

# the FARMER'S ADVOCATE

PERSEVERE SUCCEED.

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NO. 2

## The Farmer's Advocate!

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**TO ADVERTISERS:**  
Our rates for single insertion are 20c. per line—\$2.40 per inch, space of nonpareil (a line consists on an average of eight words).

Manufacturers and Stock Breeders' cards inserted in "Special List" at \$1 per line per annum.

Condensed farmers' advertisements of agricultural implements, seeds, stock or farms for sale, or farms to let, not to exceed four lines, 50c., prepaid.

Advertising accounts rendered quarterly. Advertisements, to secure insertion and required space, should be in by 20th of each month.

Letters enclosing remittances, &c., only acknowledged when specially requested. Our correspondence is very heavy, and must be abridged as much as possible.

### The American Dairymen

Held their Twelfth Annual Convention on the 9th, 10th and 11th of January, 1877, in Ingersoll, County of Oxford, Ontario. This is the first time the Americans have held their convention in our Dominion. The meeting was of great interest, as a vast amount of the most valuable information was disseminated; in fact, we consider this meeting one of the best, if not the best, that has ever been held in Canada. Not only was the amount of useful information great, but the friendly feeling displayed between the American and Canadian dairymen was of the most satisfactory nature. The best informed and most practical and scientific men were assembled to add their knowledge and experience, and to impart it to all that chose to attend. Among the most prominent we may mention the name of Prof. Arnold, of Rochester, N. Y. His great knowledge on dairy subjects, and his unassuming way of imparting it, make him respected by all that listen to him. The Hon. Francis Lewis, of Frankfort, N. Y., gave much valuable information. Professor E. Stewart, of Erie County, N. Y., the present editor of the *National Live Stock Journal*, gave much valuable information. Mr. D. P. Birrell, of Herkimer County, N. Y., also added to the useful remarks. Messrs. Farrington, Ballantyne, Caswell and Chadwick were the principal Canadian speakers.

There was a large attendance of Canadian dairymen; three-fourths of them were from Oxford. We do not doubt but far more would have attended had greater publicity been given to the Convention; the railroad fare was reduced to one fare and one-third for return tickets, but few were aware of the fact and many paid the usual rates. It is our impression that if the facts regarding the great utility of these Conventions were made known to railway managers, that they would carry persons attending the Dairymen's Convention and other agricultural meetings quite as cheap as they carry passengers to pleasure or political meetings, as the agricul-

tural meetings tend to develop the production and traffic of the country, and increase the freight traffic. The cost of the railway fare to Ingersoll to attend the Dairymen's Convention was just about double what it cost to attend a political meeting. The railway fare to attend the Provincial Plowing Match at Wyoming was four times as much as was charged to attend a political gathering in the same vicinity.

From the States the attendance of dairymen was very sparse; in fact, only the officers of the Association attended. A heavy snow storm at the time prevented many from attending, as the trains in the States were storm-stayed.

The corporation of Ingersoll deserve great credit, as they not only liberally encouraged the American Association to hold its meeting in Ingersoll, but also prepared a sumptuous repast, and a very pleasant and friendly time was spent, at which friendly and general good feeling existed.

In another part of your paper you will find some of the addresses, and much will be given you in future numbers regarding this, perhaps the most important agricultural meeting held in Canada. Many of our great political guns were expected to attend the meeting; some had been advertised. Our opinion is that the less politics are allowed to interfere with agriculture the better. Many of these energetic dairymen who have done so much good in developing the great interest, and have for years labored to impart information, deserve our thanks. One of the most important statements made was that twelve years ago Canada imported between two and three thousand dollars' worth of cheese annually; now Canada exports between three and four million dollars' worth annually, and wherever the dairy business is entered into, a marked increase in the value of land is noticed. It is also shown that dairy farming has paid better than grain raising, and that there is no danger of our producing more butter or cheese than there is a demand for.

Some of our Canadian speakers were desirous of showing to the Government the necessity of establishing an experimental dairy at the Government Farm. Mr. Stewart, of the *Live Stock Journal*, made some most appropriate remarks on this subject. Our Government and our farmers should consider it. He instanced the Bussy Farm, in Massachusetts, as a case in point. An experimental and instructive farm was given to the farmers; a very able professor was engaged, and the school and farm is carried on without any cost to the farmers, yet not more than one farmer in ten knew anything about it. The farmers take no interest in what costs them nothing. Mr. Stewart said to obtain a benefit from such an institution the farmers should feel an interest in it; the farmers should pay one-half, and the Government might pay half, or subsidize such an institution.

Mr. Stewart is a gentleman we had never met, had never spoken to, and yet the first man that we had heard express our views so clearly. Our Gov-

ernment Farm will always be a political sop for either party unless it is endowed in some way. If a body of farmers were to purchase this farm, say at quarter what it cost the Government, and let the shares be apportioned evenly to farmers that chose to take them in every township in Ontario, the Government might then give a small subsidy to it. The farmers would become interested in it and attached to it; watch its progress, and satisfaction might be given to both political parties.

Prof. Arnold stated that the Canadians had beaten the Americans in square and fair competition in cheese. A scale of 100 points was the grade for perfection; Connecticut only obtained 50, Wisconsin 60, United States 76.82, New York 79.5, Pennsylvania 83.22, Canada 87.36. Thomas Ballantyne, M. P. P., of Stratford, Ontario, carried off the sweepstakes prize for the best cheese. Great praise was given to Mr. Caswell, of Ingersoll, for the energy displayed in selecting and forwarding the cheese. In butter making Canada is far behind the United States; this is a branch of dairying that Canadians must improve in.

Mr. Farrington, of Norwich, stated that the superiority of Western butter over ours was attributed in a great measure to the fact that they had fewer weeds in their pastures, and refrigerator cars were used for its transport.

Mr. Caswell enquired about a report spread in American papers that a ring had been formed. The Hon. H. Lewis, of Herkimer Co., N. Y., said it was raised by disappointed and dissatisfied exhibitors.

### The Month.

The increase of murders, burglaries, incendiarism, forgery and insolvency (we may include the latter) should convince us that the law should be more rigidly enforced or be strengthened. Too much money has been paid for real and fictitious injuries to passengers on railroads; it is unjust to the stockholders. The railroad companies have created a feeling against them by their indiscriminate charges to Canadian farmers. Insurance companies cause a much greater loss by fire than we should otherwise have. There is room for improvement in the above named particulars.

During the past month on the G. T. R., the mail and freight trains were all stopped by the striking of the engine drivers. This caused great inconvenience to the public, and loss to capitalists who have invested their money in developing our country. The party or parties who have interrupted the business of the country should be made to suffer smartly for their acts, but the British capitalists, no doubt, will have to suffer the pecuniary loss. More stringent laws are required, or more prompt action should be taken to prevent the possibility of any such occurrence happening again. The innocent capitalists should not be the only ones to suffer; an example should be made, and an injured public should see that the punishment merited should fall where it is deserved. This act should not be passed silently over by our legislators.

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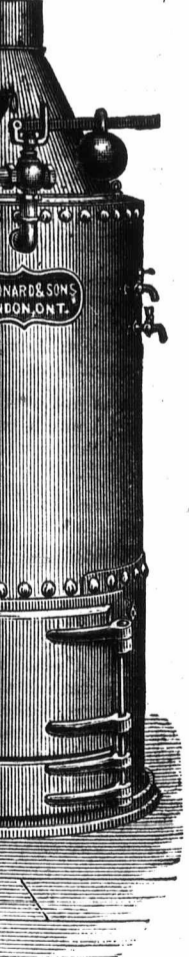
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### Review—Manitoba and the North-West of the Dominion.

We hail with great pleasure the many enquiries for information respecting the several provinces of Canada. The interest manifested by people so widely separated in all that concerns their fellow countrymen and their prospects, is the best omen of a perpetual acting in all matters with perfect accord as befitting one people. To meet these enquiries, and even anticipate them as much as possible, a portion of the *ADVOCATE* has been especially set apart, and no pains will be spared to render full of interest at all times our "Canadian Agricultural Notes." The great North-West is of deep interest not only to us Canadians, but to others also who may be thinking of migrating to our shores. A pamphlet by Thomas Spence, on Manitoba and the North-West of the Dominion, we have examined carefully, and though we may hold different views from the author on some points, we think it a very valuable hand-book for intending emigrants, whether from the older parts of the Dominion or Europe. Passing over the preface and introduction for the present, we will come at once into the land of promise. The great extent of excellent land immediately available for the labors of the farmer is a very interesting feature of the country. Neither in the United States nor in any other country is there such an uninterrupted stretch of rich soil awaiting the hand of the husbandman. In that valley four hundred thousand farms may be meted out, of one hundred acres each. The author of "Manitoba" says: "The area of rich soil and pasturage which we possess in the valleys of the Assiniboine and Saskatchewan alone is about 40,000,000 acres, of which about 18,000,000 acres are at once available for the agriculturist, and this land is black with richness." In such a territory there must be room for a very large population; and yet, according to the last official census, the population of the Province of Manitoba was 11,961. This was in 1870, and there has been since that a considerable immigration, though retarded no little by the want of direct railway communication with the older provinces.

This want of direct inter-communication through British territory is the great obstacle to emigrants. There have been repeated complaints of attempts made, and too often successfully, by Americans to induce parties going by the American R. R. to stop short of their destination, and by this means intending Canadian colonists have been diverted from their purpose. Repeatedly has this interference been referred to by our correspondents. 'Tis true there is also the Government Summer Route, but by it the journey occupies so much time, and the hardships of the route have been so great, that few take that route who can avoid it.

The fertility of the soil is pretty well known to our readers. We will merely give very brief extracts on this subject. "The average yield of wheat in Manitoba, deduced from the aggregate of local estimates, is twenty-five bushels to the acre, the range of ordinary yields being from fifteen to twenty-five. The weight of Manitoba spring wheat, 63 to 66 lbs. to the bushel. The soundness and fullness of the grain is unmistakably indicated by the fact that it will command a higher price than any Western State grain, when it goes to market unmixed and well cleaned.

"Barley is a favorite alternative of wheat in Manitoba, and yields enormous returns, with a weight per bushel of from 50 to 55 pounds. Oats also thrive well. Potatoes—the well-known principle established by climatologists that cultivated plants yield their greatest and best products near the northernmost limits of their growth, applies with equal force to the production of potatoes with

us. The mealy quality, the snowy whiteness, the farinaceous properties, and the exquisite flavor which distinguish the best article, reach perfection only in high latitudes. The potatoes grown in Manitoba are well known to be unsurpassed in all the qualities named, while their prolific yield is not less remarkable." Turnips, parsnips, carrots, beets and nearly all bulbous plants do equally as well as potatoes.

### A Canadian International Exhibition.

It has been decided to hold an International Exhibition at Toronto during the summer months of 1878. For the purpose of sufficiently carrying out the project a sum of \$500,000 is being raised by subscription, of which it is proposed to raise \$250,000 in 12,500 shares of \$20.00, and the balance with the assistance of the Government and railway companies. The success of the Centennial Exhibition, so much greater than what had been anticipated, encourages the projectors of this Canadian enterprise. True, the United States are many years ahead of Canada in national growth, but it must also be taken into consideration that the great success attending that Exhibition was in no small degree owing to foreign exhibitors, and if the Canadian undertaking be supported with proper spirit by Canadians, we may reasonably expect the same causes of success to operate in our favor. That the Dominion itself can form the nucleus of a great International Exhibition has been proved by the success of so great a number of Canadian exhibitors at Philadelphia, where in so many classes they carried off the highest prizes from a people who had the advantage of contending on their own ground. The new High Park, having an area of 400 acres, west of Toronto, can be had for the purpose free of expense, and the main building could be constructed with a view to its remaining permanent. An Exhibition as proposed would doubtless be beneficial to all the industrial interests in the country. It would be a stimulus to manufacturing and mercantile business, and not less to agriculture, and make the capabilities of the country more widely known.

### Shall We Discontinue Growing Wheat?

The motto of the successful farmer, as well as of other men who must succeed in any business, has ever been *persevere*. We are not to hang down our wearied hands, though we may have for a season been unsuccessful in our pursuits. The midge or the beetle, or must, or rust, may have taken the tith of our crop, or may even have left to us only the tith. Shall we in consequence let our field lie fallow, and in our despondency forsake agriculture;—or rather shall we not with redoubled energy pursue our work, knowing that the ingenuity of man is more than sufficient to overcome the obstacles that seem to forbid his success? Difficulties in the pursuit of our calling, obstacles that retard our progress, serve but to stimulate to greater exertions the man who will succeed.

"It is quite evident from the facts presented that our most important cereal, wheat, has had its day in this country." This is the language of a writer in the agricultural columns of a contemporary. Mountains of difficulties seem to shut out from his view any feature of our farming prospects but such as are most gloomy and disheartening. The production of fall wheat is becoming precarious! Competition from the antipodes! India and California are exporting immense quantities of splendid wheat into England! These are the prospects presented by this writer to the wheat growers in Canada.

For barley growers the prospect he presents is almost equally gloomy, and the growth of peas, though at present remunerative, is also threatened

with collapse and failure. But to the growing of these cereals, and to the question of raising stock—horses and beef—on a large scale, we will return again.

From the opinion expressed that wheat has had its day in this country we wholly dissent. Fairly remunerative crops, good in quantity and quality, can be grown even on the old farms of Ontario. The season of 1876 was very unfavorable throughout the country for farming. The crops were generally under the average, and the samples, taken as a whole, of inferior quality; but there were exceptions not a few. Let us examine some that we may ascertain the cause of the falling off in many.

In the county of Middlesex Mr. J.'s wheat yielded over twenty-five bushels per acre, the quality was A 1, and he sold it at a high figure; while neighboring farmers were complaining that the produce of their wheat fields was not more than half the produce of his, and their grain was of a low grade. Was it merely good luck that caused the difference? Let us see! Mr. J. spared neither labor nor expense in the preparation of the soil or the procuring of good seed. The ground was not exhausted. It possessed the elements requisite for the growing and maturing of the crop. The ground was well cultivated, not merely surface scratched. The seed was of the best quality, of a variety lately introduced, and at a comparatively high price. The crop was reaped at the proper time—not too late, nor yet too early; and last, though not least, it was thoroughly cleaned from light grains and seeds of weeds. Result—Mr. J. does not say that wheat has had its day in this country.

If, on the contrary, farmers scarcely scratch the surface of an exhausted plot of land, be very careful to procure "cheap" seed, sow and cover it carelessly, reap the crop when perhaps ill-colored and fibry from being *over-ripe*; clean it badly that they may have the greater number of bushels for the market, we need be at no loss for *data* to know why the cry is now heard—*Wheat has had its day in this country*.

It is true the wheat grower now has more to do in order to raise good crops than he had some years since. The country has been deprived of the shelter of the old forests. We have but little remaining of the rich, dark, virgin soil, and its fertility has not been restored from other sources, but we can and we do raise good crops of wheat.

Let us by no means give up sowing wheat, fearing that it has had its day, but let it not be our sole reliance. Let us not cease sowing barley though a large quantity may be awaiting buyers; feed all inferior barley to stock on your farm, and No. 1 barley will have a good market; let us continue sowing peas and oats, and let us feed stock for market and dairy. In a word, let our farming be diversified. Seasons differ—demand for products and prices vary. Be prepared for the demand whatever it may be.

The *Jewish Messenger* calls attention to the increasing fondness for furs and woollens and warm winter garments. It will soon, he thinks, be difficult to tell a New Yorker in full winter toggery from a Laplander or Russian. The winters are more severe than in former years, and we dress more warmly, yet colds, and coughs, and such diseases connected with the lungs, are prevalent. More people die of consumption and lung complaints than in former years, with all those improvements in clothing and hygiene. It looks as if mankind was growing weaker, that they need more clothes, more generous diet, greater care, and larger doctor's bills than ever before.

