with white, plant very vigorous.

**DUPUY JAMAÏN.**—Plant vigorous, flowers large, full, high centred; colour bright cerise, very perpetual.

**EMILIE HANSBURGH.**—Flowers large and full, imbricated, of the most perfect form; colour tender glossy satin rose, petals edged with white; plant very vigorous.

**JULIA TOUVAIS.**—Plant very vigorous; flowers extremely large, of perfect form and a delicate flesh rose; very brilliant; the circumference of the petals bright rose.

**MADAME JACQUILLER.**—Vigorous, flowers very large, very full, good carriage; form globular; colour fine bishop's purple.

**MARQUISE DE MORTEMART.**—Plant very vigorous, flowers very large and very full; colour very fresh, of a fine satin white relieved with tender flesh.

**REINE BLANCHE.**—Flowers large, full and well formed; colour white, slightly tinted with rose; plant very vigorous. Seedling of *La Reine*.

**THYRA HAMBURGH.**—Is a seedling from Duchess of Sutherland; plant vigorous; flowers very large and full; colour flesh rose, very delicate and fresh.

### Several Methods of Keeping Cabbage through the Winter.

The Massachusetts Farmer gives the following method of keeping cabbages through the winter, for which its editor vouches, having tried it successfully for several years:

"Cut off the stump close to the head, and pull off loose leaves. Cut clean straw or hay and cover the bottom of a barrel or box with it, and sprinkle the straw with clean water until it is quite wet. Add a layer of heads, then cover with more wet straw, and so on. Put the whole in a cold place, and they will keep until May in excellent condition. No matter if they freeze a little. This is a clean and easy method. The barrel need not be headed."

A correspondent writes as follows:

"I have tried hanging cabbages in the cellar, but they wilt and lose all their flavour. My way is this: I let them stand in the fall as long as possible; dig a trench about a foot deep, cut off the stumps close to the head, strip off the loose leaves and cover them with straw taken from the trench. They are then covered with the ground, which is well trampled and tamped, and very dry. The cabbages are then covered with straw, and taken out of the ground as soon as the frost leaves, otherwise they rot. I have practised in this way for forty years, and never had a

head rot. By way of experiment I have thrown in a few apples with the cabbages; they all came out sound in the spring. Try it."

The *Prairie Farmer* gives the following, as the method practised by the gardeners of Chicago:—"Select a dry knoll where the water will not settle, dig a pit say five feet wide, twelve feet long and two feet deep, throwing the dirt a little back from the edge of the pit. Set strong posts of eight feet long, two feet in the ground in the middle of each end, and lay on these a good stiff ridge pole, and pin it fast. Make a roof of stakes or planks long enough to reach from ridge pole to edge of pit, and cover them with a little straw and six or eight inches of dirt, digging a trench around the pit; beat down the dirt hard and smooth, so that it will shed water, or, what is better, sod it over in the spring. Make a door in each end of the pit to ventilate in mild weather. Store cabbages head down, two layers deep. A pit of the dimensions mentioned will hold nearly 200 heads of cabbage. In very severe winter weather bundles of straw may be set against the doors. A very cold winter may require a thicker covering than here recommended, but generally we think this will do."

### New Caladiums

Amateurs and gardeners who keep up with the march of Horticultural progress, will be gratified with the prospect of being able to add a few more of these beautiful foliaged plants to their collection.

**ALPHAND**—was produced by the hybridization of *Pacile Anglais* with *Newmanii*. The centre veins are a glowing red, extending to a great part of the border, where they form the most charming patterns with green and gold. There is no confusion in the markings, not even towards the extremities, where the red continues to the tips.

**DEU DE RATIBOR.**—This plant is of medium size, the rim of the leaves bright rose, surrounded with white, sometimes slightly rosy in all the extent of the foliage. A seedling from *C. Bellemei* fertilized with *C. Bicolor picturatum*.

**TRIUMPH DE L'EXPOSITION**—is the most brilliant variety of the day, the deep red centre making a lively contrast with the principal and secondary veins, which are of a glowing red, the whole surrounded with clear green.

**MAXIME DUVAL**—becomes very remarkable, because of its laky-carmine-red veins surrounded with rich violet, which extends largely and loses itself in a clear superb green which surrounds the leaf.

**THE MEDLAR.**—George Stunden, of Gananoque, asks:—"Can you, or any of your correspondents, inform me if the Medlar is grown in Canada, and where I could procure scions, and what stocks are the best to graft them?"

The Medlar is usually grafted upon the pear. We do not know of anyone that cultivates this fruit, but perhaps some of our readers may be able to give the desired information.

Roses thrive the best and produce the finest flowers in a deep, rich soil.

THE GREEN NEWTOWN PIPPIN cannot be grown successfully except in a very few localities, indeed it is very doubtful whether it will pay the Canadian cultivator to attempt its cultivation at all.

The beautiful new *Tea Rose, Marechal Niel*, promises to be so hardy as to endure our winters without protection. It has been exposed to eighteen degrees below zero without injury. It is a very fine cream-yellow rose, most exquisitely fragrant, large and showy.

Inquiry is often made for a rose that is a constant bloomer. *Mrs. Bosanquet* and *Malmaison* have the reputation of being the most continuous bloomers, but in our experience *PRESIDENT* is even better than these—literally blooming all the time.

**RIBSTON PIPPIN**—Those who are planting apple trees in expectation of shipping their fruit to Liverpool, London and Glasgow markets, should not overlook the *Ribston Pippin*. The climate of Canada is better suited to the raising of this variety than that of a more southerly latitude; the longer summer impairs the flavour and the keeping quality. As grown in Canada it commands the highest price in those markets, equal to that obtained for the much famed *Green Newtown Pippin*. The tree is an annual bearer of good crops, perfectly hardy, and comes early into bearing.

Two of the new seedling grapes, originated by Mr. Charles Arnold, of Paris, have been carefully tested this fall by Mr. Henry Bauer, of Hamilton, to ascertain their value for wine. Mr. Bauer is a skilful vigneron, as he has fully demonstrated by the excellent wines he has made from grapes grown about Hamilton, and his report is entitled to every confidence. The variety named by Mr. Arnold *Cornucopia* was found to be of the specific gravity of 79, and to contain 8 per thousand of acid, *Autuchon* showed a specific gravity of 86, with 6 per thousand of acid. These are very favourable results, and will cause these varieties to be largely planted for wine.

**A NEW IN-DOOR GRAPE, GOLDEN CHAMPION.**—The Nottinghamshire *Guardian* speaks of this new grape in terms of the very highest commendation, considering it to be among white grapes what the *Black Hamburg* is among the black,—"the master-piece; large in bunch, large in berry, strong in constitution, and prolific." It is claimed for this new variety that it will ripen in the same temperature as the *Black Hamburg*, that in flavour it is equal to the *Muscat of Alexandria*, but more juicy and refreshing. It was raised by Mr. William Thompson, of Dalkeith, and is being sent out by Messrs. Osborne & Sons, of Fulham. When any of our enterprising Canadian cultivators shall have tested this new claimant they will please give their opinions of its qualities through the CANADA FARMER.

The Illinois State Horticultural Society held their annual meeting at Lee's Hall, in Bunker Hill, during the third week in December, from Tuesday to Friday inclusive.

It is announced that *Honey's Magazine of Horticulture* and the *American Journal of Horticulture* are to be amalgamated, and issued under the name of *Tilt's Journal of Horticulture and Floral Magazine*.

The most hardy and most productive Red Raspberry, valuable for general cultivation in all parts of the country, is the *Philadelphia*. Its crops are perfectly enormous, and it endures the frosts of our coldest winters.

The *Wilson Strawberry* is the most universally cultivated of any variety, it adapts itself to all soils, all climates, and every kind of treatment; and is the most profitable market variety, because it is the most prolific.

The *Chinese Herbaceous Peonias* are sweet-scented. There is nothing more showy than a bed of them in full bloom. They are of various colors, snowy white, straw color bordered with pink, rose color, and flaming crimson, with all intermediate shades.

"The apples have been very wormy this year; they never were so wormy before," is a very general complaint. It is very probable they will be more wormy next year than they have been this, unless some efforts are made by the farmers to destroy the worms. Every farmer should read carefully our Entomological Department, and learn the habits of the insects that infest his fruit and how to lessen their ravages. If swine are allowed to run in the orchard they will consume most of the fallen fruit, and with it a great many of the worms.

GRAFTING. — A subscriber from Grand River submits the following question to nursery men:—"May I request that some nursery man or farmer, versed in grafting, would be kind enough to say whether young trees—apple, pear, stone-fruit, &c., which are taken up in the fall and packed away in the cellar, or laid in by the heels, should be grafted in the cellar, or when taken to transplant before they are set out? Or, should they first be transplanted and then grafted; or be one year growing?"

It is the practice among nurserymen to take up, in the fall, their young apple stocks which they intend to graft, and pack them in damp earth in the cellar where they will be free from frost, and to graft them at any convenient time during the winter, and as soon as the season is sufficiently advanced to plant them out. If they are carefully packed in moist earth after being grafted, there is no difficulty in keeping them until planting time in the spring. The farmer who has but a few hundred to graft, may as well defer grafting until spring, and plant at once in the open ground. The same course is sometimes pursued with pear seedlings, but the ordinary method is to bud these in the summer. The apple seedlings are also budded, and when worked in this way will make the best trees. It is not usual to graft stone fruit in this climate. The peach and cherry do much better when budded. The plum is sometimes grafted, and succeeds best if grafted while standing in the ground, just as the buds are bursting in the spring.

## The Dairy.

### The Dairy in Winter.

The work of the Dairy in winter has its special difficulties, which on a large proportion of farms lead to its reduction within the narrowest possible limits. The cows that calved early in the Spring are naturally giving less milk, and the supply is still further diminished by the cold, while food is scarce or dear; and under the treatment too commonly pursued, many cows become dry, or yield so little milk as not to repay, in the farmer's estimation, the trouble of milking. During the Summer months, when pasture is plentiful, and the cows, where the profitable practice of soiling is not adopted, fill themselves without giving any trouble, the milk is rich and abundant, and the operation of butter making comparatively easy. The family table is well supplied, and the surplus produce, unless absorbed by the cheese factory, is either sent to market in the shape of fresh butter, or packed for winter consumption or sale. But when winter comes, from causes above alluded to, little is done in the dairy; the cows are milked, perhaps, but once in the day, and scarcely enough butter made for even family use.

This extreme reduction of winter Dairy work is, however, neither necessary nor economical. The milking qualities of the cows are injured by not keeping them up to their fullest capacity, just as they may be cultivated and improved by the opposite practice. A liberal yield and a long continuance of the milking season, are points that should each be kept in view in a good dairy cow. The best milk may be spoiled by the careless or indolent treatment referred to. To milk only once a day, as is often done, will certainly tend to diminish the yield. The excuse for so doing is, that the quantity is so small that it is not worth while to milk twice; and that the days are so short as to bring the two milkings very close together. But it is not necessary that either of these causes should exist. It is very desirable that the twenty-four hours should be as nearly equally divided as possible for the periods of milking; and in an industrious farmer's family, who manage the day's work systematically, this can be done pretty nearly in winter as well as summer. Then as to the quantity, though we must expect some diminution, this need by no means be so great as it is often allowed to be. The price of butter and milk is also much higher during winter, and on this account it is to the farmer's advantage to make as much as he can, and especially at a season when other sources of income are curtailed.

The principal means of promoting the yield of milk in winter are undoubtedly warmth, and proper food. These cannot be too strongly insisted on. They are so obvious and so well known to every farmer, that it

would seem a waste of words to enforce the lesson, did not the too common violation of the humane and profitable method show the necessity of reiterating these familiar maxims. Complete shelter, warm and well ventilated stables, are essential to winter dairy management. Absolute confinement is perhaps not desirable; a daily turn out for a short time, except in severe or stormy weather, may be advantageous; but great care and judgment are necessary not to chill the animals, or the supply of milk will certainly fall off. In regard to food, roots and good clover hay are mainly used in this country; we think the addition of some grain, especially Indian corn, would be a great advantage. Barley and oats too, in moderate quantity, especially if boiled, tend greatly to promote the flow and enrich the quality of milk. Many cows fed too exclusively on turnips will drink very little water; but dairy cows should be encouraged to take plenty; with this view, as well as for other reasons, salt should be regularly supplied. With regard to hay, it should be early cut. There is a vast difference between the value of such hay, for dairy purposes especially, and that which has been allowed to stand late in the field.

Some dairymen advocate the advantage of letting cows be dry all winter, and make it a rule to dry them before the end of December. But the propriety of this plan must chiefly depend upon the time the cows are expected to calve. If that is not very early in the Spring, there is surely no necessity for the practice. On all hands it is admitted that to milk a cow close on to her next calving is undesirable, and injurious both to mother and offspring. The full development of the foetus in the womb during the latter period of gestation is interfered with by a prolonged lactation. Perhaps two months is, in most cases, little enough interval of rest to the milk-secreting organs. For the winter dairy it is therefore advantageous to have one or two cows calving late in the previous fall or summer.

A word or two now about butter making in winter. This is an admitted difficulty. We are inclined to think that a root diet has something to do with it. In our own dairy we never experienced the trouble in the States where Indian corn was the staple food. The word *never* is not perhaps strictly correct. Like all others, we had to learn by experience, and shall not soon forget the first churning, which lasted over one day, and was resumed on the second; but that lamentable failure was never repeated there. Our dairy soon became a success, and its produce invariably commanded something above the market price. We thought we knew all about the mysteries of making good butter quickly and certainly, but our first winter in this country, after adopting the root system of feeding, brought with it occa-

sional failures, and as the plan pursued was in all other respects, except the root feeding, precisely like that which had formerly been found so successful, it was natural to attribute the result to the difference in feed. Therefore we say, do not confine the food of the cows to roots and hay.

To avoid the frequent trouble in churning during winter, many in this country adopt the practice of scalding the milk. This generally obviates the difficulty; but the milk is spoiled in flavour, and the butter is not of as good quality as that churned from milk that has not been scalded.

The chief points to be attended to are, the feed of the cows, not forgetting the grain and the salt, keeping the milk in an even temperature, never allowing it to freeze; scrupulous cleanliness, and the access of air; stirring the cream daily in the pots, and churning at a proper temperature—that is, about 60° or 62°. Some recommend giving the cows a little saltpetre occasionally. With regard to the unpleasant flavour imparted to the butter by turnips, we know no effectual remedy, except, as an Irishman would say, not to give turnips, but to feed mangel wurzel instead.

### Butter Making in Winter.

This is too often pursued under difficulties, and the resulting product is a whitish compound scarcely fit to use for any purpose but making pastry, and inferior to lard for that. We always succeed in making nice, sweet, yellow butter, throughout winter, by using a thermometer, which costs only fifty cents. The milk is set in a room where it does not freeze at night, and the temperature can be raised to 50° during the day. The milk pans and pails are rinsed in hot water before using. After the milk has stood forty-eight hours the cream is skimmed off as free from milk as possible, put in a large covered stone jar, which is kept behind the kitchen stove, at an average temperature of 60° to 70°, for three days previous to churning. It is stirred up two or three times each day. When the cream is put into the churn its temperature should be at 60° to 62°, churn 10 minutes, and then add enough boiling water quickly stirred in to raise the temperature to 65° or even 70°, if the air of the room is cold; as soon as the butter comes, which can be seen by little clots of butter on the churn-dash, add cold water to bring the heat down to 40°, and then go on till the butter is gathered. We find that at 60° it takes two hours' churning to bring the butter, while at 70° it comes in fifteen or twenty minutes, and is of a fine quality, and nice, hard, yellow colour.

oz. of salt to each pound of butter, after working out the buttermilk, is enough. Roll butter can be kept sweet and fresh for any length of time, by placing the rolls in clean, strong, cold brine. The brine must be boiled, and when cooled the scum that rises carefully removed, so that no impurities remain in it to impart a taste to the butter.

J. M.

### Canadian Dairymen's Association.

We direct the special attention of dairymen, and others interested in this important branch of agriculture, to the approaching annual meeting of the Dairymen's Association, which is announced to be held at Ingersoll, on Wednesday, Feb. 3rd.

The Annual Address will be delivered by N. A. Willard, Esq., and will treat especially on the art of preserving the flavour of cheese. Among other subjects, the following will be discussed:—

The best method of cooking milk before cheese is made therefrom.

Has the system of making cheese once a day been successfully practised the past year, and can its general adoption be recommended?

What new features and improvements have suggested themselves the past season?

Factory Reports of statistics and operations for 1868, are earnestly desired. They should be handed to the Secretary at the Convention.

It is expected that arrangements will be made with the different Railways to pass members of the Association over their roads at one fare.

We congratulate the Association on having again secured the presence of Mr. Willard, and have no doubt that this second annual meeting will prove of special interest.

### American Dairymen's Convention.

The American Dairymen's Association meets in Utica, N. Y., Jan. 13, 1869. The President of the Association, Ex-Gov. Seymour, delivers the opening address. Prof. Gamgee is announced to deliver an address on the Diseases of Cattle. The meetings of this Association have been of much interest and value, and we have no doubt the present Convention will equal any former one.

Among other subjects, the following have been announced for discussion to be discussed:—

Cooling milk before cheese is made therefrom has it received its due attention?

Cause of the early decay or deterioration of American cheese.

Floating Curds—their cause and prevention—the best manner of treating them—the season and circumstances of their most frequent occurrence.

New features and improvements of the last season.

Importance of systematic experiments in cheese making.

The Illinois and Wisconsin Dairymen's Association will hold their annual convention on the second Tuesday in February. The executive committee of the association had appointed and announced the second Tuesday in January as the time of meeting, but learning that the American Dairymen's As-

sociation will hold their convention in Utica during that week, they subsequently altered the time of the western convention to the date now fixed, in order to give dairymen and others interested in this important department of agriculture an opportunity of attending both conventions.

### The Butter Humbug.

Many of our readers may have been taken in by this swindle. "How to make a pound of butter out of a pint of milk," ought to have been a warning sufficient; but covetousness on the one hand, and credulity on the other, are oftentimes too much for human nature. The fraud has been exposed in the United States, where it is believed to have originated, but it is now having full swing in Canada. "County rights," as they are called, are sold at from a few hundreds to thousands of dollars. Essex was sold a week or two since for about \$1,400. A word of common sense ought to be sufficient. We will show how the fraud is committed, and then how to expose it.

To commit the fraud, take a pound of butter, a proportion of the so-called butter powder, and a pint of milk. Beat and crush them together, and they will seemingly unite: the powder which is used forms an emulsion between the milk and the butter, and the result is a mass looking like butter, and tasting tolerably (of course proper quantities of salt must be used to flavour it). Now, to suppose that the result is *verra* is simply folly: but if you doubt the fact, put the results of what you manufacture (and which will doubtless weigh about two pounds) into a vessel, which stand in boiling water until the contents melt, then add some warm water and leave it at rest for a while in a melted and warm state, and you will find your original pound of butter floating on the top, and the balance of the quantity, being about a pound of humbug, separated from the other in white water and curds, with occasionally a small quantity of white powder at the bottom. You will, of course, find the proceeds increased by the water you have added.

This is a most mischievous fraud, and will ruin many a farmer's credit. Municipal authorities and magistrates will have an "assize of butter" at their markets: the article will be rejected, and the fraudulent farmer exposed, and most likely punished for swindling.

**SORE TEATS IN COWS.**—When cows calve in cold weather their teats are quite apt to be sore, caused generally, I think, by their being wet with milk. When the calf sucks, the teats are sure to be wet, and some persons when they commence milking always wet the teats with milk the first thing. As far as my experience goes this always makes them sore in cold weather. The best preventive is to wash the teats thoroughly with cold water as soon as the milking is performed. The best remedy that I know is a mixture of tar and lard melted and stirred together in such proportions as not to be very sticky, and applied once or twice a-day.—*Ex.*

## Veterinary Department.

### Ontario Veterinary College.

The Toronto Veterinary School was reopened on Wednesday, Jan. 13, the introductory lecture of the term being delivered by Professor Smith before a considerable audience of students and other members of the profession. The large attendance presented a most satisfactory and encouraging evidence of the steady progress of this most valuable institution, and must have been highly gratifying to Mr. Smith, who has, from its commencement six years ago, laboured assiduously and successfully in promoting the cause of Veterinary science in this Province, and to whose ability and energy the present promising condition of the school is mainly due.

The opening lecture traced briefly the history of Veterinary medicine and its intimate connection with agriculture, with the progress of which, and especially in its recent rapid advances, it has kept even pace. Some sort of medical treatment has been found necessary and cov'd with the domestication of animals for the service of man. For, while in a state of nature, the unerring instinct of wild animals directs them in their choice of food and other conditions essential to health; but with domestication, disease is introduced. Hence, we find traces of a veterinary art amongst the most ancient nations. But it is in modern times only that correct principles have been established, and the practice has reached the dignity of a science. To the French must be given the credit of being the foremost as a nation to recognise the veterinary art as a profession, and also the first to establish a school of instruction for this branch of medicine. In 1761 a school was established in Lyons, under the patronage of the Government; and not long after a similar college was opened at Alfort, near Paris. This, which is still in a most flourishing condition, is, perhaps, the oldest veterinary institution in Europe. The present Emperor allows one hundred thousand dollars a year for its support. The profession is better supported and upheld in France than in any other part of Europe, and the magnificent grant of the Emperor is certainly worthy of all praise. The lecturer reverted to the recent abolition, as one of the results of a veterinary congress, of the horrible and most inhuman practice of vivisection, which, until lately, disgraced the French school.