This is only partially true in Canada; indeed, if applicable at all to us, it is almost wholly confined to the towns. But there is sufficient ground for it



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to make it a matter of consideration, if, as we be-  
come more Americanized, we will still retain the  
hardiness, vigor, and endurance that have been  
characteristic of us "Britishers"—that robustness  
of body and steadfastness of mind that are not pos-  
sessed in the same degree by those south of our  
lines. It may be partly owing to the want of out-  
door exercise, as is suggested by the *Messenger*—  
Of exercise on foot or horseback they seem to have  
an unnatural dislike. And their diet is not so plain  
and so nutritious, and in consequence not so  
healthful as is the ordinary food of Canadians.  
Besides, the very means they use, in consequence of  
the growing weakness, is sure to cause its increase.  
And to this that they are pre-eminently a *fast*  
people, and this incessant restlessness soon wears  
out the frame. The life of the Canadian farmer,  
though not without some attendant hardships, is  
such as to produce a very high standard of health  
and vigor, and he has it in his own hands to make  
it one of great pleasure and usefulness. So highly  
do we appreciate the pleasures and salubrity of a  
Canadian country life that it grieves us to see any  
of the blooming maidens or vigorous young men  
exchanging their lot for a life even in a Canadian  
town, and much more so for an exile to the United  
States, with all the evils to which such life must  
be thereby exposed.

#### Trade Between Minnesota and Mani- toba.

A schedule of articles imported into Manitoba  
during the season of 1870 is now before us. It was  
obtained by the reporter of the *Pioneer Press* from  
the Commissioner of Statistics, St. Paul, Minn.,  
and so is reliable. A glance at the schedule shows  
that the aggregate value of exports from Minnesota  
to Manitoba—articles grown, produced or manu-  
factured in the United States—is given at \$802,400.  
The schedule comprises agricultural products, as  
flour, barley, horned cattle, wheat, oats, pork, &c.,  
besides manufactured goods. The largest item is  
that of flour, 31,372 barrels, of the given value of  
\$148,443. We had just been reading of an appro-  
priation by the Dominion Government towards  
sending Canadian products of the farm and work-  
shops to the Antipodes at the urgent request of  
Canadian merchants and others to open up a mar-  
ket for Canadian goods. Now, it must be apparent  
to plain matter-of-fact people that it would be more  
consistent with common sense (rather a rare com-  
modity these days, we fear) to utilize to the fullest  
extent to which they are available our home mar-  
kets, and develop the vast resources of our own  
Dominion, than to permit them, by our great *liber-  
ality*, to be monopolized by foreigners, while we  
are straining every nerve to find markets in remote  
regions. Let us avail ourselves of every opportuni-  
ty of gaining admission to every market where there  
is a demand for such commodities as the natural  
and industrial wealth of our country can supply,  
but let us above all others secure for our own pro-  
ducers the best customers—our own people. The  
home market pays not one profit only, but many  
profits; its benefits are given to several classes, and  
not merely to one—to the operatives in the mill,  
the forge, and the ship yard, as well as the farm.

#### Experiments with Fertilizers.

Experiments may well be compared to electricity,  
very useful and very dangerous. There can be no  
doubt of the great utility of agricultural experi-  
ments, conducted in a proper manner, with all the  
circumstances bearing upon them duly observed  
and accurately noted; and continued for a suffi-  
cient length of time to know the entire results; and  
repeated under different circumstances, with all  
the results compared. We need hardly say that,

under different circumstances, there may be ex-  
pected different results. Experiments, when not  
carried out, may, and often do, lead to very errone-  
ous conclusions, and in this respect are so far dan-  
gerous. We are, however, of the opinion that  
many of our intelligent farmers would greatly  
benefit the cause of agriculture generally were  
they to make some such experiments in its different  
branches—say in the profit to be derived from the  
several varieties of horned stock, of sheep, of  
swine; or in different modes of cultivation of the  
root crops, cereals and grasses. A Mr. L. W.  
Sheddon has sent to the *Prairie Farmer* an account  
of some experiments that had recently been made  
with different fertilizers upon corn land, and we  
abridge the account, as it is useful and interesting,  
showing, as far as one crop's cropping can demon-  
strate, the comparative value of the several vari-  
eties of manure used.

He selected five acres of land that had been  
under good cultivation for twenty-eight years, with  
pasturage of three years during that time. The  
cost and profit of each is as follows:—

First acre without fertilizer, total cost \$6.50.  
Return, 3,575 lbs. corn in ear, or 45 bush., at 40c.  
per bush., \$18.

Second acre, manured with manure from sheep  
barn, 20 loads, total cost \$16.15. Return, 4,518  
lbs. corn in the ear, or more than 60 bush., value  
\$24.10.

Third acre, manured as second acre, with one  
barrel of plaster added, total cost \$18.33. Return,  
4,673 lbs. corn in ear, or over, 62 bush., value,  
\$24.92.

Fourth acre, bone phosphate, total cost \$11.62.  
Return, 5,208 lbs. corn in ear, or over 69 bush.,  
value \$27.77.

Fifth acre, salt, total cost \$8.93. Return 5,675  
lbs., or nearly 76 bush., value \$30.27.

The net profit as shown by the returns given was  
as follows:—First acre, \$11.50; second acre, \$7.95;  
third acre, \$6.59; fourth acre, \$16.15; fifth acre,  
\$21.34.

In the account the whole expenses of each acre—  
labor and manure—is charged, and the profit of  
each is as given. The experiment does not termi-  
nate with this one year. It has yet to be ascer-  
tained what effect the manuring each acre or the  
not manuring will have on the succeeding crop or  
crops. The fourth acre would have yielded ten  
per cent. more than it did but that it was injured  
in its cultivation.

#### The Wheat Crop of 1876 and its Lesson.

Never was there a fairer promise of an abundant  
wheat crop throughout the country, than in the  
early parts of the season of 1876. The fall wheat  
had come safe through the winter, and through the  
months of April, May and June, the prospect of an  
abundant harvest was all that could be desired.  
The spring crop was sown in good condition, and  
the first months of its growth were favorable and  
farmers anticipated a good produce, that would re-  
munerate these for the very low prices they had re-  
ceived for the crop of the previous year; while con-  
sumers looked forward to a season of plenty. With  
July, then came a change in these bright prospects.  
During the entire month, and the early part of  
August, the extreme heat ripened the grain before  
it was sufficiently filled, and the consequence was  
the wheat instead of being well filled and plump, was  
then light and shrunken; and there was rust in  
much of the fall wheat and smut in some sections  
of the country. The average of the fall wheat was  
very low, not more, as is shown by the returns  
from several sections, than one third the produce  
of other years. The spring wheat, though a better

crop on the whole, was not more than half the  
usual average. One thing however was in its  
favour. It was saved in good condition.

The question arises are there no means by which  
the great losses sustained by the country at large,  
and more especially by the farmers, can be pre-  
vented or at least lessened. If some farmers have  
aimed the general losses off come uninjured, does not  
this afford us grounds for believing that the modes of  
cultivation that in some instances were successful  
in obtaining results equal to those of former years  
might, if generally practised have prevented much  
of the financial reverses consequent on the bad  
crops of the year we have come through.

Through cultivation with deep ploughing is one of  
best safeguards against such a drought as that of  
1876. Plants of cereals send down their roots  
deeper into the earth the more the drought pre-  
vails, as there is a moisture beneath, though the  
surface be parched by its exposure to the sun's rays  
and the scorching winds. Now, if there is a suf-  
ficient depth of well tilled earth for the roots to  
penetrate and draw the required moisture and nu-  
triment the plants will thrive when those on an un-  
disturbed sub-surface are dried up and withered.

Any query suggests itself—Is our seed covered  
evenly, and to a sufficient depth. We have known  
many instances of crops bearing a drought unin-  
jured when the seed had been well covered with  
plough or harrow, while the crops on land other-  
wise treated were scarcely worth harvesting. In  
our busy farming days we were very partial to deep  
covering, and, if we accept the old proverb as true,  
"The proof of the pudding is in the eating of it,"  
the advantages of our deep covering was fully  
proved.

Farmers lost heavily from the light yield. The  
deficiency in yield might be compensated for if the  
price were comparatively high, but the stock in  
hand from the previous year kept markets low and  
the demand very inactive. The yield of 1875 had  
been exceptionally heavy, and stocks at all the sea-  
ports accumulated rapidly and European granaries  
were filled to overflowing. This effectually pre-  
vented an active demand for breadstuffs and any  
advance in prices was not to be expected; so that  
the partial failure of the harvest of 1876 produced  
hardly any change in the trade, and did very little  
to raise prices.

Another lesson to be learned from the losses  
caused by the falling off of the wheat crop of 1876  
is that the system hitherto pursued of depending  
too much on cereals, and of cereals too much of one  
variety, wheat, has been injudicious. We proved  
by the reverses of the past that a more diversified  
system is safest, and, calculated from a given number  
years most profitable.

#### Groundless Rumor.

An American exchange, *Colman's Rural World*,  
writes:—"The epizootic prevails in Ontario. The  
tongue is paralyzed, and swells so that the horse  
can't eat or drink." Now we live in the very heart  
of the finest agricultural district of Ontario, and,  
notwithstanding our constant intercourse with  
farmers from every part, we have heard of no such  
disease. We regret that some evil-disposed persons  
have been drawing a long yarn for our esteemed  
contemporary.

The late meeting of the Dominion Board of  
trade was replete with interest affecting every  
branch of the country's industrial resources.

The members representing the several interests  
of the several Provinces arrived at the conclusion  
that, for the welfare and progress of the Dominion  
it is necessary by legislative enactment to encourage  
the traffic between this country and the West In-  
dies, and to extend a fostering protection to manu-  
factures in the Dominion.



### Board of Agriculture and Arts.

At the last meeting of this Board, Mr. William Saunders, the editor of the *Canadian Entomologist*, introduced a most important suggestion—that all insect life should be destroyed in all seeds procured at the Centennial Exhibition, before the seeds are sown. Perhaps it might be well to embody a clause in the new Agricultural Act to have all seed wheat imported from Europe or Australia inspected, and insect life destroyed before it is sown in our country. On one occasion we imported several varieties of wheat; in one lot we found an insect unknown to us, eating the heart out of the wheat. We destroyed all but a small quantity; this we put in a glass bottle, expecting the insect would change into another form, cease work and leave some grain, but every kernel was destroyed in the bottle. Prevention is often better than cure.

There was an attempt made to reduce the number of members now on the Board. This is a step in the right direction. It is our impression that the number might be reduced one-half, and the work devolving on them be just as well done. In fact, five directors would do the work just as well and in less time.

### The New Agricultural Act.

We have been favored with a copy of the new Act introduced into the Ontario Legislature by the Hon. Mr. Wood. There are but very few alterations from the old Act; the principal alterations are to establish a Veterinary College at the Government Farm in Guelph, to increase the grant to the Dairymen's Association to \$2,000, and to fix Belleville and Ingersoll as the two places where the annual meetings must be held.

Perhaps it might be well to insert a clause to allow district and township societies to award a portion of their funds for the best cultivated farm; also for the encouragement of planting trees. It might be well to have proper regulations to prevent the spread of diseases among our stock, and insects among our grain, from injudicious importation. Perhaps it might be as well to allow the dairymen to hold their Convention and fairs at other places, as the interest is extending.

### The Garden.

As many farmers are now in a position to have hot-beds and frames in their gardens, a few hints regarding the preparation and arrangement of hot-beds, and the growing of early vegetables, may not be out of place.

#### LOCATION AND PREPARATION OF HOT-BEDS.

A south-western exposure should be selected, protected from the north wind by the side of a building, board fence or hedge. Then excavate the ground about two feet deep and eight feet wide, and long as required, allowing three feet for each sash. Gardeners in this latitude start their hot-beds from the 15th of February to 15th March. When started early, more manure is used, so that enough bottom heat may be supplied to keep the young plants growing until mild weather sets in. Commence by putting a layer of cold horse manure about eight inches in thickness on the excavated surface. Begin at one end of the intended bed, and be careful that this first layer, as well as all succeeding ones, is spread evenly. Then add a second layer of hot manure, of about the thickness of the first. The mass may now be trodden down by walking on top of it, keeping the feet close together. Another layer of hot manure may then be put on, the frames placed in position, and pressed down firmly. Add another layer of fine manure, ten or twelve inches in thickness, inside of the frames as a finish, and put on the sashes. The beds being eight feet wide, and the frames

only six, there will be a margin of twelve to sixteen inches outside, which should be banked up with manure as high as the top of the frame. Frames may be made of common boards nailed together, with a post in each corner for a support. They should be five feet ten inches wide from front to rear, and as long as desired—the front board twelve inches high, and the rear eighteen to twenty-four. The frames, when made, should stand level on the bottom, forming an inclined plane on top; so that, when the sashes are on, there will be enough fall from rear to front to cast the water readily. Cross ties six feet long, made of narrow strips of boards, one by three inches, should be mortised into the front and rear boards of the frames every three feet. These will support the sashes and strengthen the frames. Sashes can be bought from any sash manufacturer. They should be well constructed of seasoned wood; if not, the heat of the beds will warp the wood, and displace and break the glass. The narrow lights of glass 4 x 6 are preferable. These should be cut curved on the lower edge, so that the water will run off in the middle of the light in single drops, and not form lenses, which would likely scorch the plants. When the beds are finished, as stated before, the sashes are put on at once and covered with straw mats. In case the weather is pleasant, the mats may be taken off for three or four hours the next day. Two days from the time of making, under ordinary circumstances, the earth may be put on. This should not be done, however, until the manure is well heated inside the frames. Six or eight inches of leaf mold, or good garden soil free from stones, will answer. Two or three days from the time of putting in the earth the seed may be sown. Select a pleasant day, and remove all the sashes and mats. Unless the soil is very rich, a handful of bone-flour or superphosphate should be sprinkled over each light. Then turn the earth over with a digging-fork, and rake the surface level. For, if left slanting, the frequent watering will wash the seed from the upper or rear part of the bed.

Make shallow drills from front to rear, two inches apart and about three-quarters of an inch deep. Sow the seed in these drills, and cover lightly by sifting earth over the bed until the surface is again level. Each kind of seed should be sown separately, and labelled at the time of sowing. Replace the sashes, and toward night put on the mats. Except in very old weather, the mats should be taken off daily, about nine or ten o'clock in the morning. The secret in growing strong, stocky plants is, when they are well up, to give an abundance of air at the right time. For instance, if the sashes are opened soon after removing the mats, the chances are that the young plants will be injured by what gardeners call "damping off." While the plants are young, no air should be admitted into the beds for at least one hour after the mats have been removed. Each succeeding mild day more air may be given to the plants, to keep them from growing spindling.

Early varieties of cabbages can be started in hot-beds this month, and the young plants transplanted into other beds in March. They will be large enough to set out in the garden in April. Jersey Wakefield, Oxheart, Early York, and Winningstadt are popular varieties.

Cauliflower may also be sown this month in a hot-bed, and transplanted once or twice before planting in the field. Early Paris and Early Erfurt are reliable early varieties.

Cress or Peppergrass can be sown in hot-beds in succession, two weeks apart, until the weather is mild enough to set in the open border.

Lettuce sown in a hot-bed about the middle of the month will give plants large enough to set out

in the open ground in the latter part of April. Paris White and Green Cos, Malta and Drum-head cabbage, are the best kinds.

Radishes sown now in the hot-bed will be ready for use early in March. For successive crops sow a fortnight apart. Early Scarlet Turnip, Short Top Long Scarlet, and Scarlet Olive Shape, are the best varieties.

Tomatoes sown now would require to be twice transplanted into other frames before setting out in the open field. Each time they are moved from one bed to another more room is given in order to produce stocky plants. General Grant, Trophy, Hathaway's Excelsior, and Canada Victor, are good varieties.