In Canada, the importance of the profession is becoming yearly more manifest with the increasing number and value of our live stock. In this country may be found some of the most valuable herds of cattle and flocks of sheep on the continent, and our horses, which are being largely exported into the States, are increasing in excellence and value. The Board of Agriculture have done

much to promote the veterinary art in this Province, and have from the commencement sustained the Ontario Veterinary College.

In conclusion, Mr. Smith briefly addressed those students who now, for the first time, entered on their studies, and showed how important it was for them to apply diligently, and to cultivate habits of close and accurate observation. With industry and a fair amount of energy, their success in any settled part of the country was certain.

The lecture was listened to with much attention, and warmly applauded. The numbers now included in the school are more than during any previous term, the students of all classes amounting already to nearly thirty. The term will extend over about ten weeks, with three lectures daily. Besides Mr. Smith's instructions, Professor Buckland and Dr. Thorburn deliver lectures regularly at the Agricultural Hall, and the students have the opportunity of attending those of Dr. Bovell at the Toronto School of Medicine. It is gratifying to find an institution of such importance to the country in so flourishing a condition.

### Diseases of the Digestive Organs of the Horse.

It is a temptation to notice the diseases incident to the digestive organs of the horse, but before proceeding to do so, we think it desirable to give a short description of the various parts and organs that compose the digestive apparatus. The organs of digestion consist of a large tube, which receives the name of the alimentary canal, and also other parts that are classed as accessory organs of digestion. The alimentary canal may be arranged under several divisions, as, first, the preparatory organs, which consist of the mouth, the tongue, the pharynx and the œsophagus or gullet, with their accessories, the teeth, and the various glands that secrete saliva, the principal of which are these, the parotid, the submaxillary, and the sublingual. The mouth is formed of the lips, the cheeks, the gums, the teeth, and the hard and soft palate. The lips are both muscular and glandular in their structure. The upper lip is largely supplied with nervous filaments and is exceedingly sensitive. The cheeks are formed principally of two large muscles, the masseter and buccinator, which contain a number of small glands. The gums are formed of dense fibrous tissue adhering closely to the cavities in which are inserted the teeth, and also surrounding the neck of the teeth. The hard palate or roof of the mouth is formed by the palatine processes of the anterior and superior maxillary bone. It is covered by a dense fibrous membrane, and this again by a thick mucous membrane, and is divided into two parts by a longitudinal ridge; from this ridge spring a number of transverse ridges which form a series of imperfect arches, from fifteen to twenty in number. These

are usually termed the bars, and they are most prominent near the incisor teeth.

The soft palate is a movable curtain suspended between the back of the mouth and the pharynx. It is attached to the upper border of the hard palate, and extends downwards as far as the larynx, terminating over that part called the epiglottis. In consequence of this disposition of parts the cavity of the mouth has no communication with that of the nose; therefore a horse can only respire through his nostrils. This soft palate is formed of extensions of the mucous membrane of the mouth and nose, in addition to muscular fibres. It acts the part of a valve, preventing food from passing into the respiratory tract, and it also conducts the air from the windpipe to the cavity of the nose without allowing any of it to escape into the mouth.

The tongue is the organ in which resides the special sense of taste, and it also assists in the process of mastication and deglutition. It is a double structure made up of two distinct parts, the union of which is marked by a longitudinal line along its middle. The two divisions have no nervous connections whatever, as is well seen in examples of (*Hemiplegia*), a paralysis of one half of the body. In these cases one half of the tongue loses its power of special sensation, while the other half retains its ordinary sensibility. The tongue at its back part is firmly united by numerous muscles to the *os hyoides*, or bone of the tongue. The substance of the tongue is made up of a number of muscles, some of which are attached to adjacent parts, and the organ possesses a covering somewhat similar to the common integument, and presenting the same general appearances.

The pharynx is situated at the anterior part of the œsophagus, and is a funnel-shaped sac for the reception of the food. It is separated from the cavity of the mouth by the soft palate. In the act of swallowing, the soft palate is pressed upwards against the posterior opening of the nose. The pharynx is made up of muscular and mucous membrane.

The œsophagus or gullet is a very long and cylindrical tube through which the food descends, extending from the pharynx to the stomach. In passing down the neck it inclines to the left, and is continued down the left side of the windpipe, entering the thoracic cavity between the windpipe and the first rib on the left side. It is then directed upwards towards the base of the heart, and passes through an opening in the large muscle which forms the division between the cavity of the chest and that of the abdomen, and entering the latter cavity it terminates in the stomach. This tube is constricted externally of muscular fibres of two different kinds, longitudinal and circular, the latter forming the inward layer. These fibres, by the successive contractions of the canal, pass the food downwards. In



the oesophagus presents two sets of circular fibres, which allow of the upward passage of the food in rumination. The mucous membrane or lining of the tube is continuous with the mucous membrane of the pharynx, but is much paler in colour. The passage of the food to the back of the mouth is caused by voluntary muscular force, but after reaching the oesophagus it is carried on by involuntary muscular action. The accessory preparatory organs of digestion are the teeth and the various salivary glands. The teeth are forty in number, and are arranged into three classes—the incisors or cutting teeth, situated in front of the mouth, six in each jaw; the molars or grinders, twelve in each jaw; and the canine or tusks, four in number, two in each jaw. The latter are characteristic of the male animal, and in the mare they are either imperfect or undeveloped. Of the teeth, twenty-four are deciduous or milk teeth, being cast off at certain ages and replaced by permanent teeth. The whole of the incisors are temporary, and twelve of the molars. The tusks are not deciduous. In a future article we will notice the different ages at which the teeth are shed, and also the indications of age as represented by the teeth.

The principal salivary glands are three pairs—the sub-lingual, the sub-maxillary and the parotid. The last is the largest of the three, and is situated immediately below the ear. It is formed of a number of flattened lobes, which are made up of small lobules, and the whole finally terminate in one duct or canal, which passes around the lower jaw and opens in the mouth between the second and third superior molar teeth. The sub-maxillary gland lies in the space between the angles of the jaw, and in structure is similar to the parotid, the lobules terminating in a duct which passes into the floor of the mouth in the side of the *fovea linguae*, or the middle of the tongue, the membrane connecting the tongue on the under side with the floor of the mouth. This opening is covered with a fold of mucous membrane called the barb or pap, which appears to protect the opening. A ridiculous practice is very much in vogue with some people, who are not conversant with the structure of these parts, and that is the removal of these processes by the knife or scissors.

The sublingual gland is smaller than either of the former, and is situated below the mucous membrane in the floor of the mouth. This gland pours its contents into the mouth by a number of small ducts. The use of these glands is to secrete a fluid, and this fluid is called saliva, the character of which is clear, viscid, and colourless. The use of the saliva is to moisten the food, and in addition to exert a solvent power, which is the first step in the process of digestion.

These preliminary anatomical details necessarily involve, to a certain extent, the use of technical terms which may be rather puzzling to the uninitiated; some slight acquaintance with them, however, on the part of the reader will materially facilitate our future task of explaining the nature and treatment of the diseases of these parts.

## Correspondence.

### A Commendatory Letter.

The following letter, elicited by the announcement of the proposed change in the issue of the CANADA FARMER, has been received from one of the most intelligent and experienced agriculturists in the County of Wellington, and while it cannot fail to be gratifying to the Editors, suggests some important considerations which we heartily commend to the attention of our readers:—

“I am greatly concerned to find from your last number that you are compelled, from two causes therein set forth, to reduce your semi-monthly paper to a monthly one, after the expiration of the present year.

“The Government has certainly behaved most meanly in the matter of postage, and is thereby in part responsible to the farmer in depriving him of the advantage and privilege of perusing your ably conducted twice-a-month journal. Why should the Government fetter the machinery of such a desirable publication, instead of granting it all the aid and encouragement in its power?

“I am grieved to observe from your representations, that the want of that patronage which you are really entitled to look for at the hands of the farming community, is another cause for the decision you have felt it necessary to come to regarding your paper. This patronage, so well deserved, it grieves me to find has been in a measure withheld. I am the more grieved when I look at the amount of energy, skill, trouble and expense you have lavished upon it, with the laudable desire that it should become a truly acceptable and valuable paper to the entire farming community. I am sure it must be apparent to all, that a much larger and more varied amount of matter, both theoretical and practical, with splendid and costly engravings, has been given to your readers than has ever been contained in any former publication of the kind in Canada. At least such is my impression; and yet, with all this, there is a lack of interest shown that ought not to exist in so wealthy and independent a community as the owners and tillers of the soil form in this country. It says little, indeed, for the intelligence and ambition of the agricultural community, and I consider it truly lamentable, and not very creditable, that a single farm-house should be found in this Province without such a desirable publication.

“I am sorry to say I know wealthy farmers even around me, who can boast of their broad acres, who have three or four able-bodied sons, some of them on farms of their own, and well-to-do in the world, that have neither the CANADA FARMER nor any other agricultural or horticultural paper amongst them.

“Some, I find, have thought the CANADA

FARMER, as regards information, too theoretical and not practical enough. I do not myself see that there is any ground for this objection. There might, perhaps, be a larger amount of the practical, but if one may judge by the many applicants you have in every number for information on the most varied subjects conceivable, (and some of them droll enough, truly!) we may reasonably conclude that you are not deficient in this direction. Sure I am that all must appreciate the courtesy with which you have so cheerfully, and in so practical a manner, complied with these requests.

“Let me ask any complainor, if all practice is not grounded upon theory? Has not the mind first to plan what the hand has to bring to fruition? If some of your readers want more practical articles, why do they not furnish communications of the sort they wish to the CANADA FARMER? Do they expect that the Editor, in his *sanctum*, is to concoct all the ‘practical articles?’ It is to be lamented that there should always have been a dearth in every agricultural paper that has appeared in this Province, of practical and useful communications from farmers themselves. And why should this be so? For although, doubtless, there are many who do not possess the ability to frame articles of sufficient merit for your journal, it is equally plain that there are hundreds—aye, thousands, possessed of education and ability sufficient to enable them to contribute, once in a while, creditable and useful articles. What a contrast, in this respect, do we find existing in the United States!

“It is not many years since I was one day in personal communication with Mr. Tucker of Albany, when that intelligent, energetic and sincere friend of agriculture told me, ‘that at that moment he had more voluntary matter from subscribers to his paper, lying in his desk, than he could possibly insert during the next six months!’—and this, too, at a period when I well know that it was a rare thing for the *Canadian Agriculturist* to have a voluntary contribution once a month! Why should there be such a wide difference between the two communities? Is it that the Canadian farmer himself is so full of knowledge, and has grown so rich upon his industry, that he cares not about further pecuniary independence, or that his supineness about the prosperity of those around him arises from indolence, want of energy, and selfishness? I heartily wish facts would warrant me in thinking otherwise.

“It was fully my intention some time ago to have complimented you and your staff on the lengthened and correct accounts given in the CANADA FARMER of the proceedings at the late Provincial Show, but sickness and pressing engagements prevented. Let any one peruse that account from the first notice of the show to the end, including ‘the official prize list,’ and say whether that alone is not worth, especially to those who could not be present at the show, the whole amount of a year’s subscription to the paper.

"It must have been no sinecure to have collected such a mass of correct, interesting and amusing, as well as instructive information for your readers, and I think that every one of your subscribers ought indeed highly to value such efforts and painstaking. I must not fail here to express my entire satisfaction and approval of your determination not to let your forthcoming paper for next year go to any subscribers at less than a dollar. If it is not worth that it is worth nothing. For waste paper alone, I consider it worth all the money. But woe be to the man who would make that use of it.

"I will now conclude with sincere wishes for an increase subscription list to your forthcoming monthly edition next year.

"LEICESTERENSIS."

"Guelph Township, Dec. 7, 1868."

### Alsike Clover and Timothy.

To the Editor.

SIR,—As there are undoubtedly many farmers who have Alsike Clover and Timothy sown together, it may be a benefit to such parties to know, that if they cut it as soon as the clover is ripe, which will generally be about the 15th of July, they can thrash it with a clover machine, and get a nice lot of pure Alsike seed, free from Timothy seed, as the Timothy is so green that the seed does not thrash out. I have just finished thrashing five acres of Alsike and Timothy which were sowed mixed, about half and half. The crop has yielded me over three bushels of nice clean Alsike seed, to the acre, which, at the present price of seed, will fetch me over \$225 from the five acres, and the hay left besides, which I consider but little injured by thrashing. I have also thrashed four acres of clear Alsike, so that I have plenty of the genuine Alsike Clover Seed for which I took the first prize at the Provincial Exhibition held in Hamilton this season, also the first at the County and Township shows of South Ontario.

Brooklin,

H. M. THOMAS.

AT WHAT AGE SHOULD HEIFERS CALVE?—"Novice" sends the following particulars and queries:—"I have a Durham heifer, 19 months old, which weighed this week 1,080lb., not in calf. Is she not above the average size? Do our stock breeders think it advisable to allow such an animal to have a calf, before she is three years old? Would it be advisable for me to allow my heifer to come in next autumn?"

ANS.—The weight of your heifer is considerably above the average for her age. With regard to the proper age for the first calving, the practice of breeders is somewhat various; but it is generally considered best not to allow a heifer to have a calf before she is three years old. An early pregnancy will tend to check the full growth and development of the mother. Cows bred for the dairy may, perhaps, be allowed to calve at an earlier age than those raised chiefly with a view to frame and size. The fall is not a good time for a heifer to have her first calf. Succulent milk-producing food is then scarce, and the milking qualities of the cow may suffer.

REGISTERING THOROUGH-BRED STOCK.—A correspondent from Lindsay writes:—"I have lately purchased a Durham bull, certified by the breeder, Mr. Jones, of Darlington, to be thorough bred. It was sold when only a few days old to go into one of the remote townships of this county, and so was not registered. I wish if possible to have the animal registered, and desire to know from you how I am to proceed. He is four years old. A reply through your agricultural journal would very much oblige.

ANS.—Send a copy of the pedigree, and any other particulars of interest, to H. Thomson, Esq., Secretary of the Board of Agriculture, Toronto.

### TO OLD SUBSCRIBERS.

The present number of the CANADA FARMER is sent to each subscriber for the past year, but our readers will please to observe that no subsequent number will be sent to anyone who does not remit the amount of his subscription for the current year. Our terms, as already announced, are ONE DOLLAR per annum, payable in advance. Each number will contain the same amount of reading matter as the present issue—forty pages—and we solicit the co-operation of all friends of Agriculture in extending the circulation of the CANADA FARMER, which we believe to be the cheapest Agricultural publication on the Continent.

## The Canada Farmer.

TORONTO, CANADA, JANUARY 15, 1869.

### New Series of the "Canada Farmer."

The circumstances which have led to the change in the issue of THE CANADA FARMER, from a fortnightly to a monthly periodical, have been already explained to most of our readers, but for the information of our numerous friends who have this year sent in their names as new subscribers, it may be necessary to repeat, that the new postal law imposes a charge on all periodicals passing through the post-office, not excepting those devoted to Agriculture, which have hitherto been free of postage. This rate amounts, in the case of THE CANADA FARMER, to twelve cents per annum on each number, and on the whole circulation of the journal, sums up to nearly \$1,700 annually, which must be paid—not by the subscribers on receipt of their paper—but by the publisher. This alteration in the postal law has rendered necessary the change in the publication of THE CANADA FARMER; but our subscribers will find that there will be no reduction in the amount of reading matter now offered in the single monthly number, as compared with the fortnightly issues of past years.

We commence the new series, relying on the efficient help of Editors and contributors.

with the earnest hope of rendering the present volume in every respect as acceptable and instructive as its predecessors.

Prejudice against "book farming" is fast disappearing, and it is scarcely necessary in the present day to vindicate the utility of periodical literature of this kind, for amongst the most intelligent portion of the farming community, its importance and the good service it has done to the cause of agriculture are generally allowed. But a word or two may not be out of place respecting the true position, aim, and pretensions of an agricultural journal, for there is often very great misapprehension with regard to them. Let it not be supposed then, at the outset, that the Editor of such a journal assumes to be an infallible teacher and guide in all matters pertaining to his department. He is himself a student in the school of nature and science, and is well aware that among those whom he addresses are many whose intelligence, skill, and long experience well qualify them to give rather than receive instruction. But even to these he may render good service by culling, from the sources of information at his command, reports of interesting events, discussions, and discoveries in the great field of agriculture throughout the world, and so helping them to keep pace with the progress of the times. But there is also another class of readers, especially in a country like this, where not a few take up the farmer's calling without any previous preparation, who are altogether inexperienced and have everything to learn, even the first principles of the art and science by which they hope to gain a livelihood. To these an agricultural journal, conducted with even ordinary ability, cannot fail to be of essential advantage.

The most important object, however, that should be kept in view, is the opportunity which these publications afford to farmers of interchanging ideas, comparing experience, and communicating information. And this is the point to which we wish now to direct special attention. The very best agricultural papers are those which are largely made up of the correspondence of farmers themselves, and we most cordially invite the readers of the WEEKLY GLOBE to avail themselves of its columns to give the results of their own experience, or make enquiries of others. Suitable communications on any matters relating to the farm or the garden, fair and courteous criticism, or questions in any of the departments, will be cheerfully admitted and receive prompt and careful consideration.

In conclusion, we would beg our correspondents not to be deterred by inexperience in writing. Let us have your statements of facts, or rational opinions, in your own words. It is the Editor's duty to put your communications in proper shape for publication. Only write as legibly as you can, on one side of the paper only, and with the lines not too close together. Bear in mind, moreover, that according to the present postal law, letters to the Editor, intended for

publication, and unaccompanied by any private or personal communication, may be sent by mail at the rate of one cent per ounce, prepaid. The package should be left open, and marked on the outside "Manuscript for the Printer."

With the co-operation of farmers themselves, we hope to make the new series of the CANADA FARMER an interesting and instructive record of rural affairs, and a worthy exponent and helper of the progress of agriculture in Canada.

### Past and Present.

What is Agriculture? It has been defined as "the culture of the soil," a definition still correct as applicable to it in most parts of the world, especially where man has not yet advanced beyond the ambition of satisfying the immediate requirements of his own natural necessities. Late African explorers tell us of tribes of men considerably ahead of their fellow-savages in the way of comforts and approaches to civilization, simply from their having discovered the nature of iron and how to melt the ore and afterwards fashion it into so simple an implement as a hoe, with which they scratch and work the soil into a state something beyond that of nature; and with even such rude culture the productions of the soil in that climate greatly exceed the wants of a numerous population, so great is the bounty of nature in providing materials from which to eliminate food for man. A hundred years ago, even in civilized Europe, Agriculture was but a little more advanced. A plough of those days was scarcely more than a resemblance of what it is now, and may be described as a cultivator tooth fixed in a beam between two handles, with which the roughman guided the implement as it was drawn through the soil by oxen; horses were rarely used then, except on the roads, such as they were, or to in master to the wants and pleasures of the better classes, who, owning the land and living in idleness on the labour of others, looked down upon the cultivator of the soil with supercilious contempt; as well they might, seeing he knew nothing beyond the drudgery of his calling, and made no other way to learn anything from the great book of nature, or a before him, content to do as his father had done, and living without a wish beyond earning what would keep him in food and clothing. Then came war, so long and desolating that the owners of the soil found it necessary to turn their attention to the improvement of the modes of culture, in order to counter-balance the loss of the patient toilers who had been swept away by the sword. About this time Jethro Tull wrote and published a small work on Agriculture, drawing attention to the importance of devising a better system of tillage. He may justly claim the title of father of Agricultural literature, and his little book, though out of date and almost forgotten, still enunciates many correct ideas that it would be well for every cultivator of the soil to possess.

From that time to the present agriculture has advanced, slowly perhaps, but surely, till it has become a science—the most noble, interesting, and complicated of all the sciences, and one upon the proper knowledge and understanding of which rests the whole superstructure of the well-being of civilized nations. Agriculture, from being the mere mechanical calling of cultivating the soil, has become the science of observing and developing the laws and resources of nature, in order to bring them as far as possible to the assistance of man in his efforts to provide for the rapidly accumulating wants of that higher state of civilization to which the human family is continually advancing.

So greatly do his wants increase beyond the ability to supply them by his own unaided labour, that the failure of the cereal crops for a single season, over any large area within the pale of civilization, increases the cost of living not only within that area, but throughout the civilized world.

Farming has become a profession in which those who have an aptitude for observation, and for turning to use the facts and knowledge obtained from the experience of others, will succeed the best in acquiring wealth and comfort, while those who follow it in unenlightened drudgery, continue under the primeval curse to man, "By the sweat of thy brow shalt thou eat thy bread." Those who make the most use of their brains to help the work of their hands, will be able to command them as a sort of capital with which to purchase and turn the labour of others to their own advantage. Those who read and store their minds with facts and knowledge, gleaned from journals devoted to their interests, are certain to succeed better than those who do not.

Forty years ago an agricultural paper was a thing almost unknown, and the man who started the "Canada Farmer" was looked upon as a visionary enthusiast. Now there are about fifty papers in America devoted exclusively to disseminating knowledge gathered from the experience of many thousand observing tillers of the soil, many of them men who a few years ago would have scorned to write a line for publication, or to be thought what has been unjustly characterized as book-farmers.

The more farmers interchange ideas and views through the press with each other, the more advantage will they gain. Unlike mere mechanical knowledge, that obtained by the intelligent observing cultivator of the soil may be freely given to his fellow-men without fear of loss or injury to himself, for though thousands should thereby add to their profits, it does not reduce his one iota.

AGRICULTURAL SOCIETIES.—During the second and third weeks of the present month, Agricultural Societies will hold their annual meetings. We shall feel obliged to the secretaries or other parties who may send us brief reports of any of them, and as far as our space will permit, shall be happy to publish them.

### Self-Education.

The facilities for education in the present day, among all classes of the community, are greatly in advance of those enjoyed by the people generally a generation or so back; and laudable efforts are being made still further to extend them. Notwithstanding this, however, all the education, in its limited sense of school teaching, that most of our farmers' sons can boast is what has been acquired by a brief and irregular attendance at the common district school. From these institutions, valuable as they are, they have not derived the smallest information relative to the science of their own particular calling. The art of agriculture they learn at home, from their daily life on the farm, but of the great principles which lie at the foundation of their art, and whose development and application mark its progress, they are often profoundly ignorant. To remedy this very general defect, agricultural colleges have been established at great expense, both in Britain and in the adjacent States. These noble institutions are already doing great good, and are destined to accomplish yet greater things when the experience of a few more years has wrought improvements in their system, and taught the people their value. Nevertheless, the great mass of the rising farming community will still acquire all their agricultural knowledge on the farm. Hence the agricultural journal comes to be the chief educator of the young farmer in the science of his calling, if not in its art and practice; and we do not hesitate to say that no farmer can be an intelligent and progressive master of his business who does not take at least one such periodical. But the young man should not be content with this. During the comparative leisure of the winter season, especially during the long evenings, what golden opportunities he might enjoy for improving his mind. The season is one of relaxation, indeed, and social enjoyment. By all means, let these have a fair and moderate share of indulgence. Something of the social element may be combined with the means of mental improvement by the organization of Farmers' Clubs, which we earnestly commend to the attention of young farmers in particular. But to keep these up requires an amount of energy and of intelligence which are far from common in most of our rural districts. Young men must educate themselves at home to enable them to take their part with any profit or satisfaction in such Associations. Apart, also, from the social bearing of this self-education, they will be vastly the gainers in a more thorough comprehension of their own business, and a more rational appreciation of the labours of others, both of practical men and men of science. Among other advantages, the Agricultural Journal will be read with more interest and more benefit by the aid of a little systematic reading during the winter evenings.

There are now so many publications on agriculture and the kindred sciences, that

the chief difficulty in forming a home library for pursuing the studies we wish to recommend, arises from the perplexity of selection. A few, however, may be suggested, and if any one of our readers should wish to know of a good work on any particular branch of study not here specified, let them write, and we will endeavour to answer their inquiries.

Part of the following list of books, we find enumerated, among others, in that excellent journal, the *Country Gentleman*. They are chiefly American; but until our native authors are more numerous, we must procure from England or the neighbouring country the bulk of our scientific literature. For the study of *Vegetable Physiology*, we recommend, as an elementary work, Gray's *How Plants Grow*, and as a more advanced text-book, Gray's *Mannual*. Johnson's *How Crops Grow*, Flint's *Grasses*. On the subject of *Domestic Animals*—Youatt on *Cattle*, the *Canadian Horse and his Diseases*, by A. Smith, V.S.. Morrell's *American Shepherd*, Quincy on *Soiling*. On *Farm Husbandry*—Allen's *Farm Book*, Flint's *Dairy Farming*, Waring's *Draining for Profit and Health*. On *Agricultural Chemistry*—Johnson's *Elements of Agricultural Chemistry*; and on *Horticulture*, amongst a host of excellent works, we may mention Henderson's *Gardening*. Packard's *Guide to the Study of Insects* and the *American Entomologist* will be most efficient aids in the study of *Entomology*. The foregoing books are all of moderate price, \$1 50 each (American currency) being the sum for which most of them could be procured. In addition to these, the bound volumes of the best agricultural periodicals will be found very serviceable for reference on a vast variety of subjects; and we believe we are not overstepping the bounds of modesty if to Canadians we especially commend the volumes of the *CANADA FARMER*.

### Winter Work—Farm Help.

The chief work for winter on the farm is undoubtedly the care of stock, and the larger the quantity of stock that can be kept in a thriving condition during the winter months the better will it be for the land and the greater will be the farmer's profits. Any quantity of stock poorly kept involves waste and loss every way. The making and storing of manure, which will be richer in proportion as the animals are well fed, is a most important item connected with this part of winter work. These matters, as well as other labour of various kinds not precluded by the season, occupy the farmer's time pretty fully even during the period of comparative leisure. Still there is on most farms so great a relaxation of activity throughout the winter months that it is a common practice to dismiss all hired help during this season. The men thus dismissed must seek employment elsewhere. Some repair to the cities; others resort to chopping, lumbering, teaming, or anything to which they can turn their hands, and a few, making a sort of holiday of

the time, spend their summer's earnings in idleness and dissipation. When summer returns and the hurry and pressure of harvest comes round once more, there is again a scarcity of help on the farm; exorbitant wages are demanded, and the farmer suffers severely both in the extravagant price he has to pay for the required assistance, and in the delay which ensues from not being able to procure sufficient help or to command it at the right time.

To obviate in a measure this recurring difficulty, it is desirable that the farmer should retain as much hired help during the winter as he can, with due regard to his circumstances and means. He should, wherever it is practicable, hire by the year. There are various ways in which this additional help can be profitably used. Indeed, while the snow is on the ground and sleighing is possible, there is much that can never be done so well at any other time—clearing the land of stones, work in the bush, with logs or cordwood, &c. Is it not also possible to haul out some of the manure before the spring opens, and even before the snow has entirely disappeared? Many agriculturists advocate this plan, not only as saving precious time and forwarding the preparation of the land for spring work, but as securing the largest amount of good from the manure. Professor Voelcker and other eminent chemists contend that exposure to the air exerts very little injurious effect on the manure, because the ammonia is soon fixed by acids generated in the mass, and converted into soluble salts. It is the washing by rains, and not the exposure to the atmosphere, that carries away the best portion of the fertilizing elements. If this washing takes place on the ground where it is wanted, then, it is claimed, no loss results. It must not be forgotten, however, that in this climate the frozen condition of the ground presents an objection to carrying out this practice that would not be felt in England, where frosts are comparatively temperary and the ground soon becomes pervious to moisture from the surface. Still it is quite possible, we think, to commence the work of depositing the manure on the field much earlier than is commonly done.

One great difficulty in the way of hiring by the year is, undoubtedly, the temptation which presents itself when harvest time comes, and the wages are extravagantly increased, for the hired man to find some excuse to quit his employer, and avail himself of the high price offered for his labor. Against this the farmer can protect himself by making a proper engagement, distinctly specifying that the wages shall be due only when the term of service is satisfactorily accomplished, and providing for a deduction from the monthly rate of wages, even during the time of actual service, if the hired man leaves before the expiration of the term. The penalty of leaving during the season of

haymaking or harvesting should be heavy. Unfortunately, in this world we have to appeal to men's interests to keep them honest. In making his engagements for service, the farmer should not trust to any verbal understanding. The terms of the agreement, clearly stated, should be written down and duly signed. This is fair, and binding to both parties, and is, indeed, the only safe and satisfactory plan of making any contract of the kind.

### The Provincial Association.

In another column will be found a report of the meeting of the Board of Agriculture, convened to consider the charges brought against it with regard to an alleged deficiency in the accounts. The report is, we believe, a fair and impartial record of the meeting; our readers can therefore form their own judgment, and we forbear to make any comments on this matter, especially as the case will probably receive yet further investigation before it is finally disposed of.

By the provisions of the new law, the agriculturists throughout the country have now to a large extent the control of the election of new members of the Board, or, as it will be called, the Council of the Agricultural Association. It will be their own fault if they do not exercise their right wisely and well. The circular of Mr. Thomson, the Secretary of the Board, which will be found in another place, explains the mode of electing the new Council. In addition to the elected members, the *ex officio* members of the body will be composed of the Commissioner of Agriculture, all Professors of Agriculture in chartered Colleges and Universities, the Chief Superintendent of Education, the President of the Fruit Growers' Association, and the President of the Association of Mechanics' Institutes of Ontario; or in the absence of the Presidents, then the Vice-Presidents. The elected members will retire in rotation, their places to be filled, unless re-elected, by new representatives. One year hence, the representatives of the four Eastern Districts will retire. Two years hence, the representatives of the four Central Districts will retire; and three years hence, those of the four Western Districts will retire. Thus, one-third of the elective portion of the Board will retire every year.

In view of these important changes, more than ordinary interest attaches to the annual meetings now to be held, and members of Agricultural Societies will no doubt muster in full force to give expression to their opinions, and exercise their votes in the choice of their representatives in the new Council. The Act has, in this respect, been liberally framed, and we trust the new arrangements will promote the interests of agriculture and the efficiency of the Central Association, and of the Agricultural Societies throughout the Province.

### Returning Adventurers.

The St. John papers notice the return to New Brunswick of some persons who left that Province last spring to seek their fortunes in New Zealand. A party of fifteen or twenty persons went to New Zealand from New Brunswick last spring, and already it is said that all but two have returned, convinced that there are worse places in the world than the Province which they had abandoned. We frequently see notices in the New Brunswick papers of the return home of persons who had left that Province for the purpose of settling in the Western States. These persons usually return with their minds entirely changed as to the relative advantages of their own country and the Western States. We occasionally meet in Ontario with gloomy individuals, who hold that the Province is going to ruin because some of our young men go to the Western States; but the large numbers who return after a short experience of life in the United States, are seldom noticed or made the subject of editorial essays. All the older communities on this continent suffer from the emigration of the young and adventurous; but a very large share of that emigration comes back, and that which does not is counterbalanced by the immigration from the old world. Hence, it comes about that at each census, localities which seem to have been losing population year after year, actually show a considerable increase. With all the emigration to the United States, every one of the Provinces was considerably more populous in 1861 than it was ten years before, and is more populous now than it was in 1861. When we get the Hudson's Bay Territory and have a far west within the Dominion, we shall lose less than ever by the adventurous spirit of our young men. They can then gratify the desire to go westward without being lost to their country.

### Agricultural Societies.

As the time is now close at hand for the annual meetings of Agricultural Societies, we propose to make a few remarks on some matters in which these societies might be improved. We have attended both county and township shows last autumn, and have come to the conclusion that some of the smaller associations, as at present managed, are not doing what they might towards the improvement of Agriculture. That they can get up a good show of the productions of the soil, the dairy, and the household, and draw a crowd, we have had ample proof; but in the matter of selecting good Judges they too often utterly fail, and the awards made of prizes are such that it must prove extremely difficult for any person of sense to see how, or wherein, any benefit is to be derived, except by those who are lucky enough to pocket the prizes. Often the most glaring mistakes are made by the Judges in giving

their awards. We are told that such things cannot be helped; that good Judges are appointed, most of whom live at some distance off, and as a consequence are not to be found when show day comes, especially as they are expected to pay their own expenses; so, as the directors say, they cannot select Judges from within the township, for fear of favour, they pick up any chance comers from outside the township, give them a dinner, and make them Judges of the articles they often have not the faintest knowledge about. Again, their prizes are so infinitesimally small, in the stock classes, that no owner or breeder of really good stock cares to show his animals. The better plan would be for these smaller societies to leave the prize-giving for stock entirely to the county society, and content themselves with giving larger premiums for such articles of farm produce as can be shown in the building used for a hall. With many societies, however, we have no fault to find; we are satisfied that they are doing all they can to foster a knowledge of agriculture and the breeding of choice stock. We should like to see a greater effort made to get the farmers interested, and would have something done by the societies in the way of importing and distributing seed of new and valuable varieties of cereals, roots, and grasses. We think that instead of frittering the money in giving prizes for roots, vegetables, and miscellaneous articles, it would in many cases be preferable to offer a liberal prize for the best managed and most productive farm, and the best held of roots within their county.

A man can easily pick out a few of the largest potatoes, turnips, &c., from a field, in order to bring them to the show, but it would be quite another matter to be able to show an acre or so of a clean, well-cultivated and productive crop of roots; and a farm without root crops can never be made progressive and profitable in its powers of production.

### Grain and Prices.

Farmers have been receiving such high prices for their wheat for the last year or two that they seem unwilling to sell at present prices, and much of this year's crop still remains on their hands. Those who sold before the close of navigation realized a fair price. It costs more to move grain to the seaboard by rail than by water, and the extra cost of storing and handling at several points has also to be added to the price of the grain; so that, unless there is a very considerable rise in the price of wheat at the great centres of consumption, which does not seem probable at present, those who have held over their crop will realize less than those who sold early, besides the losses they will suffer from the depredations of rats, mice, insects, etc. Oats are seemingly high in price, yet at present figures they are less remunerative than many other crops grown, and many farmers need all they grow for home con-

sumption. A team kept in good condition for work on the farm at all seasons will consume at least 100 bushels of oats in a year; but if they get an abundance of roots in winter a portion of their oats can be reserved for sale without injury. This year, however, the root crops are almost a failure, and what there is of them are needed for the sheep and milch cows towards spring, so that the oat crop being considerably below an average in yield, there will not be much of it sold even if the price should reach a higher figure than it is at present. It would be a bad policy to have the working animals run down in condition by spring in order to save or make a few dollars extra out of selling their food. No good farmer, at least, would commit such a folly, as it would seriously lessen his profits next season, if he failed to get through his spring work in good time. The main dependence of large purchasers of oats will have to be on what they can procure from the back townships, where, owing to the protecting influence of forests, the effect of the drought was less severely felt than in older settlements.

**APPLE CULTURE.** An admirable essay on the culture of the apple will be found in our horticultural columns. An essay on the same subject, written by Mr. Beadle, for which the Fruit Growers' Association awarded the prize, was published in the CANADA FARMER of November 2nd. These brief but comprehensive treatises furnish a valuable compendium of practical instruction for the guidance of the amateur orchardist.

**VICK'S ILLUSTRATED CATALOGUE AND FLORAL GARDEN.**—We have received from Mr. James Vick, of Rochester, N. Y., a copy of his beautiful catalogue of seeds for 1869. It extends over 100 pages, and contains a large number of illustrations, including a coloured frontispiece. Besides a very full list of garden seeds, it gives brief practical directions for the culture of flowers and vegetables. In completeness and typographical execution it is a model catalogue.

**THE GAME LAWS.**—It may be well to remind those interested that the period allowed by the late Sir Henry Smith's Act for shooting certain kinds of game expired on the 1st of the year. The shooting of Wild Turkey, Grouse, (*alias* Prairie Hen,) Partridge, Quail, and Hare during the months intervening between the 1st January and 1st September is illegal, and is subject to confiscation of the game shot with an added fine ranging from a minimum of \$2 to a maximum of \$25 for each head of game killed in contravention of the enactment. All dealers now in possession of game shot before the 1st instant are by the same Act allowed fourteen days of grace from that time in order to dispose of their stock. In other words the selling of game after the 14th inst. will be illegal.

## Agricultural Intelligence.

### Convention of Cattle Commissioners.

The important convention appointed to meet and investigate the nature of the Texas cattle disease, and to consider the best means of preventing the introduction and spread of the fatal disorder among the native cattle of the States and of Canada, met at Springfield, Illinois, on the 1st of December, and brought their labours to a close, after a session extending over three days. It does not appear that much new light has been thrown upon the exact nature of the disease, and still less has any efficient remedy been discovered. Many important points, however, have been established, and recommendations, which will no doubt become law, have been adopted, such as there is every reason to hope will effectually prevent the re-introduction of the disease into this country or the adjacent States. We avail ourselves of the excellent condensed report of the proceedings given in *Colman's Rural World*:

The commissioners and officers of the Metropolitan Board of Health, New York city, in connection with the Board of Agriculture of Ontario, Canada, and the special commissioners of the State of Illinois, first proposed a convention of this kind, and finally decided that it be held in the city of Springfield, Illinois, to which the governors of the several States were requested to appoint commissioners.

The convention organized by appointing Joseph Poole, Esq., of Indiana, as temporary president, and H. D. Emery, of Illinois, as secretary pro tem. A committee of credentials, of which Dr. Morse, of Mo., was chairman, was appointed, and after a little delay the following States were found duly represented:—The Province of Ontario, Canada; and the States of Ohio, Maryland, New York, Rhode Island, Wisconsin, Massachusetts, Michigan, Missouri, Indiana and Illinois—thirty-two commissioners in all. There were also the following accredited honorary members—Arthur B. Barrett, President, and G. O. Kalb, secretary of the St. Louis A. and M. Association; Jeff. Clark, Esq., of Mo., and H. D. Emery, of the *Prairie Farmer*, Chicago. These gentlemen were admitted to seats in the convention. Governor Oglesby, of Illinois, was present, and invited to a seat on the Speaker's stand.

Hon. J. Christie, of Ontario, chairman of committee on permanent organization, reported for permanent officers, Hon. Lewis F. Allen, of New York, for president; a vice president from each delegation, and H. D. Emery and L. D. Morse, secretaries; and two stenographic reporters. These gentlemen were duly elected, and took their seats.

Thus permanently organized, the convention listened to an elaborate report of Hon. J. Stanton Gould, one of the most intelligent and devoted commissioners from New York, who has given twenty years of his life to the cause of humanity, without taking or making a dollar in all that time. He gave an extended account of the external and internal symptoms of the disease, as found in New York, most of them being identical with those observed in the West. The drooping head, stupid, staring eye, rough

coat, staggering gait, frothy drivelling from the mouth, etc., are the most characteristic external symptoms. When any of these are noticed, the presence of the disease is sure. The invention of a self-registering thermometer to be introduced into the rectum will give unfailling evidence. If it shows over 103° the disease is the Texan cattle fever. If over 107° there is no hope. The pulse is generally rapid, often over 120 beats in a minute. Of the internal symptoms, the peculiar appearance of the flesh, enlargement (sometimes enormous) of the spleen, and the hard, dry condition of the food in the third and fourth stomachs, are the most prominent. The Texan cattle themselves have the disease in the East, although it has been claimed that they do not have it. They do not so often have it, because they are stronger and more hardy. In New York, native cattle have communicated the disease to other cattle.

An extended account was given of the existence of minute spores in the blood, and their supposed exact mode of destroying the victim. The speaker thought the disease was manifestly one of the blood, caused by these minute plants in it, which were floating all around, being exuded in every secretion, and are also found at home on the grass, and thence eaten. The spores may not, sometimes, be sufficiently developed to produce the disease, requiring a peculiar state of the system. The speaker believed a preparation containing carbolic acid—not carbonic—which has remarkable disinfecting power, would be effectual in preventing the spread of the disease. It destroys the spore wherever applied, and given in water, had restored diseased animals. His recommendation of this preparation was extremely positive, and seemed extravagant.

The shape in which this acid is given, is in solution called "dead oil," containing 15 per cent. of carbolic acid.

President Chadbourne, of Wisconsin University, asked if there was any evidence that cattle contracted the disease from grazing on land where Texas cattle had eaten, if a winter had intervened; no evidence was adduced of any such case.

Dr. Clendening, of Ohio, reported his experience with carbolic acid at Cincinnati, on two native cows, which had pastured on ground some time before grazed by Texan cattle. The first symptoms being manifested, they were removed and put on the carbolic acid treatment; but they died, as did two other native cows, which had contracted the disease from them. In other cases cows died where the carbolic treatment was faithfully applied, so that this treatment, while valuable, is not an infallible one. Two cats died from drinking milk of a diseased cow. They had all the symptoms of the disease.

Mr. Poole, of Indiana, gave an instance where a native cow took the disease and exhibited the symptoms, when she had been kept in a field where no Texan cattle had ever been, but had passed along the road alongside. This is contradictory to the general statements.

Mr. McCoy, of Abeline, Kansas, gave a description of the cattle yards there established, and argued that the Texan fever was developed by the cruel handling of stock generally, with poor and insufficient feed and water while in transitu per boat, etc., and that cattle driven carefully at the rate of 12 to 15 miles per day, with plenty of good feed and water, by the way of Abeline, were generally healthy. We think Mr. McCoy failed to convince the convention, though it was acknowledged that cattle by this route

were generally in better condition than those that came up the river.

Prof. Smith, commissioner from Missouri, spoke at length of diseases having been produced in the human system—as, for example, by the army returning from Russia, in the Napoleonic war, and other instances—where soldiers left behind them virulent typhus fever from which they themselves were exempt. This was to prove that Texas cattle could communicate the fever which in them was not developed.