### Seed Wheat.

The demand for a new and reliable variety of spring wheat is so great that many farmers are ready and willing to pay any price for anything that has a slight chance of proving successful, and even for some that the chances are against them. One farmer we hear of has purchased twenty-six bushels of the old Egyptian, at \$12 per bushel; and many others we hear of have purchased lots of five and ten bushels at that price. These sales are effected by traveling agents. The wheat is called by them the Eldorado. The accounts about it are conflicting; some give it great praise, others condemn it. The Fife Glasgow or Scotch wheat is still preferred in some localities, in others it is abandoned for more profitable varieties. The Chilian wheat is only fit to sow in wet land; the quality is very inferior. The Rio Grande is not a favorite, but few continue to sow it. The Farrow, or Red Chaff, has been yielding well; farmers have been pleased with the number of bushels they have had of it, but the millers say it is the worst wheat we have ever had in Canada. It must reduce the value of spring wheat and flour, as one hundred pounds of flour made from the Farrow, or Red Chaff wheat, will make ten pounds of bread less than flour made from the Fife, or other spring wheats. This is an important statement, and one that should cause farmers to prefer another varieties. The Odessa wheat in some localities has surpassed any other variety, and a great point in its favor is, that every person that we have heard of having any of it has disposed of all they had for seed, both in Canada and in Michigan, that being the State from which we heard the first report about it, whose crops have suffered from the great drouth, so we doubt if and really good, plump seed of that variety will be procured this year.

The Minnesota wheat has been sown to some extent during the past two years. The success of those who have sown it has been such that a much greater breadth of it will be sown this year. The change of seed from that cold climate has been beneficial to the crop, and to the quality of grain raised here. The Minnesota is no new variety, and is often mixed. Notwithstanding, this the farmers that have sown it appear well satisfied with it; many have sold their entire crop for seed. The Minnesota and Manitoba wheats are the same variety.

The Red Fern is of excellent quality, well liked by millers, and in nearly every instance it is commended. Some claim it to be midge-proof; we will hardly endorse that statement, but believe its power of resisting the attacks of the midge to be greater than that of any other variety of spring wheat.

Scores of letters have been sent to this office enquiring which is the best kind of spring wheat to sow for a main crop. To enable us to answer this question more correctly, we wish each person who



has tried any of the above varieties to send in reports by the 20th of this month, and we will publish said reports; we wish them from different parts of the Dominion. Sow such as have proved most successful in your locality. Sow but small quantities of any unknown or untried variety; a few grains are sufficient to tell you whether a new variety is likely to be of advantage to you. When you find such that is superior to your own, then you can safely send your order to any respectable seedsmen, and no doubt you could be supplied with sufficient to sow a large breadth. One variety may succeed better in one locality than another. To maintain a good name, and the top price, do not sow the Farrow, or Red Chaff; try the Minnesota or Manitoba, Odessa and Red Fern; a small quantity of each would be sufficient to introduce the seed in any locality, and give you a knowledge of what will suit you best.

The Mainstay wheat has been most highly spoken of in European papers, both as a winter and spring variety. It will be introduced into Canada this year to try it. English wheats have not generally turned out successfully when sown in Canada.

#### Hints to Dairymen—No. 12.

Written for the Farmers' Advocate, by J. Seabury.

In looking back over the past season we find that it has been rather a peculiar and trying one both to the maker and salesman.

As regards the makers, very few of them have ever passed through such an ordeal as they have done the past summer. The month of May continued cold and disagreeable up to nearly its close. June came in with an abundance of feed and everything promised well for the manufacture of cheese. Towards the end of the month the weather gradually grew hotter and finally culminated in the early part of July in some of the most excessive heat that it has ever fallen to the lot of cheesemakers to experience. This continued with occasional intervals all through August and September. These intervals of extreme heat were trying times for the cheesemaker, but especially those who were not well up in their business and who were not well provided with the proper appliances and good curing rooms; and I only hope that the defects in appliances and curing rooms, which have shown themselves the past season, will be well and properly remedied the present winter and coming spring. I have no doubt many a cheesemaker wished that he had never seen a cheese, and vowed that when he got through with this season's work you would not catch him making cheese again. However, the fall was very cool and the cheesemaker had comparatively easy times, as the milk worked very slow and sweet. This, with the advance in price, and keen demand for cheese the past three months, has put fresh heart and courage into the factorymen, makers and patrons. But they must take fresh courage with the full determination to make nothing but a first-class article. The past season will have shown many defects in the management, manufacturing, location, and plan of building, &c. All these defects which have, no doubt, cropped out more or less in every factory, and should by all means be remedied, and all the late improvements which are practical and advantageous should be introduced.

For the salesman the season opened with pretty low prices, and he hoped prices would not come much lower. In this hope he was destined to be disappointed, for as the season advanced prices kept dropping, dropping, and he began to think that the bottom had really dropped out of the market. Through the month of July and part of August salesmen were anxious sellers, and many of them were willing to make liberal

concessions. Those who were more sanguine, and who took a calmer view of things, fared much better and realized much better profits than those who were more anxious. Later in August it became apparent to those who were well posted in the make, &c., that the fall make in York State and Canada also would be short. The result of this was that salesmen were beset with the buyers trying to contract the balance of the season's make, and which they succeeded in accomplishing to a large extent, and in many instances at very low prices. These prices seemed at the time to be fair, and all that the cheese was worth. But subsequent events proved how little idea even those who are pretty well posted have of future prices.

But for the short make this fall prices would have ruled low all the fall and winter. A prominent dairy writer in the United States makes the calculation that the make in their country is 25 per cent. short of last year, and in our own country the make cannot be far short of that amount. This will have the effect of clearing the market entirely of old stock before the new is fit to go forward, and we shall probably see as bare a market as we have seen for many years.

A great many have the idea that it was entirely owing to the heavy make and the business being over one that caused the extremely low prices the past summer. No doubt the heavy make has something to do with it, but not entirely. There is this consolation about a very heavy make, that when such is the case prices must come low, and just as soon as prices are low cheese goes into consumption that much faster. Heavy as the make was during the early part of the season, and some of it of very inferior quality, the low price sent it into consumption as fast as produced or nearly so, and when it became fully apparent that the fall make was going to be short, the stocks of summer cheese were comparatively light. The stock of cheese in Liverpool is very much lighter than this time last year, and the stocks in the United States are some 160,000 boxes short of last year; so I shall not be surprised to see cheese go to 80 shillings before the 1st of May. It is now 70 shillings with light stocks and light shipments from New York.

No doubt many dairymen would like to see into the future and know what the prospects are, or have some one tell them what the price of cheese is going to, &c. In my opinion we have seen the worst, and may not see as low prices again for a long time to come. A patron with whom I was conversing, the other day, and who was not at all satisfied with the working of his factory, said "he thought of selling off his cows." My reply to him was, "If you have good cows, do not sell them; they are too valuable and cannot be replaced." Stock raising and dairying are destined to play an important part in the future of this Province. The export of live cattle and sheep across the Atlantic has now been pretty well established, and is no longer an experiment. Also the shipment of fresh and preserved meats are likely to be successful. Let each one go on as he has been going, and do as he has been doing, only try and do a great deal better—keeping better cows, taking better care of them in every possible way, taking better care of your milk, and have it come to the factory fresh and nice and sweet, thereby relieving the cheesemaker of many conscious thoughts about his cheese and how his milk is going to work to-day. These are times when it behoves every one to be up and doing. Every one of us (dairymen included) have a duty to perform and a part to play in the great drama of life. Let each and every one see that he does his part well and creditably to himself and to all with whom he has to do.

The American Dairymen's Convention was held at Ingersoll on the 9th, 10th and 11th of last month, and there were some very valuable papers read and some discussions which elicited some very valuable information on the dairy business. I hope to bring some of the most important before the readers of the FARMERS' ADVOCATE from time to time, and endeavor to show to the patrons of cheese and butter factories that they have a very important part to play in raising the standard and reputation of Canadian cheese and butter.

#### The Union Churn.

This churn appears to be destined to supplant nearly all the churns now in use. In fact, ninety-nine out of every hundred churns that have been patented have been a source of loss to every farmer that has tried them, and hundreds of thousands of dollars have been expended and lost on them. This churn has three legs to stand on, and three important pillars to support its claim. One is that it will make more and better butter than churns generally in use; the thermometer sent with it and the action of the churn may bear out this assertion. Secondly, it is more easily worked than most churns; and thirdly, any farmer may have the churn and give it a good trial without paying one cent for it, unless he is fully satisfied that it is the best churn he has ever had. McMurray & Fuller are gentlemen of honor and position, and well known to the leading merchants of Toronto, therefore you need not be afraid of their statements. They have an advertisement in this journal.

#### To Correspondents.

Enquiries and communications have been sent us without the name of the writer as reference; we consign such to the waste basket. "Farmer," Orangeville, is one; "Enquirer," Drayton, is another; "Reader," Exeter, another; some have not as much as a cognomen. We cannot keep the accumulation of such; sign your names or your communications are useless. We do not publish the names, if the articles sent in are suitable for the journal, when parties object to it.

#### The School of Agriculture—Ontario Legislature.

On the resolution, \$17,308, for the School of Agriculture, it was stated by Mr. Wood that the capacity of the school was 44, and it was full. Mr. Meredith pointed out the expense of the institution, according to that was about \$800 to the Province for each pupil, and that the pupils, as he understood, were all gentlemen's sons, instead of the sons of farmers, such as the institution was expected to reach. He questioned the propriety of keeping the institution on at such an expense. Mr. Wood said the school was certainly a great tax on the Province, and as there was a great many applications for admission to it, the school would have to be enlarged. In view of the expense, if the school was not enlarged, it would have to be closed up entirely.

No measures have been taken to ascertain whether the pupils educated in the school became farmers, pursuing the occupation for which the institution was given. It is a subject worthy the enquiry of farmers: First—Is all the benefit obtained by the institution worth all the money expended on it? Second—Are the pupils, as has been said, gentlemen's sons, instead of the sons of farmers? Third—As there are so many applicants in excess of the accommodation that the institution can afford, who has the patronage—the privilege of admission and refusal?

PROTECTING BIRDS.—Farmers ought to be deeply interested in the preservation of wild birds' eggs, judging from the great good these birds render them. I do not know of any bird so useful to the farmer in the destruction of their great enemy—the "grub"—as the lapwing, and next in order comes the partridge. I have proved this fact over and over again, and it is to their interests that they ought to do all in their power to stop this destruction of their best friends.—*London Live Stock Journal*.



## Stock and Dairy.

## American Dairymen's Association.

ABRIDGED REPORT.

Prof. Arnold began by remarking upon the commendable exertions which had been made to secure the erection of a suitable building for the exhibition of dairy products at the Centennial, and which had resulted in the construction on the grounds of a model butter and cheese factory, with a complete outfit of apparatus necessary for the manufacture of butter and cheese, and ample room for their display. The cost of the structure was \$10,000, of which amount the Canadian Government had contributed \$2,000. After giving its dimensions and interior arrangements, he remarked that while the room for the display of butter was fitted up with the necessary means of refrigeration, that for cheese was minus this precaution, notwithstanding his protest, and in direct violation of a pledge made by D. L. Pope, chairman of the Committee. In the hottest part of the summer this omission had had a bad effect upon the cheese exhibited. This building had not been finished in time to receive many of the foreign exhibits, which were located as well as possible in the Agricultural Hall and elsewhere on the grounds. The Dairy Department had on the whole proved to be a creditable and successful exhibition of dairy products. The display of products connected with the dairy which were submitted to the judge of group four for examination, comprised butter, cheese, condensed and preserved milk, and butter-coloring, cheese-coloring, preserved rennets and rennet extracts. Of butter there were shown a total of 292 packages, having a total weight of 9,150 pounds. Of this number 226 packages, weighing 7,051 pounds, were from the United States; 23 packages, weighing 1,749 pounds, were from Canada; and 42 packages, weighing about 350 pounds, were from other countries. This amount was presented in 149 exhibits, of which 123 were from the United States, 16 from Canada, and 10 from other countries, including Portugal, the Argentine Republic, Brazil, the Netherlands, Germany, Italy and Denmark. There were 31 awards for exhibitions of butter recommended by the Committee, with which he (Prof. Arnold) was connected, 22 of which were for exhibits from the United States, 5 for Canada, and one each for Portugal, the Netherlands, Germany and Denmark. The display of cheese was much larger than that of butter. In all 2,086 packages were exhibited, weighing 55½ tons, which were presented in 411 exhibits. There were from the United States 1,012 packages, weighing over 26 tons; from Canada 1,003 packages, weighing over 29 tons; from other countries 65 packages, estimated at 500 pounds. These were from Portugal, the Argentine Republic, the Netherlands, Brazil, Victoria, Italy, Norway, Turkey, France and England. The cheese from the United States and Canada was mostly the product of factories. Over 100 awards were recommended for exhibits of cheese. Of these 45 were for the United States, 49 for Canada, and the remainder for other countries. Prof. Arnold then gave an explanation of the method adopted in judging butter and cheese. A scale of points was prepared, to be rated by numbers, the sum of whose numerical value should be in each case a 100. The following is a scale of points for judging butter on a basis of a total of 100 as perfection:—Positive qualities—flavor 25, agreeable, clean, nutty, aromatic, sweet, pure, distinct and full; keeping quality 20, inclined to slow changing, indicative of stability in retaining good qualities; solidity 10, stiffness of body, firmness; not easily getting or becoming soft-textured 15, compactness, closeness of grain, breaking with a distinct fracture like cast-iron, fat globules unbroken and perfect, sticking little to trier; color 15, pleasing, natural, not appearing artificially bright, even; make 15, includes all not included under other points, as cleanliness, perfect separation of buttermilk, &c. The following were the definitions of positive qualities for cheese:—Flavor 25, agreeable, nutty, buttery, fine and full; keeping 15, preservation, inclination to slow changing, retention of good qualities; quality 20, mellow, salty, pasty, flaky, stoky, rich, soluble, melting on the tongue; texture 15, solid, close, firm, compact; color 10, pleasing, natural, not appearing artificial; even make 15, includes all not included under other points, as use of rennet, proper manipulation, ripening curd, salting, pressing, curing, perfect rind, &c. The cheese exhibits of both countries in the October display was generally fine, and than some of them he had never seen finer anywhere. They were

absolutely faultless. The very best had one peculiar feature in their manufacture, and that was that those in which the flavor was the most pure and nutty, and which appeared the richest and most meaty, had the whey removed from the curd at the earliest period. This was the essential point in what was called the Cheddar process. The cheese shown by the United States was not very uniform in quality, and the same of the Canadian exhibits. Canada's average, however, was higher than that of the United States. This superiority he attributed to the fact that the Cheddar system was practised more in Canada than in the United States. The cheese presented in October by Thomas Ballantyne, M. P. P., of Stratford, in which this peculiarity of make was most successfully carried out, was the finest shown during the exhibition, and was graded at 100 plus. To it was awarded the sweepstakes prize for best Canadian cheese. (Applause.) The October exhibits of Mr. D. Chalmers and Mr. Alex. Mackenzie differed but very little from the best. The percentage of perfection in the October exhibits of cheese from the individual States, and the United States collectively and Canada collectively, were as follows:—Connecticut, 50 per cent.; Ohio, 60; Wisconsin, 76; United States, 76.82; New York, 79.05; Pennsylvania, 83.22; Canada, 87.36.

Mr. Casswell inquired about certain articles in the newspapers written by one Oliver who charged that there had been a dairy ring at the Centennial. Hon. Mr. Lewis said that Wilkinson, the inventor of the sub-earth duct, was one of those at the bottom of that charge. Among the others who had joined in the cry were A. Willard and O. S. Bliss, who felt sore because they were not appointed judges. Last, and not least, was this Mr. Oliver, who had circulated the charge through the press. Mr. Lewis said that there was not the slightest foundation in fact for the rumored existence of a dairy ring. The judges had done their duty conscientiously, and the cry had been raised for a purpose by disappointed parties.