Dr. Morris, of New York city, read a very elaborate paper on the pathology of the disease, interspersed with numerous microscopic illustrations of the blood and bile of diseased animals. He stated that the cause of the disease was a spore or seed of a microscopic plant, which is itself a parasite, growing upon some of the grasses of warm climates, as the mould or parasite grows upon the grape leaf or other vegetables here, which is eaten by the animals at their feeding grounds, enters into their blood, bile, and all the fluids of their bodies, passes out by the excretions in this minute microscopic form and attaches itself again to the grasses, or may float in the atmosphere for short distances and be eaten and inhaled by other animals and produce disease, certain atmospheric conditions of the body and circumstances being necessary to produce its specific and poisonous effects. That, while carbolic acid is a perfect destroyer of all vegetable or vegetable poisons, and is the most thorough disinfectant known, they have yet to learn whether its use will arrest or cure Texas fever.

Dr. Rauch, of Chicago, followed, corroborating most of the statements of Dr. Morris, and expressing the opinion that the disease could not be domesticated, our winters destroying the parasite, but that in the animals inspected at Chicago it was in a much milder form.

Judge Brown, of Illinois, followed in an elaborate speech, advocating the passage of a law restricting the importation of Texas cattle to the winter months, but would by no means abolish the trade.

Several other speeches were made by practical farmers of Illinois, who had had much experience with the disease, the most important of which was from Mr. Hill, of Tolono, who advocated the total abolition of the traffic on grounds of domestic economy. He stated that out of 450 milch cows in his town only two were now alive, the disease having carried them all away. He also said that it had extended to the horses of the neighbourhood, seven of which had died, manifesting symptoms identical with those of the cows, and that last week three steers had died in the neighbourhood with the disease.

The following recommendations were then adopted by the convention:—

Sec. 1. Three commissioners, or such other number as the Legislatures shall deem proper, shall be appointed by some competent authority, to hold their offices five years, and report annually to their Legislatures.

2. Such commissioners shall watch over the general welfare of animals within the State for which they are appointed, and particularly to prevent the spread of dangerous diseases among them, and of protecting the people of the State against the dangers arising from the consumption of diseased meat.

3. They may from time to time appoint such assistant commissioners to aid them in the discharge of these duties as the welfare of the public may require.

4. They should have power to administer oaths and to prescribe from time to time such rules and regulations as may be necessary to accomplish the objects of their appointment.

5. They shall give public notice of the outbreak of any dangerous disease, and such practical directions for its avoidance as they may deem necessary.

6. They may either place such diseased cattle in quarantine, or cause them to be killed, as may seem necessary for the public protection, but in the latter case they shall cause an appraisal of such cattle to be made, and the county or State shall pay such proportion of the appraised value as may be provided by law.

Sec. II. The commissioners, or any assistant commissioners, located on the frontiers of the State, shall, at such times as may be prescribed by the commissioners, have power to inspect all the animals brought into such State, whether by railroad cars, vessels or common roads, and shall have power to detain such railroad cars, vessels, drovers or animals on common roads long enough to make a proper inspection of them, for the purpose of ascertaining their sanitary condition.

2. No animal shall be permitted to enter the State which shall be diseased by such assistant commissioner, and which shall be capable of diffusing dangerous disease, or of injuring the health of the inhabitants, but an appeal shall be allowed to the majority of the commissioners in all such cases.

3. No train shall be allowed to proceed unless the animals contained therein have been supplied with food, water and rest, within twenty-four hours next preceding the time of such inspection.

4. All animals shall rest and have access to food and water for a similar period.

5. The railroad companies shall provide suitable yards for feeding, watering and resting the animals traveling on the trains, and for quarantine purposes, which shall be kept in a clean and wholesome condition, to the satisfaction of the commissioners.

6. Each train on leaving its point of departure shall have certificates signed by an assistant commissioner, which shall certify that all the animals therein were in a healthy condition at the time of departure, and also the exact time of its leaving, and such certificate and indorsements thereon of the time of resting and the time of departure of the train at subsequent resting and feeding places, shall be exhibited to the proper authorities whenever required.

7. Proper penalties should be inserted to prevent the briberies of officers charged with the execution of these provisions.

8. Proper penalties should also be provided for those who interfere with or resist the officers charged with the execution of these provisions.

### Board of Agriculture.

A meeting of the Board of Agriculture was held on Thursday, Jan. 7, to consider the action to be taken with reference to a communication from the Minister of Agriculture, on the subject of the accounts of the Board and of the Provincial Agricultural Association. A meeting of the Board had been held on the previous day, but nothing then was done, beyond taking steps to procure certain statements necessary to a proper elucidation of the question.

At the meeting on Thursday there were present—Hon. David Christie, President of the Board; Hon. George Alexander, Professor Buckland, Dr. Beatty, J. C. Rykert, Esq., M.P.P.; and F. W. Stone, Esq.

Hon. Mr. CHRISTIE, having taken the chair, said:—It may be well that I should make a statement of this case, so far as it is known to the Board. On the 21th of December I received the following letter from the Commissioner of Agriculture:—

TORONTO, 23rd Dec., 1868.

To the Honorable David Christie, President Board of Agriculture.

SIR,—On the 3rd ultimo, I appointed Mr. Thomas White, of Hamilton, under the authority of the 7th section of the Agricultural Act of this Province, to make an enquiry into the books and accounts of the Agricultural Association and the Board of Agriculture, for the years 1867 and 1868, and to report a statement, in detail, of the receipts and expenditures for those years, with the assets and liabilities of the Board and Association.

"I saw this morning in receipt of Mr. White's report, and I am astonished to find by it that while the accounts showed, on the 30th of November last, a net cash balance to the credit of the Board of \$12,047 76, that amount is not available, and that Mr. Denison, the Treasurer, does not keep any Board account with any bank, and has never been called upon by the Board to furnish securities for the proper performance of his duties, or for the forthcoming of the funds of the Association.

"Mr. White reports that the Treasurer is prepared to give security for the repayment of the large balance due by him; and I have to request that you will take such immediate steps as may be necessary, either to have the balance deposited to the credit of the Board, in one of the chartered banks, or to have proper and ample security taken for the amount—such security to be satisfactory to this department.

"It is evident that until this is done, and securities given for the due administration of the funds in the future, I shall not be warranted in paying over the \$5,000 due on this year's government grant.

"Your early attention to the matter will greatly oblige,

Your obedient servant,

(Signed) JOHN CARLING,

Commissioner of Agriculture.

To that communication, I replied stating that it would be submitted to the Board, but I could not myself take the responsibility of answering it in substance. As it contained very strange charges against the Treasurer, and, by implication, against the members of the Board, I thought it my duty at once, not only to the public, but to my colleagues and myself, to convene a meeting of the Board, on as early a day as possible after the receipt of the Commissioner's letter. Then judge of my surprise when, on coming to Toronto to attend that meeting, I found this one-sided report actually in print, and submitted to Parliament on the very day this Board was to meet, thus precluding the possibility of any statement on the part of the Board as to whether the contents of that report were true or false. I and several of my colleagues have been members of the Board since its commencement in 1851, and surely men who have labored assiduously for the last seventeen years in that capacity, to promote the interests of Agriculture, were entitled to some

consideration at the hands of the Minister of Agriculture. He certainly should not have allowed their character to be aspersed, by the publication of this report, without at least giving them the opportunity of stating the other side of the question. I come now to the report itself. I take it, that, so far as the Board is concerned, the *grossness* of the charges contained in it, is to be found in the following paragraph:—

"I had an interview with Mr. Denison, in which he stated that I had rightly understood him; that he had no account, in the name of the Board or the Association, with any bank, and had not had for many years, and that the large balance which the Board, by the accounts, appears to have on hand, is not available in cash. He also stated that he had given no securities to the Board, they never having been asked from him; but that he is willing now to give any security that may be required for the repayment of the balance due by him."

Hon. Mr. CHRISTIE then proceeded to show that the Board had regularly kept an account with the Bank of Upper Canada until the time of its suspension, when the account was transferred, with the approval of the Minister of Finance, to the Bank of British North America. A letter was also read from the Treasurer, Mr. Denison, in which he denied that he had made any contrary statement to Mr. White in reference to the Bank account, but admitting that with regard to the bond, which appears to be in existence, he was under the impression that there was none such, it having been given many years ago. After commenting on the falsity of Mr. White's report.

Hon. Mr. CHRISTIE proceeded to say with respect to the Treasurer's accounts, that, according to the information before the Board, there was a balance on the 31st November last of \$12,047 76 in favour of the Board. This balance a month later, on the 31st December, had been reduced to \$8,233 76, the Treasurer having during the month of December paid \$3,791. The end of the Board's financial year was the 31st December, and the last audit made was to the 31st December, 1867. The auditors, Messrs. T. D. Harris and John O. Howard, were men who stood very high in the estimation of the business community in Toronto; and at the last annual meeting at Hamilton of the Association Mr. Harris was re-appointed auditor by the delegates from the various County societies. Under these circumstances, the Board had no reason to call in question the report of the auditors. They were entitled to assume that the auditors had made a full examination of all the accounts submitted to them, and that the balance they reported would be available. They supposed that the Bank book would, as a matter of course, be examined by the auditors. The only remaining point to be noticed was the security. Mr. Denison seemed to have given Mr. White to understand that there was no security, having apparently forgotten it. But the fact was, that there was a bond still in existence, and available for an amount of \$4,000. Mr. Christie here produced the bond, which was entered into on the 1st December 1858, by George Taylor Denison for the sum named. He said it was the out-branch of the Board that there would be no loss whatever. That bond covered, at least, half the deficiency. There was a small balance at their credit in the Bank; and, taking the matter at the very worst, there could not be a loss of more than \$4,000. But they had no reason to anticipate that there would be the loss of a

single farthing. They were quite satisfied that the money would be all paid. They regretted, in common with others, that there should be this deficiency, the knowledge of which had come upon them by surprise through this report; but they had taken steps, as soon as they possibly could, to have the matter remedied, and it was their full intention and belief that, before they separated as a Board, the requisite security would be given.

A communication was read from Mr. Denison, offering to give ample landed security for whatever amount was due by him to the Board of Agriculture.

Mr. CHRISTIE then remarked, in conclusion—I would only add that, so far as the Board of Agriculture are concerned, they court the fullest publicity in this matter. They have nothing to conceal; but they feel they have reason to complain that a one-sided and incorrect statement should be sent forth to the public without their having an opportunity of sending out their contradiction along with it. There must be some object in view in the course which has been taken. What that object is, I do not pretend to tell; but that there is some object in view, something to be gained by this course, I do most thoroughly believe. This thing has been brought out on the eve of an election of members of this Board, and it seems to have been hoped that these charges, in all their ascerbity and seriousness, having been sent to every County Society throughout the land, the contradiction of these charges might reach the Societies too late to serve as a vindication of the Board. But, although a day behind, we shall do all in our power to send forth the counter-agent to this most insidious document. It will not be possible for the members of the Board to attend all the meetings in their several divisions to vindicate their conduct; but I do indulge the hope that the statement of the Board may reach the public before they shall be called upon to determine as to their conduct. I say for myself, as I freely say for all my colleagues at this Board, that we have striven to the best of our ability to serve the public, and that we have done everything in our power to maintain the integrity and the usefulness of the Agricultural Association and the Board of Agriculture. We have done so for a long series of years. If the public, after seeing both sides of this case, shall pronounce that the Board have not done their duty, then we must submit to the verdict, although we shall feel that the verdict has not been a righteous one. I have confidence, however, in the public, that, when the whole question is presented to them in its true light, they will vindicate the character of the members of this Board, as men who for the long period I have mentioned, have done their best to promote the agricultural interests of this country; and will pronounce a verdict in accordance with the true facts of the case.

Mr. RYKERT said he would reserve the remarks he had to make on this matter, until he had an opportunity of making them in the House, where he had given notice of a motion to refer this report to a committee of enquiry.

The following resolutions were adopted:—

Resolved That Messrs. Christie, Stone, and Alexander be empowered to take the necessary security from the Treasurer for the balance due by him to the Board.

Resolved that Messrs. Patton, Osler, and Moss be consulted as to security.

The Board then adjourned.

### Circular to Agricultural Societies.

TORONTO, Dec. 24, 1868.

SIR,—According to custom, I beg leave to address you in view of the approaching Annual Meeting of the Agricultural Societies. Under the new Agricultural Statute, the Annual Reports have to be forwarded to the Hon. Commissioner of the Bureau of Agriculture, instead of to the Board of Agriculture, as formerly. I need not, therefore, refer to the matter of those Reports, as has been my custom heretofore. But, under the new Act, it is the duty of the Secretary of the Agricultural Association to send a list of the retiring members of the Council each year to the Secretary of each County or Electoral Division Society. The names of the elected members of the present Board of Agriculture, who, together with the ex-officio members, have constituted the Council of the Association, are as follows:—Hon. D. Christie, Paris; Hon. Asa A. Burnham, Cobourg; Hon. G. Alexander, Woodstock; R. L. Denison, Toronto; William Ferguson, Kingston; Dr. Richmond, Gananoque; F. W. Stone, Guelph; J. C. Rykert, St. Catharines.

Under the new Statute, on the inauguration of the new system of electing the members of the Council of the Association, at the beginning of the incoming year, the whole of the members of the existing Board go out of office, and a council of twelve members will be elected in their place—one member for each Agricultural District. Retiring members, under the statute, are in all cases eligible for re-election.

Each County Society in each Agricultural District is required to elect one person, at its Annual Meeting—to represent it at the Council of the Association—by a majority of the votes of the members of the Society present at such meeting; and the Secretary of each Society shall, within eight days after the election, forward to the Commissioner of Agriculture the name of the person chosen by the Society.

The several Agricultural Districts, as per schedule A of the Act, are composed of the following Counties and Electoral Divisions, viz:—

1. Stormont, Dundas, Glengary, Prescott, and Cornwall.
2. Lanark, Renfrew, City of Ottawa, Carleton, and Russell.
3. Frontenac, City of Kingston, Leeds, Grenville, and Brockville.
4. Hastings, Prince Edward, Lennox, and Addington.
5. Durham, Northumberland, Peterborough, and Victoria.
6. York, Ontario, Peel, Cardwell, and City of Toronto.
7. Wellington, Waterloo, Wentworth, Halton, and City of Hamilton.
8. Lincoln, Welland, Haldimand, Monck, and Niagara.
9. Elgin, Brant, Oxford, and Norfolk.
10. Huron, Bruce, Grey, Algoma, and Simcoe.
11. Perth, Middlesex, and City of London.
12. Essex, Kent, Bothwell, and Lambton.

In view of the termination of the existing organization of the Board of Agriculture, and the introduction of the new system in January next, I beg to submit the following summary Statement of the Receipts and Expenditure of the Board of Agriculture and the Agricultural Association for the past year 1867, as shown by the Audited Accounts, full details of which have been returned to the Commissioner of the Department of Agriculture:

### R. L. DENISON, TREASURER, IN ACCOUNT WITH THE BOARD OF AGRICULTURE AND THE AGRICULTURAL ASSOCIATION.

1867.	DR.	
To Balance from 1866	.....	\$20,708 22
" Government grants to pay Agricultural Societies	.....	40,724 67
" Govt grant to Board	.....	4,000 00
" Other receipts on account of Board	.....	1,873 95
" Receipts on account of Agricultural Association	.....	5,834 11
		<b>\$32,149 85</b>
	CR.	
By Paid grants to Agricultural Societies	.....	45,515 05
" Other Payments on account Board of Agriculture	.....	8,960 19
" Premiums awarded at Exhibitions	.....	10,481 50
" Other payments on account of Association	.....	4,600 44
		<b>69,047 18</b>

Dec. 31st—To Balance in hand. **\$12,493 67**  
The Account for the current year stands at the present date as follows:

1868.	DR.	
To Balance from 1867	.....	\$12,493 67
" Government grant (half amount voted)	.....	5,000 00
" Receipts on Board of Agriculture account	.....	1,942 19
" Subscriptions and admission tickets	.....	10,724 20
" Other receipts on Association account	.....	1,807 46
		<b>\$31,857 52</b>

Dec. 24th—By Premiums paid to date..... 9,649 50  
By total expenditure on all other objects to date.... 13,123 50 **22,773 00**

Balance in Treasurer's hands..... **\$9,074 52**

The account for 1868 being still open, will exhibit some difference from the foregoing statement before the end of the year. As soon after the end of the year as the Council shall order, the account will be placed in the hands of the Auditors appointed at the last Annual Meeting, so as to be audited and reported to the Commissioner of Agriculture and the various societies and institutes on or before the 1st of July next as required by statute.

Requesting that you will have the goodness to submit this circular for the information of the members of your society at the Annual Meeting,

I have the honor to be, sir,  
Your obedient servant,  
**HUGH C. THOMSON,**  
Secretary.

### The Smithfield Club Cattle Show.

During the second week in December the Smithfield Club Cattle Show was held in the Agricultural Hall, Islington. This was in many respects a repetition of the show previously held in Birmingham, the greater number of the prize winners at that exhibition again taking honours at the metropolitan display. The *Mark Lane Express* characterises the show as good only in places. The Devons, Herefords and cross-breeds have, for general excellence, seldom been better, whereas the shorthorns made up only a moderate average, nor were the Scotch breeds so good as they have been. Amongst the sheep the Southdowns, with Lord Walsingham winning everything, were better than they have been for some years, whilst among the longwools, the Lincolns still maintained their rising repute as one of the best represented breeds in the hall. The Leicesters and Cotswolds were short in numbers, and of no very



remarkable merit. The entries of Hampshires were very superior to those at Birmingham; the Shropshires were made up of much the same materials as in the Milland. The Oxford Downs were very good. The pig show, either for numbers or merit, was inferior indeed, the *Mark Lane Express* says, the worst ever seen at the Smithfield Club. In this connexion we may mention here that the English agricultural journals comment very freely on some of the awards at Birmingham; in particular, the disqualification of a pen of pigs exhibited by Lord Radnor, has excited much discussion and dissatisfaction. The ground of the disqualification was that the pigs were of different ages, the judges founding their decision on the condition of the teeth; whereas Lord Radnor's steward and others make oath that the pigs were all of the same litter. The accuracy of the "dentition test" of age, as it is called, is in consequence very much discredited.

For the first time at the Smithfield show, the rule has been adopted of weighing all the animals exhibited, the weights being published both in the catalogues, and on cards attached to the animals. As a class, the Herefords outweighed the Durhams.

The annual publication of the live weights in future will no doubt form a useful record. As it is, says the *Agricultural Gazette*:-

"They throw a clear and useful light on the decisions of the judges so far as the practical value of weight in the cross-breeds, and of true character, apart from weight, in the pure-breeds, is concerned. Among the beasts there are some noteworthy differences. The first prize young Devon weighed 1,314 lb., the second, 1,388 lb., and No. 3 upon the catalogue 1,495 lb., the lightest in the class weighing 1,109 lb. These animals do not exceed two years and six months of age. The next class weighed, first, 1,721 lb., and second, 1,562 lb. And the oxen above three years and three months weighed 1st, 1,912 lb.; 2nd, 1,934 lb. The 1st is 3 years and 10 months old; 2nd, 3 years and 11 months; while the Commended beast weighed 2,106 lb. at the age of 3 years and 7 months, or three months younger than the winner of the 1st prize, and 4 months younger than the 2nd prize. The heifers exhibited similar differences. The cows, which of course have arrived at the age of maturity, weighed, the 1st, 1,548 lb.; the 2nd, 1,608 lb.; and the remaining three of this class, 1,230 lb., 1,360 lb., and 1,432 lb. Mr. Heath's great Hereford ox weighs 2,536 lb.; the 2nd prize, 2,211 lb.; the 3rd, 2,186 lb.; and the highest in this class, 2,011 lb. The 2nd prize Hereford heifer here and at Birmingham, only weighed, although fed to the fulness of an egg, 1,560 lb. against 1,960 lb. and 1,702 lb. for the 1st prize and another respectively. The older Shorthorn steers, under 3 years 3 months, ranged between 2,201 lb. for the 1st prize, and 1,672 lb. for the lightest in this class; the 2nd weighing 2,145 lb., and 3rd, 2,039 lb. The Shorthorn oxen over 3 years 3 months were but little, if any, heavier on the whole than the class below them. Some of these tests produce apparently odd results. The 1st prize ox weighed 2,002 lb. at 3 years and 1 month; the 2nd, 1,956 lb. at 3 years and 6 months; the 3rd, 1,748 lb., at 3 years and 5 months, while the Highly Commended ox weighed 2,301 lb. at 4 years and 8 months. The heaviest ox, Mr. Overman's is only Commended, his weight being 2,525 lb. at 3 years and 10 months, the one next to him in

weight being the cross-bred looking ox, which was 1st at Birmingham. His weight at 3 years and 11 months is 2,469 lb. His Royal Highness the Prince of Wales' ox at 3 years and 10 months, was Commended, and weighed 2,202 lb. The Shorthorn cows were of various weights; the 1st prize at 4 years 11 months, weighed 1,459 lb.; the 2nd at 6 years and 3 months, 2,250 lb.; the 3rd at 5 years and 2 weeks, 2,091 lb. The pair of Aberdeen Scots weighed, 1st, 2,635 lb., at 4 years and 7 months; and the 2nd, Mr. McCombie's, at 1 year and 8 months, 2,402 lb. In the cross-breeds there is the heaviest ox in the hall; this is the 1st in Class 33, his weight being 2,660 lb., at the age of 3 years and 10 months.

Mr. McCombie's ox, which at Birmingham won the 1st prize, changed places at Smithfield with Mr. Stephen's, for no better reason, apparently, than the difference in weight.