## LEAKS IN THE DAIRY.

Mr. C. H. Sheldon, of Lowville, N. Y., delivered an address on the above subject. Addressing himself to his subject, he remarked that poor and insufficient food and bad water were among the worst and most common leaks in the dairy. A food that would keep the supply constant and the cows in good flesh, would pay in the long run by giving the largest percentage to sell when the market was the highest. Large and comfortable barns were important factors. It was the dictate of prudence to stop up the cracks in the stable. Ventilation should not be neglected. If the Creator had intended the cow to be kicked and pounded, He would have provided her with a coat of armor. Every kick and stroke was a leak in the dairy. Every dairyman should not only be kind and gentle himself in the treatment of his cows, but for moral as well as financial reasons he should see that he had no brutal hired men in his employ. The problem of successful cheese dairying in years to come must be solved by the consumer, as the Americans were not a cheese-eating people. The interest depended almost entirely at present on the foreign trade, though the Dairymen's Association was educating the taste of the people for a good article. Statistics showed that the consumption of cheese among dairymen themselves was greatest when they considered it cheap, whereas if cheesemakers, patrons, and all concerned would themselves use larger quantities of a good article, the price would be raised throughout the whole interest. The careless or imperfect curing of cheese was a great leak, for it not only affected those producing the inferior article, but the whole trade. The object of manufacturers should be to put their cheese into the hands of consumers as soon as they wanted it; and in all cases the keeping quality of the cheese should not be lost sight of. A high and uniform temperature was that adapted to the preservation of the best qualities of cheese.

## DAIRYING AND FERTILITY.

Prof. E. Stewart addressed the Convention on this subject. Deducing the cows used simply for breeding purposes and furnishing food for their calves, there would remain in the United States and Canada about 10,000,000 cows, producing an annual product, at \$40 per head, worth in the market \$400,000,000. In view of the extent of this interest, it became important to consider the effect of dairying upon the fertility of the dairy farm. Milk contained about six-tenths of one per cent. of mineral matter, and 1,000 pounds of milk would contain six pounds of ash, composed of phosphate

of lime, carbonate of lime, soda, sulphur, magnesia, &c. A cow, therefore, that gave 4,000 pounds of milk while in pasture, would remove from the soil twenty-four pounds of these mineral constituents. Different systems of dairying, however, had different effects upon the soil. With regard to butter dairying, the Professor remarked that what was sold from the products of the farm, not what was raised and fed to be returned to the soil, impoverished it. Butter was composed wholly of carbon and water, and if pure took no valuable constituents from the soil. All its elements, carbon and water, might be derived from the atmosphere. The best system of dairying to preserve the fertility of the soil was butter-making. When the refuse milk was fed to animals, the mineral constituents went back to the soil in the highest state of organization, and might even increase its fertility. He advised the feeding of the milk to pigs, as these animals had a less weight of bone in proportion to their carcass than calves, and then a larger amount of fertilizing matter was returned to the soil than by feeding it to calves. If, however, the milk of the dairy was sold, the mineral and nitrogenous constituents were lost to the soil. In the manufacturing of cheese or delivery of milk to the factory, all that was brought back was the whey of the milk, or carbon and water containing no mineral matter except the small amount of casein and albumen that might have floated off with it. Whey had therefore little manurial value, the casein of the curd containing nearly all the mineral matter. It was true that the skilful feeder might profitably use the whey as a food by mixing with it other food rich in albumen oils, such as oil, meal, pea-meal, fat or barley meal, and thus add to his income. He did not wish to alarm dairymen, but it behooved them to look the facts square in the face, and if their present system was faulty, the sooner they mended it the better. Dairying for long periods has been found to deplete the soil of the phosphate of lime.

In reply to questions, Prof. Stewart stated that if a dairyman had abundance of food from other sources than his pastures, and fed his cattle liberally, he might keep his pastures in good order for a length of time. His remarks had been based on the supposition that dairymen kept all the cows their land would support, without foreign compensation to the soil. If, however, the farmer used commercial fertilizers, such as bone dust, superphosphates, etc., he could keep the soil in good condition for about \$2 per acre. German potash salts were also very valuable in replenishing the soil. Extra tillage might indefinitely postpone the impoverishment of the soil, but it would on that account be all the more marked when it did come. The Germans had found that by cultivating the sugar beet, which sent its roots down to the subsoil and brought up the fertilizing elements, and feeding the refuse of their sugar manufactories to their cows, they could make their profit on the sugar clear without apparently impoverishing the soil. He spoke very highly of the value of pea-meal and oil-meal in feeding cows. Leached ashes were a tolerable substitute for superphosphates, provided the land was not permanently wet. (Gas lime was also good, but it should be composted with muck and earth and allowed to stand for a year or two, or even a few months.)

A vote of thanks was unanimously tendered Prof. Stewart for his address.

## MANUFACTURE OF CHEESE AND HANDLING OF MILK.

Mr. Thos. Ballantyne, M. P. P., delivered an address on this subject. He said that the proper condition of the milk on commencing the process of manufacture, was the first requisite in order to make good cheese. Cleanliness could not be overrated. The utensils should be carefully washed and scalded in the first part of the season. Cheese should be manufactured with a view to early maturity, and the sooner it was ripe the better. He accomplished this by a free use of rennet, sufficient to coagulate the milk until the cutting of the curd in twenty-five or thirty minutes. The heat should be applied as gradually as possible. He drew the whey on the approach of the slightest acidity, allowed the whey to pack at the bottom of the vat, used salt very slightly, and followed the Cheddar process generally. As the season advanced he used less rennets, sufficient to coagulate it in forty minutes. The ascertaining of the right degree of acidity could only be learned by experience. In summer he used 2½ pounds of salt per 1,000 lbs. of curd, but when he was anxious that cheese should be soon ripe for the early market he used about 1½ lbs. of salt. He reiterated that there were four agencies in the manufacture of cheese, to



all of which the greatest attention should be paid, namely, heat, rennet, salt and acid. He heated his curing room with a wood stove, but thought a coal one preferable. He strongly deprecated the use of an upper story for curing cheese. A very good plan of lowering the temperature of the curing room in very hot weather was opening the windows and sprinkling the floor with water. He had found that the best quality of cheese could not be made from very sweet new milk. It should attain a certain stage of ripeness.

Mr. Casswell said that many of the western manufacturers had once made white cheese, but he did not think they would do so again, as they had lost by the experiment. A certain amount could be made to advantage, but if manufactured in any considerable quantity the factory men would lose by it. To be at all saleable white cheese should be of the very highest quality, as it showed its imperfections more than colored cheese.

Mr. John Craig, of Woodstock, and Mr. Losee, of Burgessville, both strongly advocated the educating of the patrons of factories in the best system of manufacture by having meetings among them to be addressed by experienced cheese-makers.

#### ROUTINE BUSINESS.

The following committees were appointed by the President:—

Committee on Nominations—Prof. E. W. Stewart, of Erie County, N. Y.; Mr. C. L. Sheldon, of Lowville, Lewis Co., N. Y.; Mr. D. B. Burrill, of Herkimer Co.; and Messrs. Hervey, Farrington, and H. S. Losee, of Oxford Co., Ont.

Committee on Finance—Messrs. J. B. Stewart, of Cattaraugus, N. Y.; R. Y. Ellis and Benjamin Hopkins, of Oxford Co., Ont.

Committee on Dairy Apparatus—Messrs. L. F. Bungay, of Norwich, Ont.; Hon. Harris Lewis, of Herkimer Co., N. Y.; and R. Facey, of Ingersoll, Ont.

The Convention adjourned till 5 o'clock.

#### EVENING SESSION.

The President stated that there seemed to be some misapprehension as to the causes which had kept so many American dairymen absent. He was certain that but for the storm which had prevailed for some days back on the other side of the lines there would have been a large attendance. The storm had not its parallel since 1864.

Hon. Mr. Lewis in commencing his address said: If he wanted a first-class dairy farm he would get the best grass-growing farm he could obtain.

The next thing was to get a herd of cows well suited to the dairy business. The only way of testing the butter or cheese-producing qualities of cows was by weighing the product. A different quality of cows was needed for cheese-making from that needed to produce butter. The Holstein breed were the best for a milk farm. The food of the cow should be of the very best quality, and none of the so-called foddering dairy cows on coarse food should be allowed. They should engage no hired men for the dairy farm but those who were well qualified for their work. Intelligent and skilled help paid best in the long run, and no blunderers should be engaged.

Mr. Farrington, of Norwich, said that he would prefer raising corn for dairy feeding to having a poor grass farm. If they could not raise the best grasses in abundance they would be obliged to resort to corn. Well saved corn stalks cut when the ear had matured were very useful for winter fodder, as Mr. Lewis would admit, but if cut in the flower and properly preserved it made a far superior food for cattle than hay. It could be stored until such time as a failure of the grass crop would make it very useful for fodder.

Prof. Stewart related the experience of a friend of his in feeding cows with corn when it was passing from the milky to the doughy state. He had found no kind of fodder so cheap.

Hon. Mr. Lewis said the cow told him in actions that were louder than words that grass was better than corn, (Laughter.)

Mr. Farrington suggested that the much vexed question of corn *versus* grass should be settled by a resolution of the Convention.

Prof. Arnold said that there could be no doubt as to the utility of green corn in feeding cattle, as it possessed the elements necessary for the production of flesh and milk. There was a time in the life of the corn-stalk in which it contained all the elements that were afterwards in the ear. This time was when the kernels were first ready to turn into corn. If the stalks were cut just at this time,

though there might not be a particle of grain developed, there was elaborated in the sap all the material of the crop. Under these circumstances there could be no doubt as to the value of corn stalks for fodder.

The Convention then adjourned.

#### BANQUET TO THE AMERICAN DAIRYMEN.

This evening, after the adjournment of the Convention, a grand banquet was given at the Daly House by the Ingersoll Board of Trade in honour of the American dairymen attending the Convention. The dining-hall was beautifully decorated with banners. About 150 ladies and gentlemen, including members of the Convention and invited guests, were present. The chair was occupied by Mr. W. S. King, President of the Ingersoll Board of Trade. To his right was Prof. L. B. Arnold, of Rochester, N. Y., and to his left Mr. James Noxon, of Ingersoll. Among the others present were Prof. Stewart, of the *Live Stock Journal*, Chicago; Hon. Harris Lewis, of Frankfort, Herkimer Co., N. Y.; D. M. Kennedy, of *Utica Herald*; Mr. C. L. Sheldon, of Lowville, Lewis Co., N. Y.; Mr. David Burrill, of Little Falls, N. Y.; Col. Skimmer, M. P.; Mr. Thos. Ballantyne, M. P.; Mr. John Macdonald, Mayor of Ingersoll; Mr. Thomas Brown, Reeve of Ingersoll; Messrs. C. E. Chadwick, L. J. Chadwick, Samuel Elliott, E. Casswell, Robt. Oliver, David Kemp, of the Merchants' Bank; David White, J. F. Williams, J. C. Norsworthy, Erwin Lewis, D. S. Macdonald, George F. Gurnett, *Chronicle*; Harry Rowland, *Tribune*; William Wilkinson, Daniel Phelan, Aaron Christopher, John Haskett, J. M. Wilson, of Ingersoll; Messrs. James Sutherland, Deputy Reeve, Woodstock; Mr. K. Laidlaw, *Woodstock Review*; Mr. John Hettle, Teeswater; Gordon H. Cook, West Oxford; Geo. Farrington, Bright; Robert Little, Guelph; James W. Lawson, Dereham; Gilbert Duncan, North Norwich; Wm. Watson, Falkirk; John Butler, Dereham; George Hamilton, Cromarty; A. M. Bodwell, Mount Elgin; Elias Mott, Burgessville; John Hately, Fullerton; Charles Coles, Toronto; John McMillan, Kinburn; Thomas Hews, Seaford; H. Ashlew, Belleville; John Allison, Brownsville; L. Richardson, Kerwood; Wm. Dunn, North Oxford; H. S. Losee, North Norwich; H. Farrington, Norwich; John Allan, Brownsville; and others.

After the removal of the cloth, the toasts of "The Queen" and "The Royal Family," and "The President of the United States" were proposed and duly honored. Then followed "Our Guests," to which appropriate responses were made by Hon. Harris Lewis, Mr. D. H. Burrill, and other American gentlemen. To the toast of "The Agricultural and Dairy Interests, American and Canadian," Mr. Thomas Ballantyne, M. P., Prof. Stewart, Messrs. C. L. Sheldon, C. E. Chadwick and others, responded. A number of other toasts and sentiments were proposed and honored, and the company broke up shortly after midnight.

#### THIRD DAY—MORNING SESSION.

The Convention assembled at 10.30 a. m., Mr. Thos. Ballantyne, M. P., in the chair.

#### THE DAIRY INTERESTS OF CANADA.

Mr. Chadwick delivered an address upon this subject. He referred to the revolution which had been effected in Canada within the last few years. In 1867 Canada, so far from exporting cheese, had imported something like 300,000 dollars' worth. In 1869 we had exported \$100,000 worth; in 1873, three millions; in 1874, four millions; in 1875, five millions; while the amount for 1876, though it was not yet ascertained, would doubtless prove equal to, if not in excess of, the amount for 1875. Butter to the amount of two and one-half million dollars' worth had been exported in 1875, while the total estimated value of the dairy products for that year had been about ten million dollars. He referred to the benefits which had resulted to Canada from its exhibits at the Centennial, in the way of removing the ignorance prevailing in the Old Country and elsewhere in regard to our condition and resources. One advantage which the dairy interest in particular had gained from the display of cheese at the Centennial, was the removal of the prejudice against Canadian cheese on account of supposed defects in its flavor. He referred to the exertions made by Mr. Casswell to secure a good show of Canadian cheese, and said that the exhibitors were very largely indebted to him for their success. Not only had he taken a great deal of time and trouble in performing his work, but he had spent his own money without any expectation of reimbursement.

#### THE REFUSE OF THE DAIRY.

Prof. Arnold then spoke on the topic, "The Refuse of the Dairy, its Use and Abuse." He was in favour of saving the skim-milk to make cheese, but thought the dairyman's knowledge did not as yet sufficiently qualify him to make skim-milk cheese to advantage. If given to animals at all, skim-milk and whey could be most used to advantage in feeding pigs. It is wrong to allow whey to remain lying around the curing-room, as it taints the cheese and is injurious to health.

Professor Stewart bore out the previous speaker's remarks, and advocated the feeding of animals as quickly as possible, saving additional profit by such a course.

Mr. Casswell, of Ingersoll, spoke strongly in favour of utilizing pig manure, and corroborated the previous speakers as to the danger of allowing whey to decompose in the neighborhood of the dairy.

Mr. Pierce, London, gave in the report of the Committee on Implements, which was adopted.

Professor Arnold submitted the report of the Centennial Committee. \$10,956 had been received, and had been over expended in getting up the exhibition buildings, model dairy, &c. The report was adopted.

This was all the business on hand, and at five p. m. the Convention adjourned.

#### How Often Should Cows be Milked?

Regularity in the milking of cows is of as much importance as regularity in feeding. In a state of nature, the cow is relieved of its milk a great many times a day. A calf allowed to remain with its mother will help itself seven or eight times a day. Under such circumstances the udder of the cow will remain small, and if allowed to retain the milk secreted during the twelve hours, feverish symptoms are likely to be produced. The practice of milking cows more than twice in 24 hours causes the capacity of the udder to be greatly increased, and probably helps in maintaining the lacteal secretion long after pregnancy has taken place. When, however, by an artificial system, the cow has been enabled to retain her milk without inconvenience for twelve hours or so, she ought to be milked regularly every day at the same hour. When the time for milking arrives, the udder actually becomes distended to its utmost capacity, and if the milk is not speedily removed the animal suffers considerable pain. Cases of fever, the result of allowing animals to remain too long unmilked, are, indeed, by no means of unfrequent occurrence. It is especially necessary to attend to this point for days after the animal has brought forth its young, for during that period very little irritation of the lacteal organs is likely to bring on that most fatal of all maladies, fever. If milking be too long delayed, nature will try to help the poor animal. An absorption of milk into the blood will, to some extent, take place, and that which remains in the udder will become deteriorated. When neglect to milk a cow at the proper time is repeated several times, the secretion of the fluid is permanently checked; and there are many cases where by such neglect an animal has become dry, in less than a month.—*Irish Farmer's Gazette*.

#### Dairymen's Association of Ontario.

The annual convention of this Association will be held at Belleville, commencing on the 14th of February, and the committee hope to make it both beneficial and interesting to dairymen and farmers generally. Addresses will be delivered by several eminent gentlemen, and a large attendance is anticipated. Any parties wishing to attend and become members may obtain certificates by applying to the secretary, Mr. J. C. Hegler, Ingersoll, on presentation of which to the different railway stations, they will be entitled, owing to the special arrangements made with these companies, to tickets at one fare and a third the double journey.

Some idea may be formed of the numbers of stock in Texas, and their cash value a head, from a purchase made lately in the south-western part of the State, of 40,000 head of cattle and 2,500 horses, for \$140,000 in silver, being \$3.50 a head all round, for horses and cattle.

The London *Veterinary Journal* suggests steel studs set in the shoes to prevent horses from slipping. As the idea is described, it appears similar to many methods prevalent in the Middle and Northern States, where precautions are always used for keeping horses sharpshod in slippery weather.



## Canadian Agricultural Notes.

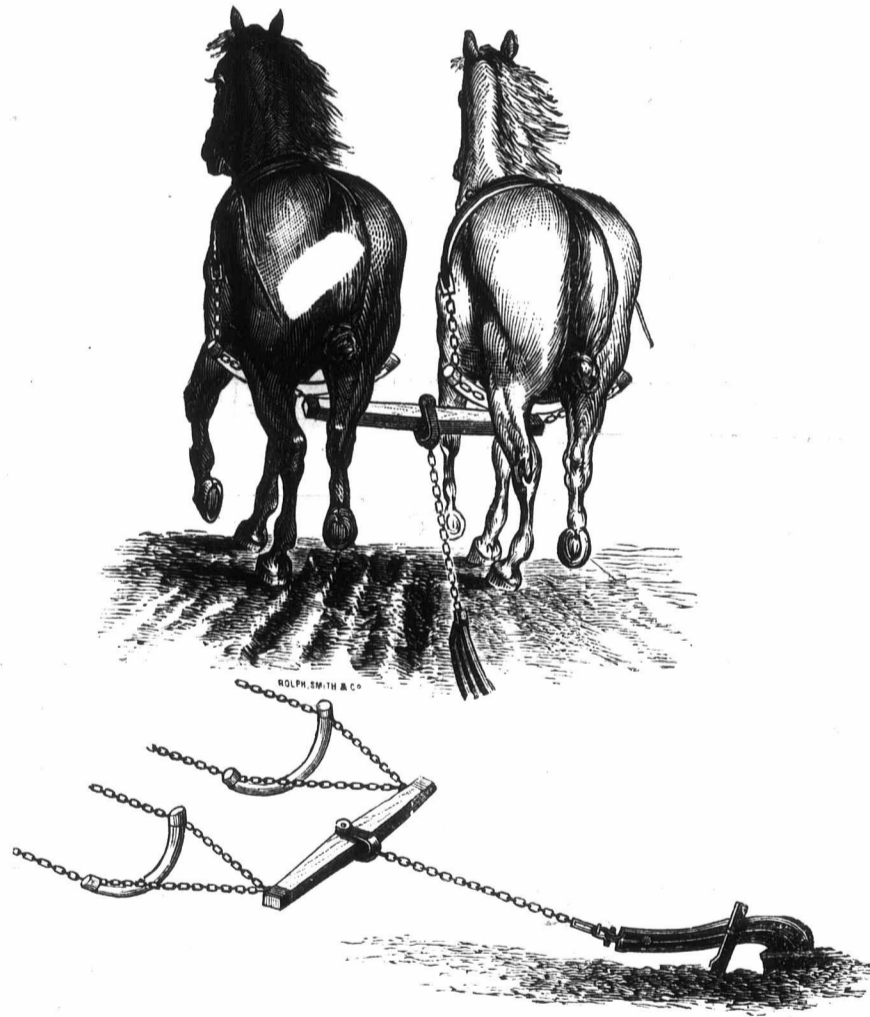
## Ontario.

**ALGOMA.**—This district, though comparatively new in this new country, gives fair promise of not lagging far behind the other parts of the province. There is a constant, unintermittent progress in the several industrial pursuits. Its natural wealth as a mineral region will, as it is developed, encourage agriculture by affording to farmers a good home market for their surplus produce. We were apt until lately to speak of Algoma as a barren, inhospitable region, but that erroneous opinion is a thing of the past. Though the front is, much of it, rough and uninviting, there are large tracts of fertile, arable land. From a letter written at Garden River we give an abridged sketch:—

The work on the Stobie Iron Location, which is being pushed forward with commendable energy and pluck, is progressing very satisfactorily, with every appearance of promising results. The location is situated at the head of Desert Lake, which is about thirty-three miles from Sault Ste. Marie, and fifteen miles from the Bruce Mines. The deposit is about a quarter of a mile north of the lake, in a rocky range, which runs east and west, parallel to the Colonization Road, connecting Sault Ste. Marie with the Bruce Mines, a distance of forty-eight miles; also parallel with the proposed Junction Railroad, connecting the Sault with Lake Nipissing, which road will be constructed without doubt at no distant day, as the circumstances connected with it are so favorable and the route so much superior in every particular to any other, that its completion will eventually follow, for it is inevitable. The road and line referred to pass through the renowned Garden River Indian Reserve, in which is the celebrated silver and lead deposit known as the Victoria Mine, through the townships of Macdonald, Lund and Meredith, the unsurveyed block of Crown Lands lying between the last named township and the township of Plummer, through which the road and railroad line also run, as also thence through the townships of Lefroy and Rose, immediately in the rear of the Bruce Mines. The lands in these townships are generally good, unsparingly watered by numerous streams, furnishing ample water-power for any amount of machinery, and many beautiful lakes of pure, clear water, abounding with pan fish, numerous and various. Quite a number of settlers from the old settlements of Ontario have located during the past two summers in these townships, and express themselves, as a general thing, well satisfied with their choice and future prospects, and certainly they have no reason whatever to be dissatisfied, for unlike many new settlements, they have the advantage of ready, reliable and good markets for every sort or kind of agricultural produce, with a yearly increased demand consequent upon the development of the mineral interests of the district; thus the agriculturists of this country have nothing to fear for many years to come from the ills attending an overstocked or meagre market. Mr. Stobie has opened a good road from the mine to Port Lock Harbor, a distance of seven and a half miles, where the iron ore is to be drawn during the winter for shipment in the spring. A boarding house, store house and stables have also been erected at this point, and a suitable place prepared for the reception of the ore preparatory to shipment. Port Lock Harbor is situated on the north side (main land) of the north channel of St. Mary's River, opposite St. Joseph's Island, which island divides the river at the Nebish into two channels; one channel running south of the island is called the American Channel; the other to the north is called the Canadian channel, and is the

one navigated by the Canadian Lake Superior lines of steamers. The harbor is eight miles from the Bruce Mines, and the Canadian steamers from Collingwood, Sarnia and Windsor pass almost within hailing distance of the spot chosen by Mr. Stobie for the shipment of the ore. The steamer Asia, of the Windsor Line, landed the supplies for the mine this fall without the least difficulty. The opening up of the mine has excited the attention of many land seekers, and numbers are squatting on the unsurveyed block through which the road from the mine to the harbor runs, and it is therefore hoped that the Government will take immediate steps to have the block alluded to forthwith surveyed and opened up for settlement. Much excellent agricultural land is included the block.

The Herefords are strong rivals of the Short-horns. At ordinary fairs and at fat-cattle shows it is about all the latter can do to hold their position. In Illinois they took the sweepstake premiums; the same in Ohio. The Herefords are fine grazing cattle and are growing in favor yearly, east and west.—*Western F. Journal.*



## Orchard Harness.

Many persons in Canada are devoting much more attention to fruit growing. No farmer who has raised an orchard, no matter how small, but has suffered loss from barking of trees when plowing it. We have often knocked off a large piece of bark when plowing our orchard, even when we have had a plow to lift the whiffletree. We were desirous of plowing all the ground; in doing so, the most careful will sometimes damage some trees. In large orchards we have known damage to the amount of hundreds of dollars to be done by a careless plowman, in one orchard, by a single whiffletree. The mode of attaching the above whiffletree appears to suit the requirements. We have not yet used this new invention, but presume it will be found useful for the purpose for which it is made; also, for working in stumpy and stony land. Messrs. Murray & Fuller, of Toronto, are the manufacturers. We presume a horse with this harness will do more good and less harm than when using the old whiffletree. No doubt we shall have reports from those that use them ere long. The cut is so plain that it requires no explanation.

## Clover and Wheat.

Time and again, it has been shown that wheat is almost certain to be a good crop upon land previously run to clover. Equally often has it been shown, by actual trial, also, that clover can be made a profitable crop to the farmer. When we consider that these two facts are well known, is it not a little singular that farmers will persist in taking their chances on wheat crops in land not naturally fitted for wheat? Year after year this is done on land not possessing the elements required to produce clover, which in turn, while making a profitable crop, would put the soil in precise condition for a wheat crop. Why not observe these plain facts, and thus become more successful?

Dr. Weisk, of Germany, has shown by repeated experiments the true value of clover as a preparatory crop on wheat land, and, indeed, for corn and other crops requiring similar elements of soil. It was shown that a single acre of clover left enough nitrogen in the soil to produce 116 bushels of wheat; phosphoric acid for 114, and potash enough for 78 bushels. These are the active and essential elements of soils for producing wheat.

We urge again that it is both a useless waste of time and labor to plod along without method or information, or what is still worse, without disposition to yield to what is known on this subject in the production of wheat. If ever the production of wheat is increased, these well known and well tested facts must be observed. It may be true, and is, that there are sometimes failures in wheat crops even in land so prepared. But these are clearly traceable to conditions of climate and atmosphere, character of land, and want of drainage. Lands which are now annually producing poor crops of wheat and corn, can be made to nearly double their production by running them to clover, and at the same time the clover itself may be made a valuable crop.

One other consideration regarding clover. Farmers frequently say that in their section of the country clover freezes out. Now, we suppose that if people should attempt to wear linen coats during winter, they would freeze also. What we mean to say is, that no grass field should be pastured bare late in the season. The practice indulged in of grazing land bare to the roots of the grass is the chief cause of its freezing out. A reasonable aftermath should be left for winter protection, and there would be little of this freezing out heard again.—*Rural World.*

**AGRICULTURAL AND ARTS ASSOCIATION.**—THE PROVINCIAL FAIR OF 1877. — At the last annual meeting of the Agricultural and Arts Association, it was decided that this year's Provincial Exhibition will be held at London, commencing on the 24th of Sept., and a letter from the Secretary of the Western Fair, requesting that the time of the Exhibition be prolonged, was referred to the Council, which meets in February, and circulars in reference to the matter were ordered to be sent to the various Societies represented at the Council. A resolution was passed to request the Government to have the grain and seeds collected at the Centennial thoroughly examined before distribution for sowing, in order to avoid the introduction of any insect pests. A resolution was also passed doing away with the representation on the Council of the Society of Artists, and limiting the representation of the Association of Mechanics' Institutes to one. This leaves the personnel of the Council as it formerly stood.

An experiment was recently made in Sydney, New South Wales, by way of utilizing the blood from an abattoir outside of the town. A five-acre lot adjoining the abattoir was prepared for a crop of barley, the waste blood being used instead of manure. In eight weeks the barley was four feet in height, remarkably heavy and giving promise of an extraordinary crop.



**Garden, Orchard and Forest.**

**Black and White Spruces.**

We notice that the nurserymen, as we gather from their catalogues, are uncertain as to what is the black and white spruces. We have been to some trouble to find out what is one and what is the other, as in this vicinity what is known as the true white spruce is regarded as a very choice article, and brings higher prices than even our good old friend the Norway spruce.

First, we may say that in our eastern nurserymen's lists there is an evergreen offered "from the woods" which they call Norway spruce. But the true Norway spruce does not grow on this continent. This eastern spruce is a much inferior tree to the true Norway spruce, as everybody knows who sees the hundreds of them brought from eastern woods and offered for sale as Christmas trees during December. All around here we have been accustomed to call this the black spruce. What it is in its own native districts, when cultivated, we cannot tell; but when grown in Philadelphia it is subject to an attack, whether of insect or fungus it is for the wise ones to tell, which gives it a diseased and miserable look, even far worse than the lean, lank look of the wild Christmas trees before referred to. The tree is very like in color, growth, and other characteristics to the Norway spruce; but when it bears cones, we see by their very small size that we were long way from having the true Norway spruce.

What we have all called the white spruce is also like the Norway spruce, but has a gray green, misty-looking character. It grows first like a Norway, but rather more delicate, and in every way extremely beautiful. It does not last so well as the Norway. Its beauty gives out sooner. It may not live as many years, but it is enduring enough to satisfy most demands. But the nurserymen now tell us that this white spruce is the black spruce, and the black spruce is the white spruce, and so-forth, till nobody knows what each party is talking about. One, however, who professes to be in these crests of the botanists, tells us that there are really two kinds of these gray spruces; but that there is no difference whatever in their growth or foliage as far as appearances go; but that there is a difference in the cones. That the true white spruce has the cones a little more stalked in their attachment to the tree, and that these cones all fall early. The cones in fact never remain on the tree long after they mature in fall. This is the true white spruce. On the other hand, the true white spruce has cones more rounded at the ends, and remain on two years if not more after ripening. They never seem to say anything about the black spruce—the false Norway of eastern woods as we understand it, which surely is different from the other two.

It will be seen, however, that so far as the botanical question is concerned, it has little value to us as cultivators. The black and white spruces they discuss are all one to us. We shall have to call them all white spruces. They look the same and serve practically the same purposes. The black spruce of cultivation, which they seem to ignore, is altogether another thing, and a very useful evergreen to us.—*German town Telegraph.*

**The Gooseberry.**

The gooseberry succeeds best in a well-drained, moderately-light loam, which, however, should be rich. In making a new plantation, trench well, but bring no bad soil to the surface; merely break it up, and leave it in the bottom. Manure well as the trenching proceeds. Procure young plants, two or three years old, with several branches. Such are much better than older plants that are larger, but which will have more difficulty in establishing themselves. Plant about five feet apart each way, and mulch with manure, after planting and levelling the soil. There is no better time for planting than the present month.—*North British Agriculturist.*

Mr. Jackson Schultz, in his recent work, says that 1,800 pounds of hemlock bark will tan 150 pounds of leather.

forms sufficiently shaded, our fall wheat would be in less danger of perishing from the severity of the climate, and the shade in our pastures would be of service to our live stock. One tree, the European larch, lately introduced into the country, will be a great acquisition. The rapidity of its growth, and the toughness and durability of its timber, make it a very valuable acquisition to Canadian indigenous trees. The young larch trees we know to be very hardy, having seen them growing in the vicinity of this city from imported seed.

**Notes on the American Grape Vine Mildew.**

The grape vine seems to afford special inducements for the growth of fungi; Curtis, in his list, enumerating no less than eighteen species which grow upon it. "The grape disease, properly speaking, that which proved so disastrous at different

times to the vines in Europe and Madeira, is caused by a fungus to which Berkeley has given the name of *Oidium Tuckeri*." It is a form of a fungus which has not yet been recognized in its perfect state, and is supposed to occur to some extent on this side of the water, but as many fungi have this conical form, and some so nearly identical with it, and also growing on the grape, there may be some doubt as to our vines ever being attacked by the true grape disease of Europe.