The attendance at the Agricultural Hall during the week was as large as at any previous Show—about 40,000 on Wednesday and Thursday, besides a large attendance on the Tuesday, and the usual crowd on Friday.

### Produce Trade of 1868.

In the WEEKLY GLOBE of January 8 is a full report of the Toronto trade during the past year, and this report will be published in a separate form. It contains much matter of interest to agriculturists, and although confined to the trade of one city, gives a very fair index of the produce of the year throughout the country. The fluctuations in the prices of all the grains are carefully noted, and tables given of the prices during several years past. In reference to the Wheat crop, the writer says:—It is to be regretted that our white wheat now bears so low a character in the United States markets, being so much impregnated with smut that the value is thereby seriously impaired. Some method ought to be adopted to prevent the continuance of this evil, and as the difficulty is by no means insurmountable, it is hoped it will soon be generally, if not entirely, overcome. The increasing favour which our red winter wheat meets with, and the yearly improvement in the sample, is to be noted with pleasure. In the western sections it is superseding the white.

On the whole, the produce of this grain, including the spring varieties, has been fair and of good quality. Prices, it is expected will somewhat advance.

The distinctive feature of the year however, is the high price obtained for Barley, and in this regard we propose to offer some suggestions and advice. It is our desire, as strongly as we can, to caution our farmers against the growth of a "Barley mania" during the present year. This would undoubtedly be an unfortunate, for it would possibly lead to much graver results than the merely having too much of the wrong kind of grain. It is but natural to suppose that the extreme rates obtained for this grain everywhere will give a corresponding impetus to its growth, and that a glut will follow last year's scarcity. Let us then avoid this mistake. Our agricul-

tural friends should be guided by a wise moderation in its culture.

The quantity of land under Peas was very large, and there were high expectations of the crop at one period, but these hopes were dissipated by the intensity of the heat of the July and August sun, which produced not only a short crop, but, in many instances, almost a total failure.

We may fairly hope for a more favourable season. With the very light stocks both in Europe and this Continent, it is reasonable to expect an active demand for this grain during the present year.

The heat and drought prevailing during the summer months was very injurious to the Oat crop, and the supply has been found quite inadequate to our requirements; so that occasionally extreme prices were paid. We are now importing from long distances, and there seems but little ground for supposing that we shall have a lower market. Prices have ruled comparatively steady throughout the year, ranging generally between 50c and 55c.

WINTER MEETING OF THE MASSACHUSETTS BOARD OF AGRICULTURE.—This meeting, extending over three days, was held at Amherst from the 15th to the 18th December, and many interesting and important agricultural questions were discussed. Among these was the subject of commercial or artificial fertilisers, the utility of which was forcibly advocated. Professor Gamgee explained his meat preserving process. Professor Agassiz delivered an address on the origin of the agricultural soil, which he stated to be the result of the decomposition of rocks ground to powder upon the surface under the pressure of vast masses of ice, which at one time had covered the larger portion of the continent. Mr. Willard read an essay on cheese and cheese-making. Among other topics he reviewed the present condition of the dairy interest in the United States, and observed that it had there reached such a magnitude as to employ a capital of \$700,000,000, while the cheese product of last year was valued at \$25,000,000, and the butter product at \$100,000,000. It was estimated that there were more than 500 cheese factories in New York alone. Mr. Willard explained the process of cheese-making in England, as well as in this country; he advocated a system of mixed husbandry instead of an exclusive attention to the dairy. An animated discussion was also held on the question of "How to make farming profitable." Mr. Flint, the first speaker on the subject, said that farmers needed more faith in their business, the lack of which is seen in the decrease of the agricultural population. They want more science, more capital invested in farming to secure thorough cultivation and more skillful working; more labour to produce better results; a good rotation of crops; improved tools and machinery; better care of cattle, and the improvement of the opportunities afforded by the streams and ponds for the propagation of fish. A number of other important subjects were also brought under notice, and the proceedings were altogether of a highly interesting and instructive character.

### Sales of Improved Stock.

Mr. M. H. Cochrane, Montreal and Comp. Co., has recently sold to G. V. Hoyle, Champlain, N. Y., the three year old Short horn heifer Snowdrop; the roan heifer calf Charlotte 2d, eight Cotswold ewes, and one imported Cotswold ram; to G. M. Chesney, Egmondville, Ontario, the yearling bull Duke of Compton, 6838, and the yearling heifer Cambridge 5th; to Mr. Dodge, of Ohio, two imported Cotswold ewes; to Byron Loomis Windsor Locks, Conn., one imported Cotswold ram; to T. H. Kane, St. Josephs, Pa., one two-shear Cotswold buck; to Mr. Wadsworth, Geneseo, N. Y., one imported shearing Cotswold ram; to James McLaughlin Peacham, Vt., seven Cotswold ewes and one ram, and to H. Hall, East Burke, Vt., one Cotswold ram.

Since the above was in type we have received from Mr. Cochrane the following report of additional sales:—

To H. C. Burleigh, Fairfield, and G. G. Shores of Waterville, Maine, his entire herd of Herefords, consisting of 11 animals. The above won first class prizes in all their classes, and the State Gold Medal at Rochester this season. To W. R. Duncan, of Towanda, Ill., the imported heifer, Wharfedale Rose. To J. W. Pickrell, Harristown, Ill., the imported yearling bull Baton Booth of Lancaster, winner of first prizes wherever shewed. To A. J. Hallet, West Waterville, Maine, one imported Cotswold ewe; one imported Oxford Down ewe; one imported Lincoln ewe; one Cotswold ram lamb. To E. G. Bedford, Paris, Ky., 3 imported Berkshire swine (1 bar and 2 sows.)

A semi annual fair will be held in the village of Teeswater, on the second Tuesdays in April and October.

Orillia had a fall of about twenty-one inches of snow on Christmas day. The snow is now deeper there than it has been in any previous season at the same date.

Two young ladies of Iowa have taken up lands in that State under the homestead act and purpose removing upon them, to run a farm on their own account.

A fine estate of fifteen hundred acres in Caroline county, Va., was recently sold at auction for \$3,000, which was less than half the value of the improvements.

Illinois is forming a State Geological Museum at Springfield. Each county will be represented in regular order, and a stranger can see, almost at a glance, the mineral resources of the entire State.

TRAFALGAR TOWNSHIP AGRICULTURAL SOCIETY.—The following gentlemen were elected office-bearers for 1869:—President—J. C. Earl; 1st Vice-President—G. C. Ford; 2nd do.—Joseph Tuck; Secretary and Treasurer—H. M. Switzer, Palermo; Directors—John Mackelcan, jr., Alex. Aikman, John Toms, R. W. Smith, F. Snider, George F. Lewis, John Russell, Samuel Pettigrow, Thomas Brownridge.

SALE OF BLOOD HORSES AT TATTERSALL'S.—An extensive sale of thorough-bred horses took place at the world-renowned mart of horse flesh, Tattersall's, on the 7th December, and excited unusual interest, when besides a valuable lot of Mr. Beadman's yearlings (one of which sold for 650 guineas), the Marquis of Hastings' stud were brought to the hammer. The most noted of the number was the famous mare, Lady Elizabeth, for which, says the *Field*, 10,100 guineas would have been refused last year; she was knocked down to her trainer, Mr. J. Day, for 600 guineas. Another celebrity, The Duke, was sold to Mr. R. Graham, for 2,200 guineas. 850 guineas was the sum paid for a three-year old horse, Orion. But of the remainder the prices were not remarkable.

GUELPH.—The January cattle fair, held in Guelph on Wednesday, the 6th inst., was not very large, the number and quality of the beasts falling below the average. There were unusually few horses or sheep. The prices of cattle ranged from three to five cents per pound live weight. Mr. George Hood was one of the principal buyers, his purchases numbering about 120 head in all. A large proportion of the cattle on the ground changed hands.

THE GOODENOUGH HORSE SHOE.—A new horse shoe, invented by an American of the name of Goodenough, an associate of Mr. Rarey, is exciting some attention in London, where it is being tried by one of the omnibus companies. These shoes are made by machinery, are fitted without heat, and are destitute of calks; the sole is slightly concave. They are also much lighter than the ordinary shoe, and the inventor claims that they allow the frog to touch the ground and bear a portion of the horse's weight. The London *Field* doubts the superiority of the shoe; but the actual experiments now being tried will soon decide its merits.

LONG-WOOLLED SHEEP FOR THE U. S.—The rage for merino sheep in the United States has much abated, and long-woolled sheep are coming into favour. The *Western Rural* reports the following purchases from this country:—Mr. E. T. Bryan, of Calhoun Co., Mich., has lately returned from the best stock districts of Ontario, and brought with him a first-rate flock of long-woolled sheep, numbering seventy-two, all told. The greater number are the produce of a cross between the Cotswold and Leicester, and their wool is of superior quality. He purchased thirty of them from the flock of Mr. L. B. Lapreere. Among these are two yearling Leicester ewes of extraordinary size, one weighing 188 and the other 182 lbs; the wool on some of the lambs measures ten inches in length. From Mr. Kingsburgh he purchased eight sheep; from William Collum he procured a three year old purely-bred Cotswold buck of superior quality, and the balance from breeders of note in various parts of the Dominion. The principal part of the flock has been bred from the celebrated stock of F. W. Stone, Esq.

HOPE AGRICULTURAL SOCIETY.—The annual meeting of this society was held on the 7th January. The following gentlemen were elected office-bearers for the current year:—N. Choate, President; J. Foott, Vice-President; R. Dickson, Secretary and Treasurer; Directors—W. Douglass, S. Coldwell, jr., M. Bragg, G. B. Salter, Thomas Gray, I. Rider, Joan Westlick, C. Quinlan and J. McMunstry.

Mr. A. Choate moved, seconded by Mr. Foott—That whereas the publishers of the CANADA FARMER have advertised that no reduction will be made to Agricultural Societies, taking the said periodicals; be it resolved by this meeting, that the CANADA FARMER shall be supplied by the Directors of this Society to such of its members as shall pay \$1 50.—Carried.

At the suggestion of Mr. A. Choate, the meeting adopted a memorial to the Local Legislature in favour of continuing the present uniform tax on dogs, and the paying for sheep killed by dogs out of the municipal funds. It was recommended that the same be amended so that only three-fourths of the value of the sheep may be paid.

GOODERICH HORTICULTURAL SOCIETY.—This new association is fairly commenced. The following officers have been elected:—President, A. M. Ross; Vice-President, John Hunter; Secretary and Treasurer, P. Adamson; Directors—James Torrance, Charles McGregor, James Stewart, P. Robertson, Alex. Watson, S. Pentland, Thomas Hood, W. Hick and Robert Gibbons.

A meeting of agricultural representatives from the east, west and north ridings of Hastings, Prince Edward, Lennox and Addington, forming one Electoral Division, was held at Belleville on the 19th Dec. to select a director of the Provincial Association. The division was then divided by agreement, and the three last named counties obtained the first choice. Mr. E. Mallory, of Addington, was selected. The next choice belongs to Hastings.

BIRMINGHAM FAT STOCK AND POULTRY SHOW.—The Birmingham and Middle Counties twentieth annual exhibition was held early in December. From a report in *Bell's Weekly Messenger*, we learn that the show was good, Shorthorns, Herefords and Devon cattle being well represented. Mr. McComb was again the winner for Scotch breeds, with a fine animal, though not equal in size to the mammoth that won the laurels at the last Smithfield Club Cattle Show, and formed the Christmas barron of beef for the royal table at Windsor. The number of stock entries was as follows:—Cattle, 173; sheep, 103; pigs, 47. The show of roots is said to have been excellent, though the weights of the prize lots do not seem extraordinary—the best six roots of kohlrabi weighing 186 lbs., of long mangolds, 186 lbs., globe mangold, 133 lbs., and of Swedes, 82 lbs. Of poultry, there were 2,312 entries. The Dorkings alone occupied more than 300 pens, the prizes going principally to the Duke of Newcastle, the Hon. H. W. Fitzwilliam, Admiral Hornby, Lady Bagot and Mrs. Arkwright. Of Cochins, there were about 500 pens. Ducks; geese and turkeys appeared in large numbers.

Antelope meat brought from Omaha sells in Chicago at six cents the pound.

This annual meeting of the North Riding of Huron Agricultural Society will be held at Londonborough, on the 20th inst.

HARRISTON.—The fair at this place falling on New Year's Day, was but thinly attended, and very little business was transacted.

The first strawberries of the season made their appearance in the New Orleans market last week, selling at \$3 the basket. The citizens console themselves with the reflection that the fruit will soon become plentiful and cheap.

The Inspector of fisheries at Bellefleur, informs the *Chronicle* how the fish are driven from our waters. He has reliable information that during the past season, over 200 miles of gill-nets have been set in the Bay of Quinte, between the Gap and Trenton, and that even the meshes of the seines employed by the licensed fishermen are much smaller than the law directs. The law, we believe states that no gill nets shall be set within two miles of any fishing ground, and this regulation should prevent any from being used in the Bay at all.

BARLEY IMPORTED INTO THE UNITED STATES.—The *Mark Lane Express* of Nov. 9, states that extensive orders for barley for malting have been received in England from the United States, and that the exportation of that grain thitherward has been actually begun. The orders on hand from the States are said to be for \$0,000 bushels. As their own crop of barley was deficient, this, it is stated, must still further enhance its price there, and it is already dearer than wheat, weight for weight. The usual proportion in former years has been about two-thirds the price of wheat as the value of barley, but more recently in one or two cases, as now, the latter has fully caught up with the former, or even exceeded it. This American demand will, it is thought, exert its influence on the prices of other kinds of grain, as well as of that in immediate request.

An extensive sale of manufacturing property has taken place in St. Catharines. Messrs. Norris and Neelon have purchased from the Hon. T. R. Merritt, the two flouring mills, the warehouse, the cooper shop and sail loft, which he has been running for some time. The amount given is said to be \$55,000.

The Elora Fat Cattle Fair on Wednesday, last week, had a good turn out of fat heaves, and there was lively bidding while it lasted. The *Observer* says, the most attractive animal on the ground was a five year old heifer, owned by Mr. C. Moore, Minto, which weighed about 1,900 lbs, and for which he was offered \$150, his price being \$170. The beast was brought in a sleigh from Harriston, and was taken to Guelph. Amongst the sales, we noticed, were, Mr. Murdoch, a heifer for \$52 50; James Burnet, a cow at 5 cents—she weighed 1,340 lbs; J. Youle, 2 heifers for \$97; J. & R. McQueen, an ox and a cow at 5½ cents; A. Watt, an aged bull, which weighed 2,050 lbs for \$82; C. Hay, a cow, which weighed 1,150 lbs, at 4.1-2 cts; R. Hay, two head, which weighed 1,760 lbs at 4.1-2 cents; R. Cromar, a cow and a heifer for \$100, being estimated as equal to 5 cents. Geo. Puddy bought two steers for \$34 each, a cow for \$35, and two head of John Dimpsey for \$39. Mr. Goodfellow bought 10 head at from 4 to 5½ cents per lb. J. McQuillan bought 7 herd at Ferns at 3½ cents and 11 choice beasts at Elora, at about 5½ cents dressed weight.

## Entomology.

### What is the use of Entomology.

Not many years ago this was the question very commonly addressed to Entomologists and collectors of insects by those who chanced to find them engaged in their favourite pursuit; and even now there are not a few who look upon the study as a mere waste of time, or at best a harmless amusement. But—to use a favourite expression of the day—“public opinion is being educated up to a higher appreciation” of the importance of insects to our welfare and comfort, and that too by the hitherto despised insects themselves. For what farmer can now think insects too insignificant to be worthy of notice, when he finds that one of the tiniest of them ruins his fair wheat-fields and robs him of hundreds and thousands of dollars? What gardener but must confess that it is high time he knew something about insects, when his currant and gooseberry bushes are leafless and fruitless, his plum-tree a perfect failure, his peaches nowhere, his cabbages no sooner planted than cut off, his grape-vines desolated with myriad foes—in fact, almost everything that he grows attacked, root, branch, leaf, and trunk? What orchardist but must acknowledge the power and restless activity of the borer in the trunks of his young trees, the caterpillars on the leaves, the barklice on trunk and branches, the worms in the very cores of the fruit itself? What hop-grower but feels himself by sad experience utterly at the mercy of the aphid and green-caterpillar? What farmer but loathes the *Dormestes* and other beetle larvae? What timber-merchant but has had to race with the pine-borer for the coveted fire-scorched tract of the forest? What butcher but groans and perspires, even in chilly December, at the very thought of the blow-fly? What housewife but has been half-stifled with camphor and pepper in warding off the clothes moth from her treasured store? What—but we need not go on with the list, for who is there that has no complaint to make of trouble, loss, or annoyance occasioned by these tiny but omnipresent foes? Can then a study be pronounced useless or contemptible which has for its object the acquirement of accurate knowledge of the life and habits of all these myriad foes, and not only of them, but also of the thousands of useful insects besides? Until this accurate knowledge be obtained, we fight in the dark, and cannot tell friend from foe, but are just as likely to destroy our most useful ally as our most destructive enemy; and unless we are thoroughly acquainted with the life and habits of these pests we cannot apply a remedy with any certainty as to its value or success.

The editor of the *American Entomologist*—no mean authority, we can assure our readers—estimates that “taking one year with an-

other, the United States suffer from the depredations of noxious insects to the annual amount of THREE HUNDRED MILLIONS OF DOLLARS!” He further contends that it is practicable by long continued observation and careful experiment, by hard work in the field and anxious deliberation in the closet, to save a considerable percentage of this enormous sum total. In Canada—to take one single instance—we are all familiar with the frightful losses occasioned by the wheat insects in past years, which for a time almost prohibited the growth of fall wheat throughout the most fertile portion of our land. How many thousands, may we not say millions, dollars were thus lost to our country? The study of the habits of these insects, and the knowledge thus obtained, has now enabled us to apply many preventive measures for the partial checking of these pests, and if we can save the country even one per cent. of the vast loss of former years, has not a great deal been gained? Take, again, the apple crop, which is rapidly becoming one of great importance to the Province; this very year about one-half of the apples grown in Ontario have a worm in the core, the larva of the codling moth. Entomologists know all about this insect, and have told its history in the *CANADA FARMER*, and elsewhere, and if their advice were followed its ravages would in a few years become reduced to a minimum; but if not we shall soon have no apples at all.

The neighbouring States are rapidly becoming more and more alive to the importance and pecuniary value of this study. During the last year or two State Entomologists have been appointed in Illinois and Missouri; for many years skilled Entomologists have been employed at the public expense in New Jersey, in Massachusetts, and at Washington; and for twenty years Dr. Fitch has been hard at work as State Entomologist in New York, with what success the following statement from an American paper will show:—“At a recent public meeting of the New York Agricultural Society, Senator A. B. Dickinson gave it as his deliberate opinion, that the writings of Dr. Fitch had saved annually to the single State of New York, the large sum of fifty thousand dollars; and so far as appears from the record, not a single dissentient voice was raised against this most remarkable assertion.” Such is the testimony as to “the use of Entomology.” Need we say more?

Surely Canada, with her world-renowned Geological Survey, cannot long afford to neglect the encouragement of this most utilitarian pursuit.

### Galls and their Origin.

We have received from Mr. G. Elliot, of Guelph, a singular specimen of a gall formed on a twig of a sweet-briar bush; it is an elongated swelling of the twig, about two inches in length and half an inch in diameter, and is covered with numerous sharp

prickles of all sizes. Like all other formations of the kind, it is the work of an insect; and in this case, probably, of a tiny four-winged fly, belonging to the order of insects (*Hymenoptera*) that includes bees, wasps, saw-flies, and other stingers and piercers. We cannot determine the exact species of the minute parent fly without breeding it from the gall—which we shall endeavour to do—but it probably belongs to the genus *Rhodites*, and family *Cynipidæ*, at least six species of which genus are known to attack various kinds of rose-bushes in North America.

"Galls," as all unnatural growths on trees or plants caused by insects are termed, are found on almost every description of vegetable production, on all parts, such as root, stem, twig, leaf, and even endril, and of every conceivable shape, size, and colour. Each species of gall, however, is as a rule confined to a distinct species of plant, though some plants are attacked by a very large number of different kinds; on the various kinds of oaks in this continent, for instance, Baron Osten Sacken enumerates the discovery of about sixty species of galls, and Mr. Walsh has considerably increased the number. The great majority of galls are produced by insects of the same family and order as that mentioned above. Some are made by saw-flies, some by small moths, some by plant-lice, and others by gall-gnats, which are two-winged mosquito-like insects, and of which the wheat joint-fly is a not unfamiliar instance. In most cases the female insect punctures the plant, and deposits in the cavity one or more eggs, together with a drop of poison; this produces a swelling of the infected part, inside of which the egg hatches out, and the larva feeds on the vegetable tissues till it is ready to come out as a perfect fly. In the case of the plant-lice the mother-insect, as well as her children, inhabits the gall, and brings up an enormously numerous family in the circumscribed area of oftentimes less than that of a pea, far out-doing in this way the exploits, celebrated in nursery rhyme, of the "old woman who lived in a shoe."