The disease which most interests the grape growers of America, is the fungus called *Peronospora viticola* by Berkeley and Curtis. It is quite common, appearing on the under surface of the leaves about the first of August, and continues to flourish until the dying leaf will nourish it no longer. It can be most easily seen on the smooth leaves of *Vitis cordifolia*, as small frost-like spots, which rapidly spread, and soon cover the whole leaf, frequently extending down the petiole to the stem. This fungus, like the potato rot and other closely related species, thrives best in moist, warm weather.

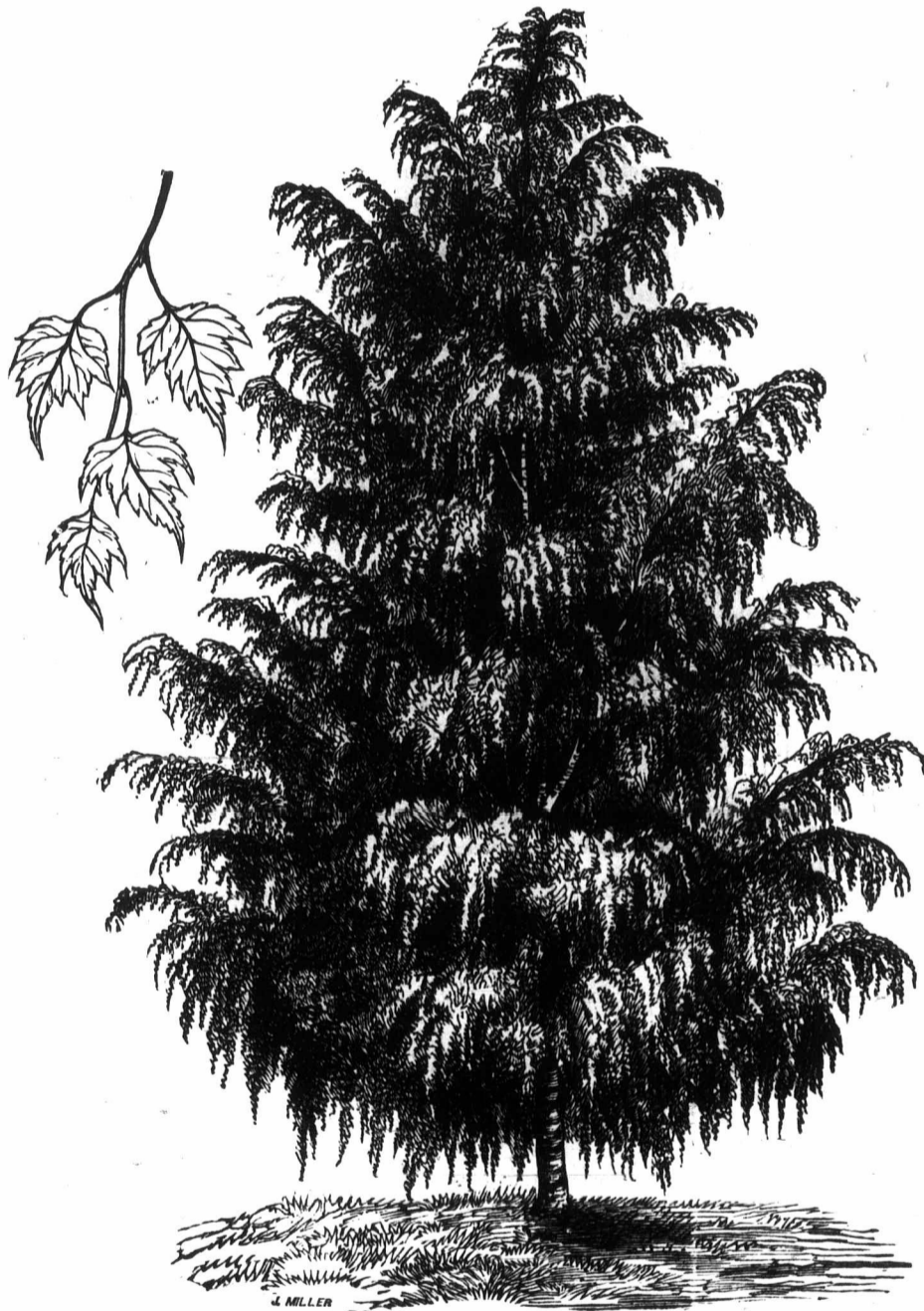
Under the microscope, the tissue of the grape leaf is seen to contain an abundance of minute threads, which force their way in all directions between the cells of the leaf, thrusting their suckers into the cells to rob them of their contents. When the time for fruiting comes, some of these threadspush through the stomata of the leaf-branch considerably, in a definite and peculiar manner, bearing the conical spores on their tips.

Under the head of the germination of these asexual bodies, Dr. Farlow has several interesting experiments. They germinate equally well in the dark as in the light. Those sown in the morning germinate more quickly and abundantly than those sown in the afternoon. It was not possible to keep the conidia which were produced in the night until the afternoon, as they generally fell from their attachments in the morning, and began to germinate. In all cases the germination took place with surprising regularity. At the end of an hour the conidia were slightly swollen, and their contents had begun to segment.

VALUE OF SHEEP MANURE.—Sprengel allowed that the manure of fourteen hundred sheep, for one day, is equal to manuring highly one acre of land, which is about four sheep per year. Meehi, a still more recent authority, estimates that fifteen hundred sheep, folded on an acre of land twenty-four hours, or one hundred sheep for fifteen days, would manure the land sufficiently to carry it through four years' rotation.

**The Cut-leaved Weeping Birch.**

The above engraving, which we have the pleasure of presenting to our readers, represents one of the most picturesque and ornamental trees that are used to add to the beauty of the grounds in front of a country house. The increased value that ornamental planting and needed shade-trees will give to a property, can hardly be too highly esteemed. In travelling through the country, the traveller invariably rests a while to enjoy the beauty of a farmhouse embosomed in the pleasant shade of trees, whether in summer or winter; while, no matter what the pretensions of a house may be, it never is thought worth a second look if "bleak and bare and unimproved around." But the farm requires trees besides those planted as ornament. The benefits conferred by shade trees on a farm are the subject of every writer on rural life. Were our





## Correspondence.

## On Artificial Manures.

SIR,—As I have been requested to read an essay on Artificial Manures before the Puslinch Farmers' Club one of these days, and as I see you offer a prize for the same, I will condense it as much as possible for your valuable paper.

JAS. ANDERSON,  
Springfield Farm, Puslinch.

SIR,—The term Artificial Manures I would consider applies to all manures except barn-yard, which is the *ne plus ultra* of fertilizers. When the soil is exhausted of plant food it must be returned in some way, and when we have not sufficient barn-yard manure, "as very few of us have these dry years," to supply the want, the question naturally arises, what is the next best substitute? Let us take a look for a moment at the elements entering into the composition of cultivated plants and we will see what the soil requires to give us what we would call good crops. We will arrange them as follows:—1st, the gaseous elements, oxygen, hydrogen, nitrogen and chlorine. 2nd, elements combining with oxygen, to form acids, silica, carbon, phosphorus and sulphur. 3rd, elements combining with oxygen, to form bases, viz., calcium, magnesium, iron, potassium and sodium. The combinations of potassium and sodium are called alkalis. Now when nearly all of these in ingredients are present, we would call the soil perfect. What is the best thing we can apply, then, to recuperate the soil when exhausted of these elements? I emphatically say, bones, either in the shape of bone dust or superphosphate. I have tried several tons of the former and found it one of the best artificial manures. Some ten years ago, there was a bone mill on the adjacent lot, and I got several tons at \$25 per ton, and I consider it was the best investment I ever made, as it is telling to this day on my fields, especially on the grass. The next best preparation of bones is superphosphate, that is bones dissolved, with diluted sulphuric acid, and when got pure is one of the best fertilizers; but there is nothing in which the farmer is more apt to be swindled than in this. I got some of Coes' superphosphate from Montreal once; the first lot I got was excellent, the last was a perfect fraud, and many others in this section can testify to the same thing. I have this past year tried some of Jarves & Hooper's Manufacture at Detroit, and if they continue to supply the article as pure as this year it is decidedly good. I tried 2 acres with it alone, 2 acres with salt and plaster, and the rest, some 4 or 5 acres of turnips, with barn-yard manure; the dung I generally put into the drill as I think these dry years it retains the moisture better. I use a double mould-board plough, and it economises labour a good deal.

In preparing the land for the superphosphate and salt and plaster, I worked the soil until it was thoroughly pulverized and free from weeds, then sowed broadcast. I would prefer drilling with the seed if I had a machine, 200 lbs of the former and 400 lbs of the latter to the acre. The 2 acres of the phosphate-sown turnips came away far ahead of even the barn-yard manure, and were fit for thinning a week before any of the others; they kept ahead until the bulbs were about the size of a hen's egg, when we had a severe spell of dry weather—some 6 weeks without a shower—when they dwindled down, and the others kept greener in the leaves and seemed to stand the drought better. I really believe if we had got plenty of rain, they would have done as well as the barn-yard manure. I had some 400 bushels of turnips to the acre from the barn-yard manure, 15 loads to the acre, 350

from the salt and plaster, and about the same from the phosphate. Of course there was not more than half a crop grown anywhere in the neighborhood. This season I have had as much as 900 bushels to the acre, manured in the fall and phosphated in the spring, which is the best if it can be managed, but I can never get sufficient dung ahead. I would recommend all farmers, where they can get the ground bones convenient, to make their own superphosphate. Pure superphosphate of lime should contain one equivalent of phosphoric acid, 1 do. of lime, and 2 do. of water, containing about 60 parts phosphoric acid, 23 do. lime and 15 do. water in the 100. When superphosphates are applied to the soil they come in contact with the alkalis; the phosphoric acid in excess combines with them and phosphate of lime is precipitated in a gelatinous condition, being the finest plant food imaginable. I have great faith in salt and plaster as a manure in dry seasons, in light soils. I had just as good a crop as with the phosphate, and it did not cost half. Had it been a wet season, however, the case would, I am convinced, have been different. Land plaster or gypsum when pure contains 46 per cent. of sulphuric acid, which enters into the composition of all cultivated plants, and is found more or less in all soils. I have also tried some of the Brockville chemical manures on a small scale, but as the season was so dry I can say very little about them; those who have tried them, however, give them a good name. In conclusion I would say, let no one let his land run out who has an unlimited supply of good swamp muck at his disposal. I have for years composted several 100 loads of this with lime, salt, and barn-yard manure, when I had it, and I find it is equal to any fertilizer we can use. It is best to be composted a year or even two before using, as the lime takes some time to act and sweeten it. Ashes are almost as good as lime, but the trouble is to get sufficient quantity. I have used this compost successfully to fruit trees, for top-dressing grass, for turnips, and in fact for anything, as you have the humus of the muck to mix with the silica of our light soils, which is in itself excellent for our cereals. I must conclude, hoping these few hints may induce some of my brother farmers to endeavour to make two blades of grass grow where one grew before.

JAMES ANDERSON,  
Springfield Farm, Guelph P. O.

## Gardening.

SIR,—The turn of the winter harbors the return of spring, and I have many things to write you that I know will be most interesting to the growers of vegetables and flowers. I think that the growth of root crops for show is a matter that is little attended to in "this Canada of ours," and as many "cottage gardeners," as well as farmers and amateurs, take your paper, I send this communication for the benefit of "cottage amateur gardeners."

The growth of beets, carrots, parsnips, salsify and similar root crops altogether depends on the preparation of the soil. Any soil to produce extra crops must have extra cultivation, and without it all other trouble is extra waste of time and expense. A rich, sandy loam is best, and to be perfectly successful it requires to be tolerably level; the deeper the level the better. The reason is simple, as it only means that the more level a piece of land is, it takes a longer time for the moisture to evaporate or be carried off by the force of drainage, which thus remains longer about the rootlets of the bulb. Turnips and kohlrabi do not come under the true designation of root crops, as they grow altogether on the surface, and bury only the portion that the roots strike from. However, to grow the fore-

going vegetables, first select a deep dug soil, or have it trenched three feet deep and lay in the bottom six inches of two or three year old manure. Then as this is covered, incorporate and mix well into it a large quantity of at least two year old manure, the more the better. This must be continued till the ground is leveled. On the top sprinkle a reasonable or moderate quantity of salt, so as to give the ground a grey appearance, and have it well raked in. Then bring out some kettles full of boiling water and most liberally apply it to the prepared soil. You can by no means use too much. Its use is to destroy all worms and grubs, and salt and boiling water are a sure cure. Don't in the least doubt it. It also acts as a fertilizer of the soil, and tends to hold the moisture permanently there. The next thing to do is to prepare the row, for beds are out of the question. Take for this purpose a board from 12 to 18 inches broad, and set two of them parallel at about 18 inches apart. Place end boards and stakes to keep all in their position. Fill this in with one or two spadefull of earth on each side, so as to fill up the space with thoroughly well mixed earth, and pat it level on top; but by no means have the earth tramped down, as it would make it too difficult for the tender rootlets of the seedling plants to strike deep. Thus proceed until you make as many rows as are required. You next water this with about half a gallon, or more, if convenient, of boiling water to the square yard, and the ground is now ready and prepared for the seed. In the centre you sow the seed in depth according to kind, and I guarantee, if it is good, that the cottager will be most amply rewarded. At the end of a month thin the plants to two or three inches. Then in a month or six weeks more, have them, if beets, a foot apart, and if carrots, at least six inches. Parsnips about five or seven, and indeed eight inches in such soil is by no means too much. I sincerely hope that in the next season of fall shows exhibitors may try the plan I have pointed out, and success is guaranteed. By this means a deep, rich soil is secured at very little expense or trouble, and all that has to be done is to keep down the few weeds that will grow and to water freely every day or two in dry weather, and give plenty of it. I may now mention the size of beets I have grown, which, in soil so prepared, has always been the long blood beet. I have exhibited them at Lucknow in 1873 as much as from four feet six inches to three feet eleven, and most of them as straight as a rush. I do not think, for size and beauty, they were ever beaten in Canada. Indeed, some "very knowing people" said in my hearing that "it was a shame to allow people to exhibit these 'mangold wurzels' for beets, as nobody ever saw beets of that size." One of these monsters was seven inches and a half in diameter, or twenty-two inches and a half in circumference. I also had carrots, Altringham and intermediate long, from four to four and a half inches in diameter, or a foot, and fourteen inches in circumference. Anybody can grow these roots as well as I have done if they use the directions I have given; if not, rest assured it will be their own fault. It is no use using fresh manure from the stable or cow byre, but hog's manure will succeed perfectly, or night soil, or the like material, and all roots and stones must be carefully removed as they might be very troublesome, such bodies being almost invariably in the "wrong spot."

I think that this simple plan will be found superior to many papers all of us have read; and I feel certain, from long experience, Mr. Editor, you will find many of your subscribers will be well rewarded if they use them next spring. (Next month I shall send you a long paper on "The Hyacinth.") In choosing seed, I strongly recommend that every person stop buying packages at country

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stores, as these are, in general, inferior in quality; as I have too often proved; and, that instead, they go to, or send to, some of our reliable seedsmen in a city, where they can obtain seed with certainty, and the extra odd cents so spent are the very cheapest coppers anyone wishing to grow good vegetables ever spent. Old and weak seeds are too dear to sow at any price, and money so saved is at least from one thousand to ten thousand per cent. lost.

J. H. GARNER, M.D.

Lucknow, Jan. 1st, 1877.

#### Half-Breed Reserves in Manitoba.

SIR,—At last the half-breed reserves in Manitoba are being broken up. These reserves cover all the best land, near the City of Winnipeg, and other important points in the Province. The Lieutenant Governor is engaged drawing them for the individuals who are entitled to them in lots of 240 acres each. As soon as the drawing is completed patents from the Crown will issue to all drawers who are of age; as few of these have any use for the land they will offer it for sale, and will with the improvidence of that class take what they can get for it. Indeed, even now before it is known which lot they are entitled to, some of them are selling their right. Speaking generally all these lands may be said to be within thirty miles of the City of Winnipeg, and are therefore cheap at two dollars an acre—although doubtless much will be sold for one dollar and some for even less. There are no Government lands within thirty miles of the City of Winnipeg, so that the only chance of our Ontario farmers securing land near the future Metropolis of the North West is to buy half-breed lands. Many of those who have gone to Manitoba expecting to buy Government land at one dollar an acre, the Government price, within a reasonable distance of the market, have been amazed and disquieted to find that the half-breeds had secured and were holding all the lands of choice soil and location; and either did not buy at all or went distances of from forty to one hundred miles. Fortunately for the Province, and fortunately for those in Ontario who desire good farms at a low rate, the half-breeds are to monopolise no longer. From my knowledge of the different localities I am in a position to select good lands, and my connections are such that I can procure bargains for any one who wishes to buy. To prevent disappointment I add that as the prices I name are so much below the real value of the lands, they will undoubtedly soon rise to higher prices.

ARCHIBALD YOUNG,

37 Colborne Street, Toronto.

P. S. Since writing the above I have intelligence of sales near Oak Is and at \$3 per acre, and in the Boyne Settlement at \$2½ per acre. Both of these places are about fifty miles from Winnipeg. From this, one can judge how fortunate the purchaser of lands close to Winnipeg will be at the prices mentioned in my letter.

SIR,—As I see so many different reports about this country, perhaps it is as well to try and give your farmers some idea of what it is like, as many come and are very much disappointed when they get here. I do not mean to say that it is a bad country, for I have lived in it for the last three years and like it very much. I have no interest in running it down or praising it up. I shall speak first of the soil, which is light, and in many places sandy. The only rich, black, loamy parts are the prairies or beaver meadows which are subject to overflow. These are mostly taken up, and are not capable of being brought under cultivation without being dyked, and steam pumping machinery erected. These prairies are subject to overflow from the melting of the snow on the Cascade and Rocky Mountains, and which lasts from the middle of June until the middle of August. The coarse hay which grows upon them is a very good *makeshift* to keep cattle alive during winter, together with a few turnips. So much for the prairies. I am speaking of what is called the lower country as well as Vancouver's Island. The upper country is only adapted for stock raising, as there is no means of getting produce to a market at present. The land suitable for cultivation is of very limited extent compared with the size of the country. The banks of the rivers, and all the lots adjoining a road are either taken up by actual settlers or are held by speculators who will require a good round sum to sell-out, so that a new settler will have to cut his own road

or wait until the Government makes him one, unless he is prepared to buy some one out. The land is better than it looks, for good crops of potatoes and oats are raised on pure sand, without a particle of manure for two or three years after it is cleared. The high land wherever it does not overflow is thickly covered with timber and underbrush, and the price for chopping an acre is from \$15 to \$20. The burning season is short; last year there was very little burning done at all. The general system of farming is different from Ontario, for we never harrow in wheat on a new burn, as the land would choke out the wheat. The way we do here is to put part in potatoes with the hoe, and harrow in the rest with oats and clover, or, if the roots and stumps are too thick to run the harrow, seed right down with timothy and clover. Grass grows well where it is sown, and only where it is sown. I have seen over two tons to the acre often, and hay is from \$15 to \$20 a ton. Potatoes are from one cent to three cents per pound, always three cents for good seed. The reason of these high prices is because labor is high and the bush is very hard to clear up. One gentleman said in your very valuable paper that 60 bushels of wheat could be grown to the acre; and so it can, and is, but only in very small patches, or else why is our flour mills standing idle? and almost all our flour is coming from the United States. The principal reason why we do not grow our own wheat is:—1st, Because it would cost too much to get the stumps out so that we could plow at the present price of labor; and secondly, hay and butter pay too well to induce us to break up our grass lands. Building timber is very plentiful, and rough lumber costs from \$12.50 to \$15 a thousand. As I do not wish to trespass so much on your space, I will conclude with a little advice to people who are thinking of coming here. Those who have good farms are very foolish to sell out and come here, if they have enough land where they are. The kind of people who will do well here are those who would do well anywhere if they had the land. To farmers with large families and small means this country offers great inducements, for living is cheap, the climate mild and healthy, work plentiful in summer and wages high. If you should wish for any further information I shall be at all times most happy to give it.

VERITAS.

Maple Ridge, Frazer River, British Columbia.

[We are much pleased to insert such valuable reports and facts from our subscribers. We hope more may send in accounts and reports.]

#### The Free Grant Lands of Muskoka.

SIR,—Enquiries from correspondents asking information about Government Lands having frequently appeared in the *ADVOCATE*, and as these enquiries have not to my knowledge been answered by any who are themselves located in this district, I will trespass upon your space while I give a few particulars of what I know of the Free Grant Lands of Muskoka. Were it not a fact that interested persons who, from political or other motives, have during the past few years unceasingly run down Muskoka through a portion of the press, I would not trouble you with my remarks, knowing that my ability for taking up the cudgel in its defence is but small. From the vague accounts that the defamers of the Free Grant Lands give, it is evident that nine-tenths of them write only on the strength of what they have heard, for, had they really ever seen these lands, they would never have put such statements into circulation. For over four years I have resided in the township of Stisted, one of the northern townships of the district, where my land is situated, and as during that period I have been proceeding with my improvements in accordance with the stipulations of the Free Grant and Homestead Act of 1868, I know something of the bush-farming in Muskoka.

SITUATION.

Muskoka is situated about 120 miles from the city of Toronto in a northerly direction, the line 45° north latitude passing through it. It is an electoral district of Ontario; is bounded on the south by the Severn River, and on the west by the Georgian Bay. Owing to continual additions to the territory its eastern and northern boundary cannot be definitely described. In 1871 its area was 5,307 square miles, and its population 6,919, of whom 2,541 were of English descent, 2,092 Irish, and 1,293 Scotch. Muskoka is watered by the Muskoka River, and its tributaries, and other streams and lakes. Its capital is Bracebridge, containing a population of 1,000 inhabitants.

CLIMATE.

The climate is mild and salubrious; the seasons are regular and well defined. Winter generally sets in during the month of November, and snow falls to remain from the middle to the end of the month. It continues to fall for two or three months, then begins to settle and is generally away again about the 15th of April. It sometimes obtains a depth of over three feet. The sleighing season is very enjoyable, the roads being good as a rule throughout the season, and the sky bright and clear, almost without interruption, the winter through. The air is cold, but high winds being uncommon, it is not so keenly felt. Sometimes the cold reaches 30° below zero, but does not remain at this for more than a few hours at a time. The coldest months are January and February. The atmosphere is clear and bracing, and fogs are almost unknown. Owing to the purity of the air and water throughout the district, sickness is very little known, and, except in case of accident, a doctor is seldom seen. Many persons who were sickly before coming to the district have become healthy and strong after a residence of a few months. This is attributed to the salubrity of the climate and the universal nature of the water. As soon as the snow is gone the land is ready to work, and sowing soon follows. Rain falls in abundance during the spring and autumn, but drought is unknown. This renders the district peculiarly adapted for stock raising. The heat here in the summer is not nearly so intense as in some parts of Ontario, and the prevalence of cool breezes renders the seasons exceedingly fine. The hottest months are July and August. The Indian summer generally occurs in October or the early part of November, and is a fine time of the year.

SOIL.

The soil is generally good, but varies considerably, and although large flats of clay are found in many places the soil is principally sandy loam with a clay sub-soil, and is easily worked. During the early days of settlement it was thought that but one-half of the land would be capable of cultivation, but it is gratifying to learn that since clearing and cultivation has been carried on for sometime, it is found the average amount fit for cultivation will reach fully two-thirds. The surface of the country is undulating.

TIMBER.

The land is timbered with a variety of native trees, composed chiefly of hardwood, which consists of maple, birch, beech, basswood, elm, oak, ash, iron wood and cherry. In some sections belts of white pine of fair quality are found, particularly along the course of the streams. Hemlock, spruce, tamarac and white cedar also abound in some localities, red pine being rare.

WILD ANIMALS.

Persons who have never lived in the bush, are apt to picture to themselves, woods swarming with savage creatures of every description, whose presence renders it unsafe to venture abroad even in daylight. Nothing could be more ridiculous than such a supposition. In Muskoka, wild beasts are seldom seen or even heard of. Bears are sometimes seen, wolves and lynx have been heard, but they invariably flee on the approach of man. With the exception of deer, the only wild animals I have seen in this district are porcupine, hares, wood-chuck, skunks, beaver, otter, and the smaller fur-bearing animals. Deer are quite common, but if you wish to procure them you must visit their favorite haunts, as contrary to the ideas of some people, who, on first coming into the bush, imagine that the deer would come up to the door of their shanty to be shot at. Partridge, ducks and other birds are to be met with in considerable quantities at certain seasons. The rivers and lakes also abound in fish of various kinds.

INDIANS.

Very few Indians are to be met with in the district, its rapid settlement having tended to drive them to seek hunting-grounds more remote from civilization, and they are seldom seen except when passing through on their way to and from their points of rendezvous. The Indians here are of the Chippewa tribe, and are a very peaceable, harmless people. They make baskets and other useful articles for sale. They are fond of music and gaudy attire. The majority of them are Protestants.

CROPS.

Every kind of grain which has been grown in other portions of Ontario, has been grown here with



success. Wheat of superior quality has been grown, and every year a larger area of land is sown with this cereal. Spring wheat yields well when sown early, and ripens so that it can be cut and harvested in the month of August. Winter wheat, as elsewhere, is not always a sure crop, but it matures early and yields well. Last year I raised a splendid sample, which would compare favorably with any grown in Canada; it yielded at the rate of 22 bushels per acre. Both spring and winter rye succeed well; of the former I have raised good crops. Barley is a sure and remunerative crop and yields well. Oats are largely raised and grow luxuriantly; last season I had a field where they grew six feet high on the virgin soil. The yield of grain is not generally so good as a first crop, as they run too much to straw; a better yield of oats can be secured by sowing on the first year stubble. Peas grow luxuriantly and yield a good return, though they, too, run very much to straw as a first crop, and do better to follow turnips or potatoes, the land being too rich for them until cropped once or twice. Indian corn succeeds well and has been raised by the Indians since they can remember. Root crops of every description do well. Turnips are one of the staple crops. Potatoes grown here far excel in size and quality those raised in the older settled parts of the Province. Vegetables of all kinds do well, and all fruit-bearing trees seem to thrive. Wild fruits are found in abundance. Clover and the different species of grasses flourish. Hungarian grass produces a large amount of fodder when sown with barley or other late grain, and also tends to prevent it becoming lodged. Owing to the absence of drought the grass is green and fresh from early spring until snow falls, such a thing as burnt up pasture being unknown here. Cattle feed in the bush all summer, as the herbage is plentiful and nourishing, and are quite fat and sleek in the autumn when returned to their winter quarters, having given their owners no trouble whatever during the summer months. Little has yet been done by the settlers regarding a proper rotation of crops, as it has been their aim to get as much land under cultivation as possible. Yet many are now turning their attention to a more rational mode of procedure than heretofore, and, instead of clearing large tracts to run to weeds, are cultivating smaller patches thoroughly, from which they reap larger proportionate profits. In many instances, however, settlers coming in with large families and small capital lack the means of stocking properly the farms they have cleared. This causes a deterioration in the quality of the soil, a misfortune which has, it is to be regretted, befallen many farmers in other sections of the country. It is nevertheless surprising to notice the very large increase in the quantity of stock raised in this section, also the improvements in quality which has taken place during the past three or four years. This will undoubtedly prove a fine country for stock raising, which, in my opinion, will pay well, as any crop needed for this branch of farming industry can be grown in abundance in this well watered district.

JAMES ASPDIN.

(To be Continued.)

#### Our Winnipeg Correspondence.

SIR,—Parties wishing to settle in Manitoba will get every attention paid them at the Land Office here. I have been in business over forty years in Ontario, the last fifteen travelling in every section, and no part of Canada can compare with Manitoba soil for producing crops. Land here is frozen and covered with snow (no thaws) all winter, and opens out quite mellow in spring. You can rely upon cultivating and seeding without much interruption.

Beets for sugar manufactory could be grown for one-third less than in Ontario. All our farmers are agreed that wheat will pay better here at thirty cents per bushel less. Flax, cheese, cattle and horses—with grass and hay—unlimited. Climate cold, but clear and healthy—no asthma or rheumatism; mostly every one likes this climate better than Ontario. Our drawbacks are American transportation, express and telegraph; they are fleecing the last dollar out of us; 100 lbs. express, \$17.50; 10 words telegraph, \$2.50, and freight in proportion. It is the special benefit of the whole Dominion that we get our own C. P. R. without delay. Hundreds and thousands of Canadians in the Western States are anxious to come here. With our own outlet, this country will show an increase in population and wealth never known before in any part of British America.

JOHN BROWN,  
Commission Merchant, Winnipeg.

#### Poultry Keeping.

SIR,—I have seen many articles in your columns as well as in other papers respecting poultry, especially the fancy breeds, which are doubtless excellent in their place. To keep fancy fowls with profit requires fancy care and fancy feeding, which many farmers are not disposed to give, neither is it absolutely necessary if eggs and chickens are required mainly for home use. In the summer my poultry have always been allowed the run of the hills near the barn, and the orchard, although if they get into the flower or kitchen garden they are apt to raise everything in a manner more expeditious than profitable. In the winter I have hitherto kept both fowls and turkeys in a loft over the stable, and, although it is a rather cold place, they seem to be free from vermin, and to thrive well. The winter before last was, as your readers will remember, a very severe winter, yet we had eggs from our fowls, off and on, all through the winter. They generally had a feed of warm boiled potatoes every day at noon, with occasionally a sprinkling of cayenne pepper and burnt bones broken into small pieces, together with dry, hard wood ashes to roll in, out of which they could pick charcoal for themselves. They would also get a supply of refuse given once a day, and of course plenty of water. Our geese and ducks have been partitioned off from them on the floor of the stable, and are fed with peas, oats and boiled potatoes, with plenty of water. Last spring we had chickens hatched in April, which commenced to lay at four months old, and they laid larger eggs than the old hens. As for the breed, I commenced with half a dozen Cochlin Chinese hens and a Black Spanish cock, though not pure bred, besides a number of common hens. I had a White Dorking cock for a short time, but he was so prone to fight with the other that I gave him away. Of the Cochlins we have only two left. They are kept because they are early sitters and good mothers. As for the diseases common amongst poultry, they are unknown to us except by name. We have never even had a single case of gupes amongst our chickens, but if such a case should occur I should try a recipe given by a farmer's wife in the parish in England where I formerly resided, who generally raised about two hundred fowls and fifty ducks every season. It is only soot taken from a chimney where coal is never burnt, made into small pellets with fresh butter, and two or three grains to each chick. A small creek which rises in a limestone cliff at the rear of my farm, runs at a short distance from my house and barn, and furnishes plenty of water for the geese and ducks to swim in, emptying during the summer heats, when the water sinks into the gravel and they have to be supplied with water to drink, which is brought with a team from the bay. We rear most of our ducks under hens, as the old ducks continue laying too long, and besides are very much given to roaming about; in fact, young ducks, if they are well fed, seem to thrive better when they have no water to swim in until they are fully grown, provided they have enough to drink. Some years ago I had a pair of wild geese, but one day the gander flew away and alighted in the bay about a mile off, and came in near the land. A farmer and two of his sons were at work near at hand, and one of the young men, not knowing that the gander belonged to me, unfortunately shot it. The next season the farmer, who was a good neighbor, gave me a gander of the common breed, to mate with the wild goose, but as I had some half Chinese geese, the wild geese preferred their company, and they drove the strange gander away, so the poor fellow was very lonely for a time, until a hen came off her nest with a brood of chickens, when he immediately volunteered to take charge of them, an arrangement which was at first strenuously opposed by the hen, although she soon became reconciled, and the gander continued to care for the chickens as carefully as if they had been a brood of goslings. He would sometimes gather them under his wings, and on one occasion when a hawk pounced down on the hen, he flew at the intruder and drove him off. This continued until the winter, when the gander was shut up with the other geese, and the following spring continued with them without noticing the other poultry. Another year a young duck hatched under a hen was brought up with some young turkeys, and continued to associate with them throughout the season although there were several other young ducks on the place. It was amusing when the young duck and turkeys were pretty well grown to notice the duck always keeping with the turkeys; however fast they might walk he always kept up with them. If they flew over a fence he flew after them. This continued

until late in the fall, when ducks and chickens were sent to market. I have no doubt but that fowls will produce more eggs if they are kept warm and comfortable, provided that strict attention is paid to cleanliness and ventilation, without which they are liable to be pestered with vermin, and troubled with various diseases which poultry flesh is heir to, which often makes poultry keeping anything but profitable.