The so-called oak-apple is a familiar instance of an ordinary gall. Of a somewhat similar character are the apples of Sodom, or Dead Sea fruit, often mentioned by ancient as well as modern travellers, and described as beautiful to the eye, but as filling the mouth with bitter ashes if tasted. Until recent times they were considered very mysterious objects, but modern entomologists have discovered that they are actually oak galls, "two inches long and an inch and a half in diameter, of a beautiful rich glossy purplish red exteriorly, and filled with an intensely bitter, porous, and easily pulverized substance, surrounding the insect (*Cynips insana* Wested) which has given birth to them. The presence of a live insect inside a gall that had no visible inlet or outlet, was a great puzzle to the philosophers of olden times. Some ascribed their

origin to spontaneous generation, and derived marvellous prognostications of future events from the appearance of the included insect. Others gravely argued that they were produced from the eggs of insects laid in the earth, but drawn up by the roots of trees along with the sap, with which they were carried to all parts, finally stopping in the leaves or twigs, and there hatching out or producing galls! An ingenious solution certainly, but derived entirely from the imagination.

No insect, not even the bee, the cochineal, or the Spanish fly, has been of so much value to mankind as one of these minute gall-flies, that, namely, which produces the gall-nut of commerce, one of the chief ingredients in the manufacture of ink. "How infinitely," to quote the words of Kirby and Spence, "are we indebted to this little creature, which at once enables us to converse with our absent friends and connections, be their distance from us ever so great, and supplies the means by which, to use the poet's language, we can

'Give to airy nothing  
A local habitation and a name.'

Enabling the poet, the philosopher, the politician, the moralist, and the divine, to embody their thoughts for the amusement, instruction, direction and reformation of mankind." These galls are found on the leaves of a species of oak that is very common in Asia Minor. They are about the size of a school-boy's marble, very hard and round, and rather rough externally. Each one is the home and food of a single insect. The most valuable are those which contain the worm, and which are called blue, green, or black galls. When the worm has completed its transformation and emerged as a fly, they are called white galls, and are not nearly so valuable.

The great majority of galls, though objects of interest, may be considered injurious to vegetation, and when found upon valuable plants, such as the grape, should be cut off and destroyed.

### A Wood-boring Grub.

"Z" has sent us a specimen of a large grub taken from the middle of a log, respecting which he desires some information.

The grub is of a dirty white colour, with a blackish head; its length is about two inches, and its greatest breadth over half an inch. The head is small, and capable of being withdrawn to some extent into the body; the two segments immediately succeeding it are very broad and flattened, while the remainder gradually decrease in size, the last ending in a blunt tubercle. Beneath there are six very minute legs, too small to be of any use to the creature in locomotion; it is able, however, to move through its burrows by means of a number of fleshy prominences along the body, with which it works its way onwards, something in the manner of a worm. It belongs to one of

the long-horned wood-boring beetles (*Cerambycidae*), but to which species it is impossible to say, as the larvæ of this family bear so strong a resemblance to each other. Had our correspondent mentioned the kind of wood in which it was found, we could have given him a little more definite information.

The genus *Monohammus*, to which the specimen before us probably belongs, is very common and very destructive in the timber regions of this country. It appears, as a rule, to attack only the dead or diseased trees, in the crevices of the bark of which the female lays her eggs. The larva soon hatches and commences to bore into the solid wood, gradually excavating a long winding gallery that often reaches into the very heart of the tree; at this work it continues for at least a year, until its time for passing into the pupa state approaches, when it turns and burrows towards the bark, so that when transformed into a perfect beetle it may have but little trouble in emerging into the outer air. The mature insect is a large ash coloured beetle, with powerful jaws, and antennæ sometimes four inches long in the males, and as long as the body in the females.

In the *Canada Naturalist and Geologist* (Montreal, Dec. 1862, pp. 430-438), Mr. E. Billings has given an interesting account of the pine-boring beetles of this genus in the Ottawa valley, from which we extract the following passages:—

"These insects attack dead timber, and also trees which have received some injury, and are in an unhealthy condition. I have never seen the female laying her eggs on a perfectly healthy and sound pine tree. Timber newly fallen is always attacked by them. The first dwellings constructed in the new settlements are generally made of logs with either the whole or a portion of the bark remaining on them. The inside is not plastered, except in the crevices between the logs; if these happen to be pine, the *Monohammus* lays her eggs in the bark, on the outside of the house, and for months afterwards the larva may be heard in the stillness of the night, making a noise like the boring of a small augur. The perfect insect sometimes comes out on the inside of the wall and suddenly drops down upon the floor, the table, or the bed, to the great consternation of the inmates, who imagine that an insect with such great horns must bite or sting with proportionate severity.

"In the months of May or June, it often happens that great fires sweep through the woods, burning up all the fallen trees and dry branches strewn over the ground, and so scorching the living pines that most of them wither at the top and die during the season. Trees thus injured are soon after attacked by these beetles, and within one year are so greatly bored that they are unfit for the manufacturer of timber. Those experienced in the business, however, well understand the habits of the insect in this respect, and hasten to make the timber before it is destroyed. Pines scorched by the spring fires

must be cut down and made into timber the next autumn; they would be sound enough for timber five years afterwards. If it were not for the attacks of these formidable destroyers."

"Where there are only a few pines, it is rare to meet with more than two or three of these beetles together; but in the great forests of the Ottawa, it is not unusual to find 15 or 20 on a single tree. On one occasion I saw an extraordinary number; following an old lumber road through the woods in the neighbourhood of Lake Clear, in the county of Renfrew, I came to a place which had been burned over some time during the preceding spring. There was one large white pine standing on the sunny side of a small gently sloping hill. The height of this tree was about 120 feet, and its diameter

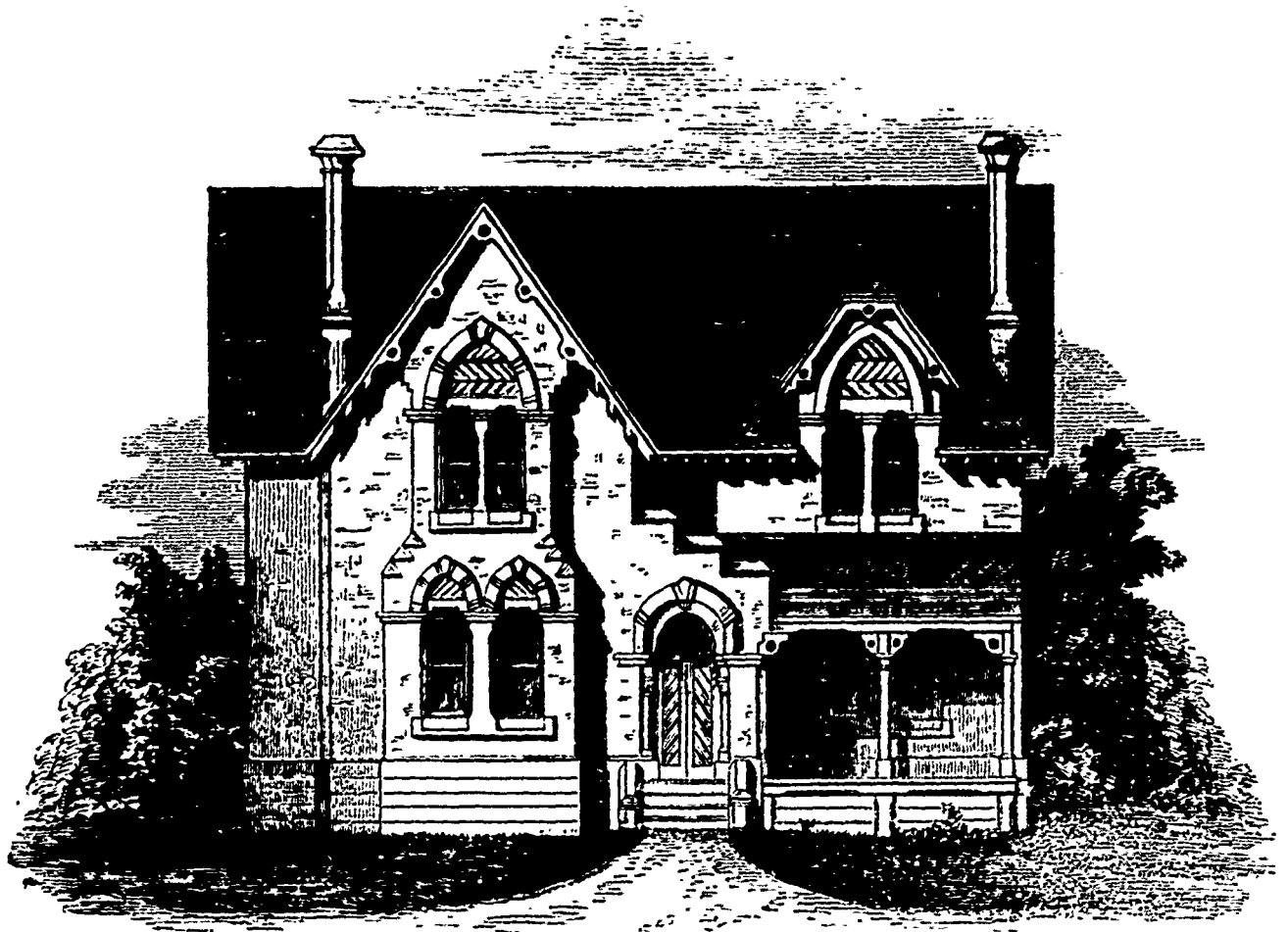
females, and if each laid 200 eggs, and half of these produced a healthy larva, then in one year the tree must have been perforated by 15,000 galleries.

"I cannot say whether or not these insects ever attack a perfectly healthy and sound tree. I think they do not, and yet their ravages are certainly injurious to the commerce of this country, as they destroy a vast deal of the fallen or scorched timber, which otherwise might be brought to market at any time during several years after the trees have received their death blow by fire or storm. I think also that thousands of trees, only sufficiently injured by fire to throw them for a while into a weakly or unhealthy condition, would recover were it not for the attacks of these formidable creatures."

## Rural Architecture.

### Design for a Country House.

The accompanying engravings represent the design of a cottage on the domestic Gothic style, suitable for either a town or country residence. It will be found large enough for the generality of families. The exterior appearance is picturesque and comfortable looking, just what all houses should be, whether small or large. There are houses with some pretensions to grandeur that are repellant in their appearance, and far from suggesting a comfortable interior; but our aim is to give illustrations of dwellings which



nearly 3 feet; about 30 feet at the base was scorched. It was 60 feet to the lowest branch, and as nearly as I could judge, the foliage for 20 feet at the very top had turned yellow; the remainder was green and apparently healthy. The tree was swarming with *M. Confusor*, and many of the females were occupied in laying their eggs. I think there were at least 300 of both sexes, and I saw several flying from other trees 30 or 40 yards distant. The insects were on all parts of the tree; I had 50 or 60 crawling around me at once, and had a fine opportunity to observe the very considerable variation in the size of individuals, and length of the antennae. There can be little doubt but that this tree was totally destroyed during the next twelve months. If there were 150

**INSECT CHANGES.**—There are four stages in the life of every insect: 1st, The egg. 2nd, The larva, popularly known as the grub, maggot or caterpillar state. 3rd, The pupa, in which state most insects lie dormant, and are incapable of eating. 4th, The imago, or perfect winged state. In this last state almost all insects acquire wings, and it is then only that they become capable of engendering and propagating. After existing in the perfect winged state for a period which varies, according to the species, from several days to several months, every insect dies. Neither does any insect grow after it has once reached the winged state, except that in many female insects the abdomen after a time becomes distended by eggs.

will commend themselves both for their exterior appearance and internal convenience. A man when about building a house for a home, should not enter upon such an undertaking hurriedly; he should study well what accommodation requires, and the arrangement which will best suit his site. He should not, for the sake of saving a few dollars, build a small cramped-up house, with just sufficient accommodation for his present requirements; he should have a view to the future. No man can tell what circumstances may arise causing him to dispose of his property, and it is a well known fact, that a commodious residence, tasteful in design, will bring a much larger price in proportion than the reverse. Many a man thinks he can plan and superintend the erection of his own house, when

he would never think of making his own coat, but to plan and complete a house as it should be done, is a far greater undertaking than the shaping and sewing of a coat. Others think the village carpenter or mason will do quite well, and will thus save the expense of an architect; but the experience of those who manage in this way is against them. A well-planned design, with complete drawings and specifications, will effect a saving in the cost of the building of more than double the architect's commission, as well as ensure a much better house.

The plan of the accompanying design is irregular, making it somewhat more expensive in construction than a square house, but giving it more than compensating advantages. The house is entered by a projecting porch, thus making the hall much warmer in winter, and adding additional length to it. From this porch there is a door opening out on to the verandah; the hall runs through the centre of the house, with a pantry at the rear for the dining-room, and a lobby cutting off from the main hall any smells arising from cooking operations in the kitchen. The stairs are placed in a side hall, branching off to the right of the main hall, with a party under it for the use of the kitchen. On the right of the main hall is a library, 15 feet square with a fire, place in the centre of the outside wall, leaving space on each side for shelving. There are two windows in the front, the right light for reading by when sitting by the fire. On the left hand side of the hall is the dining-room, 15 feet wide by 20 feet long, with sliding doors connecting it with the drawing-room in the rear, thus making a room 35 feet long when the doors are open. With this arrangement a fine draught is secured

through the rooms in the hot weather of summer, besides giving plenty of room for the festivities of winter.

The building is designed to be erected with red brick, with white brick or cut stone dressing. The roof can be covered with slate or shingles laid in mortar, and cut in patterns to show bands in the roof. The elevation sufficiently explains itself without further remarks.

The cost of the house, where labour and materials could easily be obtained, would range from £600 to £700, according to the style of the interior finish.

## Poultry Yard.

### The Judgment at Poultry Shows.

(To the Editor.)

SIR,—After a residence of over five years in Canada East and West, during which time, as you are aware, I have taken some small interest in poultry matters, my ultimate aim being to benefit, if possible, the country generally, by inducing a taste that, while it afforded to some a pleasant occupation, would at the same time improve the markets, and furnish a valuable addition to the food supply, I should like, through your columns, to offer a few remarks on the judgments at the provincial and county

shortly arrived from home, I exhibited my stock fresh from England. There was nothing to compete against them, had there been amongst the judges a fair or even a moderate acquaintance with the points of fowls, but strange to say, and very encouraging truly to importers, no notice whatever was taken of my stock. In fact, this department of the exhibition was simply a farce, prizes being awarded in nearly all classes, if not in all, to various hybrids, instead of the pure bred animal. In 1864 and subsequent exhibitions the same farce was enacted; and in 1868, five years afterwards, re-enacted worse than ever. One exhibitor at the last Montreal Exhibition was awarded a prize for a variety he did not show, and many good pens were passed by, evidently not being understood by the judges. Here,

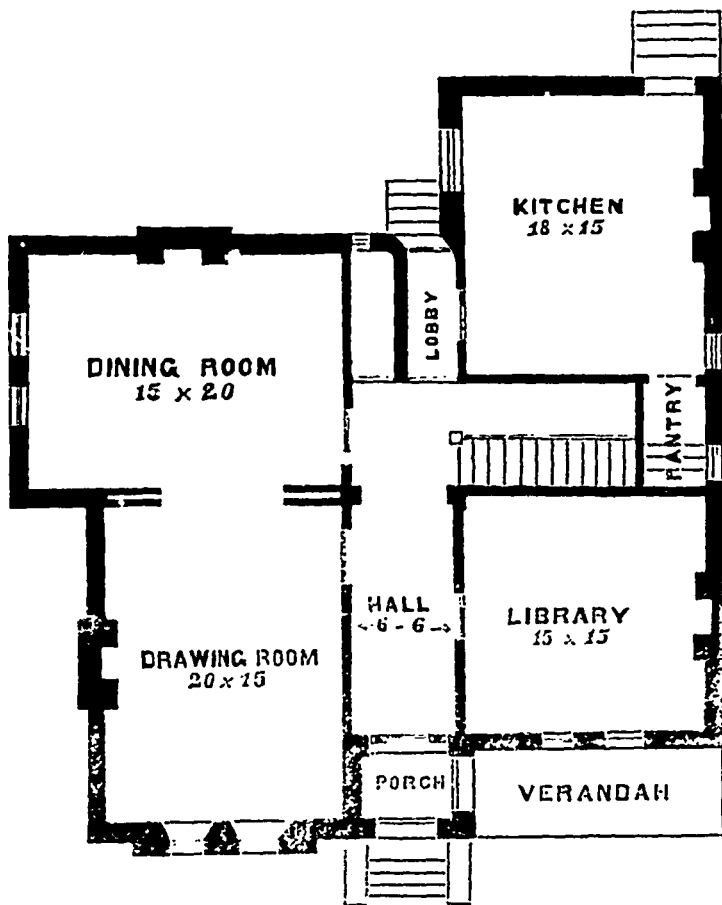
then, had been no improvement in knowledge of the subject, and hence none in judgment or justice, during these five years, in Lower Canada.

On my arrival in Upper Canada, I found things very little, if at all better, as will be evident from the fact that at the Provincial Exhibition in Toronto, in 1866, one of my carrier pigeons was taken for a bantam cock by one of the gentlemen selected to award the premiums. I need hardly say that, to avoid any more confusion, I removed the pigeons that evening before their time came, and did not bring them back. At a show held very recently, mistakes of a very curious nature have taken place, proving the incompetency and want of knowledge of the judges. At all the county exhibitions the same thing happens, and I regret to say that, in addition, interested or prejudiced individuals from the same locality are selected for judges. This should make no difference,

but practically it does, especially, as that objectionable plan still prevails in many places of putting on the exhibitors' names before judgment is awarded.

I know that the Provincial Society has always found it a troublesome job to obtain proper poultry judges, which they have latterly done by application to the Ontario Poultry Association, who have supplied them with the best they have.

Your valuable publication in the CANADA FARMER of the standard of excellence will also contribute very greatly to the increased knowledge of persons residing in out of the



shows, with some suggestions by way of improvement and remedy.

I am, unfortunately, obliged in illustration of my subject to be egotistic; not, let it be clearly understood, as offering complaints at my own treatment, but simply because the case affords the readiest example of my meaning, and I think the practical value of a communication like the present will be lost unless actual facts are quoted. Going back, then, to my earlier experience in the country, in the autumn of 1863, the Lower Canada Provincial Exhibition was held at Montreal. As I had then but

way places. But with all this, and even amongst our Society, how few really competent judges there are.

Now, Sir, I hope I shall not be thought presumptuous in trying to suggest a remedy or this.

One is, that all societies exhibiting poultry be invited to apply to the Ontario Society to send judges to their shows, and that to meet these demands certain gentlemen of the Society be requested to undertake the office, and to qualify themselves so to do.

I think that a board of examiners should be appointed to give certificates of the Society as to qualification, and I would also give the same to persons from a distance who chose to take up the thing, and qualify themselves for the office of poultry and pigeon judges.

I am led to write this much from seeing the disappointment caused among exhibitors at two shows this year, one in Lower and one in Upper Canada, at the awards on imported birds.

Poultry, although not to be put in competition with larger stock, is a most important article of food, and merits much more attention than is usually bestowed upon it. I shall esteem it a favour if you or any of your readers will offer any suggestions *pro* or *con* on what I have proposed. I may mention that even now the benefit of applying to the Poultry Society has been proved, as the Secretary of the Provincial Association informed me that he had not had at the last exhibition one complaint, whereas in former years they have been pestered with the complaints of disappointed exhibitors. I do not mean to say there were no growls from the non-successful; but as one judge undertook the pleasant office of being in the way the day after the awards, and giving all the explanation in his power, they had no occasion to carry their grievances further.

F. C. H.

### Ontario Poultry Association.

The last monthly meeting of this association for the year 1868 was held in the Agricultural Hall, Toronto, on Saturday, December 12. After the transaction of routine business, the officers for the ensuing year were elected as follows—President, James Graham; Vice President, Col. R. L. Demson; Hon. Secretary, Thomas McLean; Treasurer, A. M. Howard; Auditors, M. B. Hicks and James Beswick. The regular meetings will be resumed on the first Thursday in each month. The first of these was held on the evening of Thursday, the 7th instant. In the absence of the President Mr. James Graham, Mr. Allan McLean Howard, took the chair. The auditors presented their report, which was received and adopted, and the Secretary was instructed to address a circular to members requesting payment of subscriptions. Several new members were elected. At the last monthly meeting of the Association, an

intimation was conveyed by some members of the Board of Agriculture, that if the Society made application to the latter body, the Poultry branch of the Annual Provincial Exhibition would be placed under their charge; the Secretary gave notice that at the next meeting he would move a series of resolutions on the subject. We are glad to see that the Poultry Association is being thus recognized by the Board of Agriculture, and that their efforts in improving the breed of poultry are likely to receive a still greater impetus. The handing over the Poultry branch of the Provincial Exhibition to that Society, would insure to the public greater care to the wants of poultry sent for Exhibition than has hitherto been given, owing no doubt in a great measure to the large amount of business devolving on the Agricultural Association.

It was also resolved that the subject of the annual spring show should be discussed at the next monthly meeting, of which due notice will be given.

The meeting then adjourned.

### Winter Food for Poultry.

To ensure a good supply of eggs during the winter, we must feed our hens with materials that contain a good supply of those substances from which eggs are formed. Fresh meat chopped fine, bits of fish, rinds of cheese, and such like things saved from the table to-day, will come back to the table in due time, in the form of new laid eggs.

That the poultry may remain healthy during the winter, they should occasionally be fed with vegetables. Boiled cabbage is good, and the same may be said of potatoes and carrots.

Hens like a variety of food, and in the winter when they are kept in close quarters, and their digestion is accordingly impaired, from want of exercise, they require some cooked food. One winter when eggs were scarce and high, we obtained from a dozen young Brahmas all the eggs we wanted for pies and puddings, as well as for serving up "fried or on the half shell;" and this is how we did it, we gave the hens, once a day, a good meal of hash, much such an article as is prepared for the table, only made of less choice material; we took cooked meat, boiled potatoes, and onions, chopped them together and seasoned with pepper. Such a dish is not a costly one. Bits and scraps of meat rejected on the table; potatoes and onions too small to use, and a little fat that would go into soap grease, will, when chopped and warmed up, make a savory dish for the fowls in the hennery.

In preparing for obtaining eggs we must not forget that the eggs will require shells. For this end we should lay by a suitable amount of bones, or else should pulverize such as are in the meat we are daily cooking, and keep this where it will not become covered with filth. Besides this, the fowls should have, from time to time, some coarse, sharp sand or gravel, to serve the place of teeth. *Patricie Farmer.*

**BIRMINGHAM POULTRY SHOW**—The poultry sold at the recent exhibition at Birmingham realized £912. The splendid specimens of Cochin Chinas and dark Brahmapostras proclaim them the chief favourites with English poultry fanciers.

**PRECOCIOUS PULLET**—W. Crowther, of Belleville, referring to a paragraph in the CANADA FARMER of December 15th, concerning a "precocious pullet," thinks that if he cannot beat the case mentioned he can come very near it. He says: "I have a pullet which was hatched the third week in May. She is bred from a thoroughbred gamecock and a Dominie hen, and shows more game than anything else in appearance. She commenced laying the first week in November, and after laying fourteen eggs became quite "broody," remaining so for about ten days, and it was only by fastening the door of the place where she had been laying that I cured her. Other pullets of the same clutch have not yet shown any signs of even laying."

**THE NEW YORK STATE POULTRY SOCIETY**—This association held their first annual meeting in Albany on the 10th of December. The President, G. H. Warner, of New York, was in the chair. A revised constitution and by-laws were adopted, and officers elected for the ensuing year. The executive committee resolved to hold the first annual exhibition in the Empire Skating Rink in New York city, the time to include the whole of the fourth week in March next. The show is open to all kinds of farm poultry as well as pigeons, canaries and other song and plumage birds, rabbits, etc. Besides the prizes for various breeds of poultry, and fancy birds, premiums are offered for the best thesis on the production and management of fowls, also for incubators, plans of poultry houses and farms, coops both for general and exhibition purposes, etc. All letters asking for information should be addressed to the secretary, Daniel E. Gavit, post office box No. 150, New York city.

## Household.

### Woman's Kingdom.

The following letter from a farmer's wife will, we trust, stimulate others of the sisterhood to follow the example thus set, and give that interest to our fireside and household department which only women themselves can impart. It is right to explain that the first paragraph of the letter has reference to a heading in the journal referred to, "The Ladies and the CANADA FARMER."

SIR,—Why should the term lady, in conversation, in our modern literature, and in the newspapers, so displace that noble, God-given name of woman? We have "Ladies' Academies" and "Female Colleges," but where is the institution for the education of young women? And what shall I say of that lowering, degrading term of *female*, so glibly applied to women in newspaper para-

graphs. Take for instance, "Hebrew females," "Females of the Bible," "Distinguished females;" then restore the glorious name of woman to its proper place in these sentences, and I think any writer would hesitate to use the objectionable term. The word female as applied to woman is only used eleven times in the Bible, and in every case in contradistinction to the male. No true woman could be other than a lady, but I glory in the name of woman, and I glory in woman's work. It has been said, "if woman's work were well done there would be little left to do for the regeneration of the world." But pardon me: I did not intend writing an essay on woman; but when a woman commences to write, her trouble is not what to say, but what not to say.

We have taken the CANADA FARMER since its first publication, as well as the *American Agriculturist*, *The Journal*, and I dare not say how many others, for some of our closeted farmers would call us extravagant; yet we think it pays. My husband and I improve some of our winter evenings in binding them in firm substantial books, and with a bit of gilt lettering they are even handsome. In fact, we have quite an agricultural library ready to give us help in almost any emergency, which we shall not be ashamed to show you, Mr. Editor, some day, if you will pay us a visit. Not this year, if you please, for we have purchased a farm the very counterpart of "Desolation Farmyard," as depicted in the CANADA FARMER. Yet we hope to make our mark on this spot of God's beautiful earth, and trust that with the aid of the said library, in a year or two we shall not be ashamed of our home. Why are not farmers' homes more attractive to their sons? In this fine county there are few farmers' sons who are willing to remain on the farm—their great ambition is to stand behind the counter.

I have been very busy working for our Christmas tree. How happy these anniversaries make us all; they keep our hearts so young—this working hard, not for money, but for love, to make our loved ones happy. We live over our own youth in that of our children. What with Christmas, birthdays, and wedding days, these keep you a stratum of romance overlying the stern realities of life and these happy stepping stones enable our feet to trip more lightly over the rough places. And better than all, the happy memories our children carry away with them when they go out in the world. We can never know from what temptation and snares the thought of home protects them. One Christmas day, when out for a ride, we called at a farmer's house, a good house and nicely furnished, yet all the family were in the kitchen, around the only fire in the house. The daughter, in apology for the homely fare, remarked that she wanted father to kill some chickens, but he said pork was good enough. They had never eaten a

plum-pudding in their own house. Ten years before they had raised some turkeys, but had never tasted any at home since, yet "father" boasted to us of clearing two thousand dollars on his farm that year. Yet, notwithstanding this worldly prosperity, I could not but feel sorry for them, and it is just the remembrance of this made me write to you, in the hope of arousing some households to have a merry Christmas who never had one before. Such trifles as Christmas trees may seem to some stern men of the world unworthy of thought or trouble; yet they help to give a charm to home, and bind the family circle together, and it is by no means necessary that these innocent recreations of the season should heavily tax the purse.

The first Christmas tree I had did not cost one dollar, yet it made some twenty persons very happy. I have had far more elaborate ones since, yet none that gave more happiness.

E. W. R.

Linden Farm.

### Family Tool Chests.

(To the Editor.)

Sir, Much inconvenience and considerable expense might be saved if it were the general custom to keep in every house certain tools for the purpose of performing at home what are called small jobs, instead of being always obliged to send for a mechanic and pay him for executing little things that in most cases could be sufficiently well done by a man or boy belonging the family, provided the proper instruments were at hand. The cost of these articles is trifling, and the advantages of having them always in the house are far beyond the expense. The following list comprehends the most useful articles: There should be an axe, a hatchet, a saw, a large wood-saw also, with a buck or stand if wood is burned, a claw-hammer, a mallet, two gimlets of different sizes, two screwdrivers, a chisel, a small plane, one or two jack-knives, a pair of large scissors or shears, and a carpet fork or stretcher, also an assortment of nails of various sizes, from large spikes down to small tacks, not forgetting brass-headed nails; screws of various sizes, as well as hooks, will be found very convenient. The nails and screws should be kept in a wooden box made with divisions to separate the different sorts, for it is very troublesome to have them mixed. Care should be taken to keep up the supply, lest it should run out unexpectedly, and the deficiency cause delay and inconvenience at a time when they are specially wanted.

It is well to have somewhere in the lower part of the house a deep, light closet, appropriated entirely to tools and things of equal utility for executing promptly such little repairs as may be required. This closet should have at least one large shelf, and that about three feet from the floor. Beneath this shelf may be a deep drawer, divided

into two compartments. This drawer may contain cakes of glue, pieces of chalk, and balls of twine of different size and quality. There may also be shelves at the sides of the closet for glue-pots, pastepots and brushes, pots for black, white, green and red paint, cans of painting oil, paint-brushes, etc. Against the wall, above the large shelf, let the tools be suspended or laid across nails or hooks of proper size. This is much better than keeping them in a box, where they may be injured by rubbing against each other, and the hand may be hurt in feeling among them to find the thing that is wanted. But when they are hung up against the back wall of the closet, of course each tool can be seen as gluee. I have seen an excellent and simple contrivance for designating the exact place allotted to all these articles in a very complete tool closet. On the wall, directly under the large nails that support the tools, is drawn with a small brush, dipped in black paint or ink, an outline representation of the tool or instrument belonging to that particular place, so that when bringing back any tool that has been taken away for use, the exact spot to which it belongs can be found in a moment, and all confusion in putting them up and finding them again is thus prevented.

JOHN HUMBER.

Darlington, Ont.

### Seasonable Receipts.

The following recipes, which may be relied on, will perhaps be acceptable at this season of the year.

**SPIED BEEF.**—For a round of beef that weighs about 20 lbs take 3 oz of saltpetre, 3 ounces of coarse sugar, 1 ounce of cloves, 1 ounce of nutmeg,  $\frac{1}{2}$  ounce of allspice, 2 ounces of common salt. Reduce them to a fine powder. The beef should hang for two or three days, then rub the above mixture well into it, and turn and rub it every day for two or three weeks. The bone should be first taken out, and the cavity filled with white fat: when you wish to cook it, dip it into cold water, to take off the loose spice, bind it up tight with tape or string, and put it into a pan with a teacupful of water at the bottom. Cover the top of the meat with shred suet, and the pan with a crust of brown paper. The crust may be made of any kind of coarse meal and water. Bake it five or six hours. When cold, take off the paste and string. The gravy is very fine for flavouring. The above makes a delicious, tender, and savoury dish for breakfast or lunch, and will keep well.

**SALSAGES.**—Take fat and lean pork, cut off the rind and chop fine. Season as follows: To twenty pounds of meat add seven ounces of salt, two ounces of sage, and two heaped up table spoonful of ground black pepper. Mix with the hand and pack it up in jars. Place a cloth, after it has been dipped in melted butter, over the meat; or pour melted suet over. Put a board over the jar, and set it in a cool place.



**MOSSIKER WOE'S RECIPE FOR CURING HAMS,** (said to be superior to Westphalia).—Take the hams as soon as the hog is cold enough to cut up, rub them well with common salt, and leave them for three days to drain, throw away the brine, and for two hams of 15 or 18 pounds each, mix two ounces of saltpetre, a pound of brown sugar, and a pound of common salt. Rub the hams with these, lay them in a deep pickling dish with the rind downwards, and keep them for three days well covered with the salt and sugar, then pour over them a bottle of good vinegar and turn them in the brine and baste daily for a month. Then hang them up to dry, and after they are perfectly dry, smoke.—[*Cor. Germantown Telegraph.*]

To Purify Lard from Salt, which it often contains, and which is sometimes added to increase its weight, it is only necessary to melt it with two or three times its weight of boiling water, and when still in a liquid state, agitate it well and set it aside to cool. When lard is wanted for ointments or pomades, it is always desirable to free it from all traces of salt.

An Excellent Ointment for chapped lips and hands, for dry sores, for burns, for sore nose, for softening corns on the feet for piles, in short for any diseased surface where a soft protecting coating is required, is what is called glycerine ointment. This can be readily prepared by simply rubbing into what is termed "cold cream" a little glycerine, just enough to give it a soft, lard-like consistency. More glycerine can be added in winter than in summer. A drop or two of oil of roses stirred in gives it an agreeable perfume. It should be well corked, and be made fresh.

VARNISH FOR SHOES.—It is a bad plan to grease the upper leather of shoes for the purpose of keeping them soft. It rots the leather and admits dampness more readily. It is better to make a varnish thus. Put half a pound of gum shellac broken up in small pieces in a quart bottle or jug, cover it with alcohol, cork it tight, and put it on a shelf in a warm place, shake it well several times a day, then add a piece of camphor as large as a hen's egg, shake it well, and in a few hours shake it again and add one ounce of lampblack. If the alcohol is good it will be all dissolved in three days, then shake and use. If it gets too thick, add alcohol, pour out two or three tea-spoonsful in a saucer, and apply it with a small paint brush. If the materials are all good, it will dry in about five minutes, and will be removed only by wearing it off, giving a gloss almost equal to patent leather. The advantage of this preparation over others is, it does not strike into the leather and make it hard, but remains on the surface, and yet excludes the water almost perfectly. This same preparation is admirable for harness, and does not soil when touched, as lampblack preparations do.—[*Hall's Journal of Health.*]

The *Journal of Chemistry* says that two or three drops of carbolic acid to a bottle of ink will prevent mouldiness; and about thirty drops added to a pint of water used for making paste will prevent its moulding. Carbolic acid, however, is a poison, and should be used with care. It is very destructive to the lower orders of vegetable and animal life.

## Poetry.

### AGRICULTURAL ODE.

BY JOHN G. WHITTIER.

This day two hundred years ago,  
The wild grapes by the river's side,  
And tasteless ground nut trailing low,  
The table of the woods supplied.

Unknown the apple's red and gold  
The blushing tint of peach and pear,  
The mirror of the Power told  
No tale of orchards ripe and rare

Wild as the fruits he scorned to till,  
These vales the idle Indian trod,  
Nor knew the glad creative skill,  
The joy of him who toils with God

O Father of the fruits and flowers,  
We thank thee for Thy wise design  
Whereby these human hands of ours  
In Nature's garden work with Thine.

And thanks that from our daily need  
The joy of simple faith is born,  
That he who sows the summer seed,  
May trust Thee for the Autumn corn

Give fools their gold, an I knives their power,  
Let fortune's bubbles rise and fall,  
Who sows a field, or trans a flower,  
Or plants a tree, ism richer all.

For he who blesses most is blest  
And God and man shall own his worth  
Who tells to leave as his bequest  
An added beauty to the earth.

And, soon or late, to all that sow,  
The time of harvest shall be given  
The "flower shall bloom, the fruit shall grow,  
If not on earth, at least in heaven."

### THE CHILDREN.

BY CHARLES PICKENS.

When the lessons and tasks are all ended,  
And the school for the day I dismiss,  
And the little ones gather around me,  
To receive each a parting kiss,  
Of the little white arms that encircle  
My neck in an adoring embrace,  
Oh, the softness that ar'halos of heaven,  
Shedding sunshine of love on my face.

And when they are gone I sit dreaming  
Of my childhood, too lovely to last,  
Of love that my heart will remember,  
While it wakes to the pulse of the past;  
Ere the world and its wickedness made me  
A partner of sorrow and sin  
When the glory of God was about me,  
And the glory of gladness within.

Oh, my heart grows weak as a woman's  
And the tentacles of the lung will flow,  
When I think of the paths steep and stony  
Where the feet of the dear ones must go,  
Of the mountains of sin hanging over them,  
Of the tempest of fate blowing wild,  
Oh, there's nothing on earth half so holy  
As the innocent heart of a child.

They are idols of hearts and of households,  
They are angels of God in disguise  
His sunlight still sleeps in their tresses;  
His glory still gleams in their eyes,  
Oh, those truants from home and from heaven,  
They have made me more manly and mild,  
And I know now how Jesus could liken  
The kingdom of God to a child.

## Apiary.

### Wintering Bees.

There probably is no greater drawback to successful bee keeping in Canada than our long, cold winter. How shall I winter my bees, is a question upon the lips of nearly every bee keeper who takes any interest in the pursuit. Various are the methods tried and plans suggested, and still the loss of bees throughout the country during winter is great, many beekeepers losing half, two-thirds, and some even the whole of their stocks. Now this state of things must continue until beekeepers are better acquainted with the nature and habits of the bee, until they fully understand the conditions necessary to the successful wintering of a stock of bees. One cannot put his stocks into a proper condition for winter if he does not understand what they want or require, and it is certain he cannot understand what they require if he does not understand their nature and habits. If a beekeeper thinks that it is the nature of the bee to freeze like the ant, and to revive again with returning warmth, almost any method would suit his ideas, if it were only cold enough; but it would not answer the bees very well, for such is not their nature. When the thermometer stands at zero a bee flying from the hive in open air would be found dead in less than two minutes. It is, however, the nature of bees, under certain conditions, to lie in a semi-dormant state, consuming but a small quantity of food, and after months of inactivity, or nearly so, to come out in the spring strong, vigorous and healthy. Every beekeeper, then, should understand what these conditions are if he would winter his bees successfully.

Now, it is the nature of bees, when the cold weather approaches, to form themselves into a cluster as compact as possible, first having carried into the centre of the cluster a sufficient amount of food to meet their requirements for several days. When that is exhausted a fresh supply is brought in. Now, supposing a stock is placed in winter quarters where it freezes very hard, the result is that the vapour arising from the cluster is condensed and frozen into the combs outside and surrounding the cluster; if the weather remains severe for any great length of time, the food that was carried into the cluster is consumed, and as that outside of the cluster is locked up with frost, they must and do perish of cold and starvation, with abundance of honey in the hive. This is no uncommon occurrence. It may then be asked how do bees winter at all our of doors in the open air? The answer is this: though the honey outside of the cluster is often frozen up, the heat from the sun on the outside of the hive, with the heat of the bees inside, thaws out the combs, so that another supply may be carried into the cluster in time to meet their wants. It will be seen,

then, that a stock of bees is quite as likely to come through the winter in the open air as when placed in a cold outhouse, where, when once frozen up, they are likely to remain so, as the sun cannot shine upon the hive and melt the frost in the combs. Again, bees wintered under such conditions, or even in the open air, require a large amount of food to maintain sufficient animal heat to keep the cluster from freezing. Hence not only do they consume a large amount of honey, but their bodies often become so distended that they cannot contain the matter, and discharging commences in the hive, which creates an excitement, and the excitement causes a more general discharging, until it becomes as it were a disease, and whole colonies perish from what is called dysentery. It will readily be seen that stocks wintered in an outhouse where it will freeze, or in the open air, are not in a condition to promote a semi-dormant state of the bees, hence not in a condition in harmony with their nature. It will also be seen that the loss of bees by starvation, with plenty of honey in the hive, would be avoided by wintering in a warmer place. Yet it is possible to make their winter quarters as much too warm as the open air is too cold. And when such is the case the bees spread out from the cluster over the whole combs, are restless, and consume a large amount of food. They will also commence to feed the queen, and the consequence is they breed to such an extent that all their supplies are exhausted in nourishing the brood, and the bees perish for want of food before spring. Again, if bees are wintered where they are often disturbed, the same results will follow, for it is their nature when disturbed to move around, and when they move around they consume large quantities of food, and either exhaust their supplies and die of starvation, or discharge in the hive and die from that cause. It will be perceived, then, that bees should be wintered in a cool and quiet place. It should also be dry and dark. Under such conditions they will remain quiet and consume but little honey; dozing away the long winter months. The right temperature may easily be determined by a thermometer, which should stand at about 34° or 35°. If it stands much higher than that they will be too warm, and if below that it will be too cold, especially for the weaker stocks.

### Care of Bees.

What! exclaims some novice in beekeeping, do bees want care? Certainly they do; and because they are not properly cared for is one great reason why they fail to be profitable in the hands of many who keep them. If a farmer has a dozen cows, he finds they require a good deal of care and attention, and that too every day throughout our long, cold winters, but it is frequently the case that he expects a dozen stocks of bees to thrive and be profitable without a moment's thought the whole year round, except to hive them and take away their honey, which last he is sure not to forget, if they are so fortunate as to make any. This way of thinking is quite a mistake, quite unreasonably too. If you would have plenty of milk your cows must have attention—if you would have plenty of honey your bees must be cared for. Comparatively speaking, there is but

little care in keeping one cow. So there is but little care in keeping one stock of bees, still that little is necessary. Bees, then, like cows, must have attention if they would be made profitable. In the spring their hives or habitations should be cleared of all dead bees and dirt; they should then be placed upon their stands in a favourable position to receive the morning sun. The entrances to their hives should be contracted, to avoid robbing. Every stock should be well examined to ascertain if they have sufficient food to supply their wants until they can obtain forage, for so soon as the weather is warm enough to allow them to fly freely, breeding will commence vigorously, and much food is required. If stocks are found short they should be fed regularly, and everything done that can be to promote their strength. Then, too, when summer time arrives, they require attention. Hives should be ready, clean and sweet, swarms properly hived and placed in good locations. Care should be taken that stocks do not swarm too often. This can be easily managed with moveable comb hives. If Cox hives are used all third and fourth swarms should be returned to the parent stock. Honey boxes should be put on as soon as the stock becomes strong, and there is plenty of forage, and if the season prove favourable, they will repay the care and trouble of tending them by storing many pounds of surplus honey, which should be removed in the fall. Weak stocks should also be examined to see if they have sufficient winter stores; if not, and yet it is desirable to keep them, they should be fed before cold weather comes on. None but strong stocks, or those which have plenty of winter stores, will pay to keep over. As soon as snow falls these should be placed in comfortable quarters, where they will not freeze, and where they can remain undisturbed until spring.

### Keep Bees.

(To the Editor.)

SIR.—I am in favour of the apiary, and would say a word to those who love bees and their sweets, but have none. They should not let another season pass without making a trial, and for their encouragement I will briefly state my own experience. It is now three years since I commenced with one swarm; the first year I saved one young swarm, and one died; the next year I saved seven and lost none; last year I saved twenty and lost none; this year, 1868, I have fifty-nine hives of bees, notwithstanding the loss of two swarms that went to the woods this summer in consequence of want of attention when swarming, and four of these hives have double swarms in them. I have this summer taken about 450 pounds of honey from the glass boxes. One hive put off five swarms last summer, besides giving me about forty pounds of honey from the top boxes.

I have sold some hives this fall, and I have more for sale. I prefer glass hives, as I think they are the safest for preventing the moth. I make all my own hives, and certain improvements in their construction are my own invention. I have about \$250 worth of bees and honey, all the product of one hive and one swarm in three years.

I shall be happy to furnish any information respecting my management of the apiary.

ALEX. LANGFORD.

## Miscellaneous.

### How to Make Potash:

In compliance with the request of a subscriber from the Muskoka district, we give the following directions for making potash, communicated to the CANADA FARMER some time back by a correspondent from Michigan.

The first thing to be done, in the way of making potash, is to select a heavily timbered part of the bush, (elm is the best), then throw the trees, when chopping them, in such a manner that they will form a compact pile, getting as much timber in the pile as possible; after so doing, chop all the trees within 100 feet of the pile or thereabouts. A team of oxen is next procured, and four or five men, who collect all the lying timber and pile it on, in and around the original heap. Fires are then started in various parts of the heap, as the circumstances may require. After it has continued to burn until it is reduced to brands, it is then "branded" so as to make a complete job. When the brands have all, or nearly all, become so reduced as to be removed off, the ashes are collected in heaps, taking care not to collect any of the earth along with them. The ashes are then to be conveyed to an ash house, or to the leaches, as the case may be. When put into the leaches they are done so, solidly, by tramping them, or beating with a maul. After this, they are "watered," putting in as many pails as can be got in, without running over, or "gullyng," (as the leaking of the leach at the bottom is called). After being watered for the course of a day or two, the leaches begin to run lye. After enough of lye is produced to commence boiling, a fire is placed in the arch and the kettle filled full enough to admit of boiling, with the lye. The process is continued for one or two days, when the proceeds of such boiling is "dried down," (the term used by potash makers for converting strong lye to black salts.) The kettle is now allowed to remain until cool enough to permit cold lye being poured into it, (to pour in lye immediately after drying down, would be almost certain to break the kettle), when it is again filled up, if lye can be procured, and the boiling continued. Some people do not dry down, i. e., if their kettle is large enough—but I prefer drying down, as it takes less time to boil a barrel. The boiling is continued after drying down one or two days, according to the strength of the lye, if weak one day, if strong more than one day. The maker then talks of "melting," (the term used to denote the final, or finishing process,) which takes about one day, or the afternoon and part of the night. Dry wood finely split is procured, about a cord or more, as the maker thinks he is to have a hard or easy melt; in the neglect of so doing, sometimes the adjacent fences suffers. The proceeds of the last one or two days' boiling is dried down to the consistency of the first black salts. When the lye is being converted into salts, it boils over easily and up to the top of the kettle. Rosin is generally used to keep it from coming over. The lye before it becomes salts, when boiling is said to be in the "swell" or "foam," owing to its boiling to the flange or rim.

The lye after being put through the "swell," (during which time it has to be haled with a large long-handled dipper, to keep it in the kettle), next falls low in the kettle, and gets into what the practised manufacturer would call the "splatter" or "splutter," a name derived from the manner in which the salts boil, flying to a consider-

able distance from the kettle. The salts continue from 1 to 4, or perhaps more, hours in the "splatter," when they lie quite still, emitting small portions of steam. In this condition, it lies from 1 to 10 or 12 hours—when it becomes a perfect red mass. When it melts in 1 or 2 hours, it is termed an easy melt, 3 or 4 hours a good melt, when in 5 or 6 a hard melt, and when it requires as long as 9, 10 or 12 hours, it gets some such name as a "mighty tough melt," or some such expression. When melted, the coolers are arranged perfectly level, (two of which exactly fill a barrel). Into these the potash is dipped, with the iron dipper which had been used for baling—the kettle is perfectly red after the taking out of the potash, and is allowed to cool, the fire being hauled out with a "serapor" (a piece of board with a hole in it, in which a long stick is placed). The potash is allowed to remain in the coolers until cool enough to admit of being barreled. It generally cracks or splits into two or three pieces, by which you can see the colour; good potash is dark green—bad is full of brick-red streaks. The cakes have a cavity in the centre, and sink one or two inches in the middle. When the potash is not done enough, it rises and flows over the coolers, and is very porous. Bad potash, when melted becomes black, but good does not. As to telling with accuracy when potash is done, it is rather difficult—some say when it lies perfectly still, which is a good sign, others when it commences to roll into the centre of the kettle, and others when it has all the black scum off its surface. It is generally ready when it makes no noise, except a noise similar to pork frying, and has no lumps of salt in it. I omitted to mention, that when drying down, a long iron rod, called a "spud," so beat out as to present a broad sharp point to the kettle, is used to keep the salts from sticking to the kettle—the operation is called "spudding," and is continued all the time that the kettle is in the swell. The quantity of lye required to make a barrel, is from 200 to 300 or 400 patent pails, as the lye is strong or weak. A barrel of good potash weighs nearly 700 lbs., had is perhaps heavier. The quantity of timber required to produce a barrel varies. Some timber will make more, others less, elm, black ash, and hard wood being the best. An acre of very good elm timber will produce about two barrels, but if the timber be light, it will require an acre to make one.

Oiling Harness.

A correspondent in the *Scientific American* communicates his practice and experience in regard to the best mode of preserving harness as follows:—

In the first place, I subject the harness to one or two coats (as the leather may need) of lamp-black and castor oil, warmed sufficiently to make it penetrate the stick readily. Then I make about two quarts of warm soap suds and with a sponge wash the harness. When dry, rub it over with a mixture of oil and tallow, equal parts, with sufficient lamp-black to give it colour, or, what is better, Prussian blue, which gives it a new and fresh look. This compound should be applied sparingly and well rubbed in, which can be quickly done, and will leave a smooth and clean surface.

The advantages I claim for this process are these:—

First, by saturating the stock in the first place with oil, the soap and water are prevented from penetrating it in the process of washing. When leather is permitted to absorb

water or soap it has an ultimate tendency to harden it.

Second. When the harness is washed first (as is generally the case) the water repels the oil; consequently in the one case you have the oil inside of the stock, and in the other you have the soap and water.

Third. By oiling first it softens the dirt, so that it can be washed off in at least one-half the time required when washed before oiling, and also saves the "seraping" process which defaces the grain of the leather.

Fourth. It will remain soft much longer from the fact of its being penetrated with oil.

Fifth. The whole process can be accomplished without the delay of waiting for it to dry.

Consequently the harness can be oiled and cleaned in much less time, will remain soft longer, wear longer, and look better than when cleaned by the old method. And I consider these reasons of sufficient importance for every one having harness to give this method a fair trial.

Josh Billings on Grasshoppers.

The following will fit in any grasshopper'd locality: The Bible sez: "The grasshopper is a burden," and I never knu the Bible to say anything that wasn't so. When the grasshopper begins to live they are very small, but in a little while there gets to be plenty of them. They only live one year at once, and then go back and begin again. Their best gait is a hop, and with the wind on their quarters they can make some good time. They are a sure krop to raise, but some years they raise more than others. I have seen some fields so full of them that you couldn't stuck another grasshopper in, unless you sharpened him tew a pint. When they get so plenty they are apt to start, and then they becum a travelin famine, and leave the road they take as barren as the inside of a country church during a week day. Grasshoppers don't seem to be actually necessary for our happiness, but tha may be—we don't want grasshoppers entirely out, not if they are a blessing, but I have thought (to myself) if they would let grass and cornstalks be and pitch into the burdocks and Canada thistles, I would encourage the fight, and wouldn't care if they both got finally licked. But my best judgment would be to bet on the grasshoppers.

ASPHALT OR CONCRETE FLOORING.—The *Gardener's Magazine* has the following:—"Three parts coal ashes (those from the blacksmith's forge to be preferred) and two parts gas lime from gas works, to be thoroughly mixed, and then made into a mortar with gas-tar. If the gas-tar come from gas-works where the ammoniacal liquor is not separated, it will be sufficiently mixed for the purpose; but if the latter be separated, and the tar be thick, it will set quicker if about one-fourth part of water be mixed thoroughly with the tar when used. For the floors of cow sheds, this should be laid about three inches thick in one layer, on an even surface of gravel, or stone broken very small with a sprinkling of gravel over, and rolled down. The mortar may be laid on with a common shovel, and merely patted down flat. In dry, warm weather, if the mortar has been carefully made, the floor will set firm in a few days. For any ordinary outhouse, half the thickness will make a permanent floor."

A scholar was turned out of a public school in Sutton, Massachusetts, the other day, because he was "too old." He is over 43, and has a family of grown-up children. He was ambitious, he said, to "ketch up with his boys and gals."

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Markets.

Toronto Markets.

CANADA "FARMER" Office, Jan. 14th, 1869.

Wheat—The market for both Spring and Fall wheat is rather firmer, and there is a better feeling among buyers...

Oats—The market is quiet. There are buyers of car lots at 52c. On the street market there was nothing doing.

Barley—The market has been quiet since our last review. A slight improvement has taken place, however, and sales were made at slightly advanced prices.

Pork—But little business doing. nominal price for mess \$19.

Livestock—Market quiet, with very little doing. Holders are asking 11c. for Cumb brand.

Hams—There has been so little doing that it is impossible to give quotations. Smoked are nominally worth 13 1/2c. in salt, 12 1/2c.

Butter—There has been very little doing. Prices ranged as follows: Dairy tub, 20c. to 22c.; store-packed, 15c. to 18c.; large rolls 17c. to 19c.

Hay and Straw—Very fair supply—selling at from \$12 to \$15.

CATTLE MARKET. Prices—1st class, \$6 50c. to \$7. 2nd do, \$5 to \$5 50c.

Provincial Markets. Montreal Markets.—Wheat—Canada Fall, \$1 16c.

Hamilton, Jan. 12.—Wheat, tall white, per bush, \$1 15c.

London, Jan. 12.—White Wheat, \$1 15c. to \$1 25c.

Advertisements.

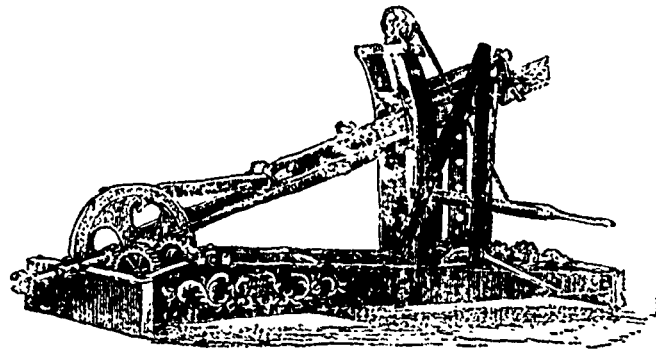
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We continue to manufacture "Noxon's No 1 Improved Sawing Machine," the best recommendation of which is that over one thousand of them are now in use...

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Toronto, January, 1869.

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HOW TO MAKE THE FARM PAY

750 OCTAVO PAGES; 140 Beautiful and Useful Illustrations. This book shows how the farmer may double the value of his land...

Commissions \$100 to \$250 per Month. According to ability and energy. Send for Circular giving full description. Address, ZIGLER, McCURRY & CO., Philadelphia, Pa., Cincinnati, O., Chicago, Ill., or St. Louis, Mo.

SALE OF STOCK.

THE subscriber will offer for sale, on his farm, on the 10th concession Markham, on Wednesday, Feb. 3rd, the following herd of well-bred stock...

GEORGE MILLER, Markham.

TO CHEESE MAKERS.

HAVING taken the FIRST PRIZE at the Provincial Show in Hamilton last year for CHEESE PRESSES, SCREWS AND HOOPS, I am now prepared to furnish everything of the best description required for the manufacture of Cheese, and at the lowest rates.

R. WHITELAW, Oxford Foundry, Beachville.

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THE HIGHEST MARKET RATE PAID for the Stock of this Company.

A list of over 60,000 acres of land for sale in the Province of Ontario, sent free on application. W. HOPE, STOCK BROKER, Victoria Hall, Melinda St. Toronto.

IMPROVED LAMB'S FAMILY

KNITTING MACHINES—Price, complete, shipped to any address, \$50. Knits 70 articles, fancy and plain, widens and narrows, same as hand-work...

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[S]uitable for families, it is simple in construction, easy to learn; it knits a stocking from the top like hand knitting; a stocking can be finished on it...

Sole Agent for the Singer Sewing Machines, and the Knitting Machine, and the Hand Pegging Machine. No. 18 King Street East. Post Office Box, 1101.

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OF THE BEST AND STRONGEST QUALITY manufactured at Paris, Ontario; and sold at the lowest price, in Bulk, in Barrels, or in Bags, by THOMAS W. COLEMAN, Paris, Ontario.

First Prize Alsike Clover Seed

FOR SALE in quantities to suit purchasers. Price TWENTY FIVE CENTS PER 100 LB. Address H. M. THOMAS, Box 74, Brooklyn, Ont.

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HAS REMOVED FROM CHURCH STREET TO 144 Simcoe St., Corner of Richmond St. AT HOME FOR CONSULTATION From 9 to 11 o'clock in the Morning—3 to 4 in the Afternoon.

And after seven in the Evening. Toronto, January, 1869.

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AMERICAN BEE JOURNAL.

EVERY BEE-KEEPER SHOULD TAKE THE AMERICAN BEE JOURNAL. HE WILL FIND SOMETHING OF INTEREST AND VALUE in every number.

J. H. THOMAS, Brooklyn, Ontario, Agent for the Dominion. Price \$1 50, Canada Currency. Send in your orders. J. M. THOMAS, Brooklyn, Ont.

PRICE OF SUPER-PHOSPHATE OF LIME, \$40 PER TON.

PETER R. LAMB & CO. MANUFACTURERS.



PRICES OF GROUND BONE, The Bone Dust, 82-30 per Ton. Freshly Ground Bone, 22-00

TERMS—CASH, OR CITY REFERENCES TO ACCOMPANY ALL ORDERS.

WAS ESTABLISHED in 1837 by the late Peter R. Lamb. The business is now carried on by Mr. DANIEL LAMB, under the style of PETER R. LAMB & CO. The premises are situated in the North Eastern portion of a City of Toronto, and in every respect capacious and adapted for the purpose for which they are used. Twenty-five hands and two steam engines are employed. Formerly the demand for the goods manufactured was so great, that it was found impossible to fill all orders for BONE DUST and SUPER-PHOSPHATE OF LIME. During the last year extensive improvements have been made in order to meet the increase of business.

PERMANENT MANURES NOT THE MOST VALUABLE.

A CORRESPONDENT of the "CANADA FARMER" asks the editor of that paper the following questions: 1. What is the proper quantity of super-phosphate to apply to the acre? 2. What is the proper way to apply it to turnips? 3. Is Super-phosphate of Lime merely a stimulant, or is it a permanent manure? 4. Is Bone-dust a permanent manure, and if both these are permanent, which of the two is most so? To the first question the editor correctly replies, that from two hundred pounds to four hundred pounds is generally recommended. In answer to the second, he says: "Care should be taken to incorporate the super-phosphate with the soil, as it is of so concentrated a nature that it ought not to come into direct contact with plant roots." We have used super-phosphate for many years, and never know of its "burning the roots of plants." It differs in this respect from Peruvian guano. The English farmers drill in the super-phosphate with the turnip seed, and find that it so stimulates the young plants that they are soon out of the reach of the "fly." We believe that turnip culture will never become as general as is desirable till we use super-phosphate, and have a drill to sow it on the ridges with the seed. As the Canadian farmers raise so many turnips, we hope that drills of this kind will be introduced, if they have not been already. They are very common in England. It is a point of great importance. Super-phosphate drilled in with the seed will double the crop of turnips. In reply to the third question, the editor of the "CANADA FARMER" says:—"Super-phosphate is a permanent manure (in a comparative sense) if really good, and its effects will be observed for many years after its application." In reply to the fourth question, he says:—"Bone dust is a permanent manure also, but we cannot say which will last the longest. Our impression is that super-phosphate will act the more quickly of the two, but whether the bone dust will out last it, is a point we are unable to determine." Now the fact is that super-phosphate, if really good, is not a permanent manure. Too better the super-phosphate the less permanent it is. And this, strange as it may appear to some, is true of all manures. Think a moment! Why do you pay more for bone-dust than for rough bones? The latter will last twice as long as the former. What the gardeners term "right manure," (that can be cut with a spade, is by no means as permanent as the coarse, litters, unfermented manure from which it is obtained. And yet this former is considered the most valuable. It is so in all cases. Hair, wool, horn, and hide, contain as much nitrogen as the best Peruvian guano, but being much less permanent, are not considered half as valuable. Why is this? Why are coarse, rich bones so much cheaper than fine bone dust? The answer is plain. The fine bone dust decomposes more rapidly, and produces a greater effect, but of course will not last as long. If it could be ground as fine as flour it would act still quicker and produce a better result—or what is the same thing, a less quantity would be needed to produce a given effect. Super-phosphate of lime. This manure is simply bones made soluble by sulphuric acid. Of course, being soluble, it acts quicker than bones, and is consequently less permanent. Two hundred pounds of bone dust treated with one hundred pounds of sulphuric acid—in other words super-phosphate—will have a greater effect on an acre of turnips than half a ton of bones. But will it last as long? It is absurd to suppose so. If it is a really good article—in other words, if all the insoluble phosphate of the bones is converted into soluble phosphates, it will be all used up the first year. If only a portion of the bone is converted into soluble phosphates, it will produce a less effect, but will last longer. If it is a very inferior article—if it is little better than ground bones—it will be nearly as "permanent" as bone-dust. The advantage of super-phosphate as compared with bones, is that you get a much greater effect in a given time. You apply it to a crop and get the whole effect (if a good article) the first year. And the crop, if consistent or the farm will make manure for the subsequent crops. In this sense, super-phosphate is a permanent manure. Its effect will be seen on the farm five, ten, twenty, or a hundred years hence—provided you use the crops, as all good farmers do, to make manure and enrich the land. Genesee Farmer.

The reader will be interested in the subjoined statement, condensed from a paper in a recent scientific English periodical—"The imports of guano since 1840 have amounted to three and a quarter millions of tons, the import of cubic nitre, which averaged 10,000 to 14,000 tons per annum up to 1858, have since varied from 25,000 to 40,000 tons per annum. The imports of bones which have increased from 30,000 to 70,000 or 80,000 tons annually. All these are valuable manuring substances. From 75,000 to 80,000 tons of Suffolk and Cambridgehire phosphates, and 15,000 to 20,000 tons of Combrero phosphate, are also used in the super-phosphate manufacture, which will probably exceed in worth £1,000,000 per annum.

MIDGE AND MANURE.

That veteran farmer, John Johnston, in a letter to the editor of the Genesee Farmer, makes some interesting and suggestive statements about the effect of manure on the wheat crop in counteracting the ravages of the midge. He has been trying an experiment the present season, the result of which speaks volumes in favour of a better system of farming. He applied manure of it liberally on part of his wheat; another portion received a lighter dressing, while one acre was left without manuring at all. Now for the result. The straw on the whole was abundant, rather too rank on the best manured part, but the midge has done comparatively little damage on this portion, a great deal more damage on that less manured, and far more on that not manured at all. The reason Mr Johnston assigns for the effects above described are these:—"That heaviest manured stood the winter best, came earlier forward in spring, and came in ear earlier. That manured less was a week later, and the one acre without manure was quite behind." He adds, "I can have Scotch wheat early enough if I only had plenty of manure of the right kind." The Editor of the Genesee Farmer remarks on the above experiment:—"This is just what I have always contended. If we could sufficiently enrich our land with rich manure, (not rotted straw,) and if it was well drained and cultivated and sown at the right season, we should have no reason to apprehend much damage from the midge." We hope our readers will make a note of this. Many of them can testify as to the prevalence of midge upon insufficiently manured land, let them try the other portion of the experiment, and see how the wheat fares on ground thoroughly manured and deeply tilled. We are quite aware of the difficulty that is in the way of putting this thing to a proper test. Manure is scarce. Our best farmers could advantageously use a great deal more than they can make. John Johnston in the above extract tells us what he could do if he only had plenty of manure, and in the same letter he says he has contracted for eight tons of oak cake to feed the coming winter, mainly for the sake of the rich manure it makes. Manure making must take a more prominent place among the operations of the farm. It may be an unjustifiable opinion, but we cannot help thinking that many of the ills which agriculture is heir to owe their parentage to poor systems of husbandry. A poverty-stricken soil can only produce plants of feeble constitution, so to speak. Their growth is slow, and they have not vigour enough to contend successfully against insect and other enemies.

LAMB'S SUPER-PHOSPHATE OF LIME.

We have already manufactured for this Spring Trade a large quantity, being twice as much as manufactured any previous year, and is A VERY SUPERIOR ARTICLE, AND WARRANTED FREE FROM ALL ADULTERATION. Farmers, send in your orders to insure to have them fulfilled.

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