SARAWAK.

#### Wild Lands.

SIR,—Noticing in your columns many allusions to the newer parts of our Province and Manitoba, but have been unable to find the proper addresses of those gentlemen who hold the land in their iron grip (for if it's not so why do they not advertise it?) They foster American emigration by doing so. Can you give your reader the Muskoka, Algoma, Manitoba and North-west land offices.

Yours truly,

F. G. T.

Oshawa, Jan. 17th, 1877.  
[Perhaps it might be judicious to put a rate or tax on all lands as soon as taken up, said rate to be levied every three months the land was not settled on; in case of non-payment or non-settlement to be free for any one to locate and hold. Perhaps some of those that are here found the land lock detrimental to their settlement, might suggest means to rectify the evil. It is our impression that the land lock will drive more good settlers to the States than the Emigration Agent will bring to our country. Perhaps some of our readers may furnish the information asked for. Mr. Archibald Young, whose present address is Toronto, advertises as land agent for Manitoba. Mr. Levi Jones, of Toronto, advertises to locate for farmers at Thunder Bay. Either of these gentlemen will give you a great deal of information regarding the lands in the localities they advertise about. We cannot tell you the address of any Government land agent. You might obtain their names and addresses by application to the Commissioner of Agriculture at Ottawa. Parties have called at our office that have been to Manitoba with the intention of settling, but found no land available without going fifty or a hundred miles back. One young man has just returned from Battleford and says he would not have a farm within three hundred miles of that capital, as he says the soil and climate are neither good there, but good land was obtainable three hundred miles northwest of Battleford. He said the land was good at Manitoba, unsettled and yet not procurable by settlers. His reports of the land at Battleford differ much from other information we have received.]

SIR,—In the spring of '75 I got 10 lbs. Emporium Wheat from you, which yielded 5½ bushels of clean grain. Last spring we sowed 3½ bushels, from which we got 40 bushels of clean grain. The grain was smaller than last year, but plump.

Fall wheat in this locality was a failure; spring wheat generally very poor—have not heard of any as good as our own. We mean to sow the Emporium again.

Morrisburg, Dec., 1876.

A. LOCKES.

SIR,—I must say I am much pleased with the ADVOCATE, and hope it will continue to improve in the future as it has done in the past. What is your opinion of refuse salt for spring wheat and barley on clay soil? Would it be dear at \$3 per ton, hauled 12 miles?

H., Underwood.

AN ENQUIRY.—SIR,—I received your letter stating about the price of the sheep. I have given up the notion of getting them this winter, for the snow is so deep I am afraid that the train might be bothered getting down.

I have seen nothing in the ADVOCATE about applying manure to plowed land. Please get some of your practical farmers to give some information on it; which is the best way?

ROBERT PATTERSON.

Roger Hill, Jan. 2nd, 1877.

[In your enquiry about applying manure to plowed land you are not definite enough. Write, stating what is the crop for which you intend to apply it, and the time at which it is to be applied, and also if the manure be decomposed. Your query will then be fully answered.—Ed.]

ASHES.—SIR,—I would strongly advise farmers not to sell their ashes. They are worth from five to ten times as much as the soap men give for them. Mr. Stewart, the editor of the *Live Stock Journal*, said at the Dairymen's Convention, at Ingersoll, that they were worth 50 cents per bushel. Keep them dry, and sow them on your orchards



next May, or on your meadows, or put them in your potato drills. I once sold some at 8 cents per bushel, in cash (I did not need soft soap at the time), but when they came to be measured I found it took five pecks of ashes to make a bushel. Since that time, when an ash-man calls on me, I propose to buy his load, and of course have it measured with his own measure. To one I proposed to give a load of ashes if he would bring me a load of hen manure. He said, "I see you value your ashes," and went off to the next house. Innerkip, Jan. 12, 1877. F. MALCOLM.

**Danger Ahead—Spring Wheat.**

SIR,—As the time is near at hand when our farmers will be on the look-out for spring seed grain, I would like to offer a few remarks in regard to the choosing of spring wheat. Until the past few years our Excelsior spring wheat has enjoyed an enviable reputation, both at home and abroad, and our millers were able to make from it a flour which commanded for itself a position in the market it had to compete in, as well as a price remunerative to the manufacturer; but I am very sorry such is not now the case. Instead of our spring wheat flours being eagerly sought after in Montreal, Halifax, St. John, and other markets, by the bakers, for sponging, we find it crowded to the wall and taking a "back seat," while American flours made in the great mills of Minnesota and Wisconsin from Northwestern wheat are fairly occupying the proud position our flours once held. You will naturally ask, why is this? I think the answer can be found in the fact that our farmers have of late been growing very inferior kinds of spring wheat, which do not contain the necessary gluten and absorbents to commend them to our bakers. This fact has been very forcibly impressed upon me during the past two years, and especially so during last fall. In previous years, our crops being ample, I found little difficulty in choosing enough Scotch Fife from among the other kinds offered to supply my mill; but last fall, our crops being meagre, I was forced to grind other kinds, among which was that thoroughly deceptive, and worthless of all worthless wheats, the "Red Chaff" or farrow. No sooner had I commenced to grind this miserable grain (it is not worthy the name of wheat) than complaints began to pour in on every side; from the bakers first, and then from private families; the former complained that it was weak, would not take up the water, and did not make as many loaves to the barrel as it should, and was dark and heavy in appearance; the latter, that it was hard to make rise, and when baked was dry, harsh and crumbly. These complaints led me to thoroughly examine and test the matter. I found that it yields about four pounds per bushel less of flour than Scotch or Fife, and that it made five loaves (two pounds each) less of bread per hundred pounds than flour made from Scotch or Fife wheat; this latter fact I have from more than one baker whom I supplied, a fact which could be easily arrived at by them. If we reduce the above facts to figures, we find that the loss to the miller is equal to 12 cts. per bushel, taking flour at \$3 per 100 lbs., and to the baker, of 30 cts. per 100 lbs., taking 6 cts. per loaf as the selling price of a two-pound loaf, representing a difference of nearly twenty-five cents per bushel as compared with Fife wheat. This may seem almost incredible, but the facts are incontrovertible, and forced me to look elsewhere for my wheat, and since early in November I have been grinding Minnesota Hard Wheat. This, I find, admirably supplies the place of the old Scotch Fife, and, indeed, I think even surpasses it in some respects, being thinner skinned and brighter, produces more flour and of a better color. I would most earnestly recommend our farmers to use every exertion to possess themselves of some of the Northwestern spring wheat for seed; in sowing a little they can be running but little risk, at any rate, almost any risk is preferable to the loss and disappointment which awaits our farmers if they continue to sow the Red Chaff, for our millers will be forced in self-defence to leave it mercifully alone, and the consequence will be that it will go into the hands of shippers, as it has done this year, and will go forward to the British markets unmixed, and by its utter poverty of everything good teach the British corn factor and miller to beware of Canada Club, by which name our spring wheat is known abroad. I read with much interest the article in your October number on "Manitoba Wheat for Seed," by H. W. Burrows, of Winnipeg, and bearing as it does so directly on the matter which I have attempted to consider in this letter. I would urge upon our

farmers to again peruse it, for it demands their gravest thought and consideration. In conclusion, let me hope that pride, if not self-interest, will lead the agriculturists of Ontario to avert while they can a calamity which is sure to come if the barrier be not at once raised. J. D. SAUNBY. North Branch Mills, London, Ont.

**Orchard Grass and White Clover.**

SIR,—Please inform me through the columns of your paper if orchard grass would do by sowing the seed in the spring with wheat or oats, as we do with timothy seed here; also, if white clover does well with it, and how much seed to sow to the acre. MALCOLM MCLEOD, JR., New Glasgow Road, P. E. I.

[It will answer to sow as other grass with grain in the spring. Twenty pounds of orchard grass and four pounds of white clover is sufficient for one acre.—ED.]

**Reputation of Canadian Implements.**

We extract the following from the Boston Journal of Commerce:—

L. D. SAWYER & CO.—HAMILTON AGRICULTURAL WORKS.

The Canadians are certainly entitled to the credit of having sent several most interesting exhibits to the Centennial Exhibition. And not only were they interesting, but also in their mechanical parts highly ingenious, showing that our cousins across the line have imbibed largely of the ingenuity that seems to be inherent to the American soil. The Agricultural Department was quite rich in improved machinery, the most conspicuous and representative exhibit being that of L. D. Sawyer & Co., of Hamilton, Ontario. These parties displayed a mower and a reaper which attracted a great deal of attention and admiration from all the farmers and other interested parties who had opportunities of seeing them. They were closely examined by the International Jury of Award, which made upon them a report in the following words, recommending an award for the ensuing reasons:—

- 1st. Excellent material and ingenious arrangement of parts.
- 2nd. Clutch gear replaced by eccentric shaft.
- 3rd. Ratchet self-adjusting without spring.
- 4th. Inside wheel one inch larger to counteract side draft.
- 5th. Finger bar and shoe suspended on drag bar, which can be secured up to the frame so as to secure the position of the bar always at right angles.
- 6th. As a reaper, the platform hinged so it can be swung back behind the main frame so as to facilitate its passage through narrow gateways; an excellent arrangement, which deserves special commendation.

The above report, which concedes to these machinists every essential merit that goes to make up a perfect machine, was signed unanimously by all the judges. These concessions to the great merit of these machines, made by such an impartial and well-qualified committee of experts, should convince everyone of the great merits of these machines, and I am sure that those who see them in operation or use them will need no further testimony. The address is L. D. Sawyer & Co., Hamilton, Ont.

**Agriculture in the Eastern Townships—Sore Shoulders on Horses.**

SIR,—We have two and half feet of snow now and more coming. Winter set in without the usual fall rains, and the wells and streams are very low, and in many places entirely dry.

July and August were very dry, injuring the grain crops badly, but hay was a very good crop, and a large amount is shipped to New York and Boston from this section.

Our county is about half French. Their exports are chiefly hay, oats and horses. Ours are butter, cheese, beef, pork and store cattle.

We have some good cattle here, but not so good as you have in Ontario as a general thing, but our best farmers are trying to improve their herds.

In the January ADVOCATE I saw an article on

"Sore Shoulders on Horses." I can give you a recipe worth two of that, as it is always at hand. Keep your collars clean and smooth, and if you find a wet spot on the shoulder, or if the skin is puckered after using your horse, it is the beginning of the trouble, and bathe the shoulder well with cold water every time the harness is removed, which will reduce the inflammation, harden the skin and prevent a sore. Should a sore come before it is discovered, pound a little cavity in the collar to fit it, but do not put anything under, as that bears upon it, and makes it worse, but apply a little dry white lead to the sore, and bathe freely with cold water, and you can never have a very sore shoulder. You are at liberty to use anything in this letter which may be of use to you.

Very respectfully,  
A. J. STEVENS.

Bedford, January 8th, 1877.

[The marked difference between the systems of agriculture of the French, or rather French Canadians, and the Anglo Canadians, as shown by their exports, is well pointed out in A. J. S.'s communication, and well worthy it is of observation. Another cure for shoulders is deserving of a trial. More than one remedy may sometimes effect a cure.]

**A Query for Our Correspondents.**

SIR,—I am a young man, about to begin on a new farm. The land I am commencing to clear is covered with young wood, chiefly hardwood, and there are some kinds very hard to kill, especially Alders. Can you tell me if there is any particular time in the year to cut them, to prevent them from sprouting? If you can give me the desired information you will greatly oblige a subscriber for the ADVOCATE.

Can you inform me what will prevent or cure the dog disease? I have a valuable dog at present, and would be extremely sorry to lose him as I lost one before by said disease. Inform me if you can through your columns, and oblige.

G. B., West New Annan, N. S.

**Superphosphate of Lime.**

SIR,—I have seen in your paper the last few months letters from farmers writing on the subject of artificial manure. I will give you my experience: I bought half a ton of superphosphate of lime in the spring of 1874 at the rate of \$45 per ton, to try on my turnips, as I had not barn yard manure enough. I gave the ground a half manuring on the flat, ploughed it once, cultivated it three times, harrowed it well; when I got the ground in good order on the 10th of June, I commenced to drill and sow superphosphate. The first four drills got no superphosphate; the next half acre got at the rate of 200 lbs. per acre, then I skipped one drill; the next acre got at the rate of 130 lbs. per acre; the last half acre got none. The first sowing of turnips was on the 11th of June, the last a few days later, but the last was up first. The weather was very dry when the first was sown; the last was sown just before rain, which gave them the start, but the first sown went by them and kept ahead all summer. When I took up my turnips the first half acre had at the rate of 800 bushels to the acre, the next acre 650 bushels, the last half-acre at the rate of 400 bushels. Last year I used 250 lbs. to the acre with good results. I had a very good crop for the season. I had about 500 bushels of mangold, and carrots a great success. It gave them a good start and they were a long way ahead of those which got none. I tried it on barley very successfully; it gave five bushels more per acre, and of better sample than that which got none, but I could see no difference in the straw. The ground which I had my turnips on in 1875 was very poor soil. For three years previous it was not fit for cultivation. I had barley on the same ground last year, and any person could pick the ground that had no superphosphate. It was quite green when the other was ripe; I would think it was ten days later, if not more. The one drill which got no superphosphate was quite visible when I cut my barley.

A TENANT FARMER.

West Zorra, Jan. 9th, 1877.

[The remark of "Tenant Farmer" that the barley that had the benefit of the application of superphosphate matured ten days earlier than that to which none had been applied, agrees with that of many others who have made a trial of superphosphate of lime. It is the means of communicating a warmth to the soil that stimulates early growth and maturity—this of itself is of service to the growing and maturing crop.]



**Agriculture.**

**Cheese-Making versus the Fertility of the Soil.**

On this subject we present to our readers a lecture delivered before the North Norwich Grange, as containing some ideas well worthy the attention of farmers. That grazing impoverishes the soil is an objection frequently urged against stock-keeping instead of tillage. No such objection have we ever heard in the best grazing districts of the Old Country. There old pastures of many years' standing were the most valuable for fattening as well as for dairying, but the causes of grass lands being impoverished were not permitted to exist then, at least to the same extent as here. The aftermath and the grass still on the rich pastures after the summer and fall feeding lay on the ground, as it had grown, during the winter, and if there was poor pasture lands they had a good way of top-dressing. Pasturing lands, we always considered, prepared them for giving the heaviest crops. We subjoin his remarks:—

Because I have chosen this for the subject of the evening's discussion many of you may have supposed that I intended aiming a blow at dairying. Not so. Such an aim would be the height of folly. My object is not to pull down, but to build up; to find out the weak points, and then strengthen them. Cheesemaking is one of the great strongholds, and if properly guarded will be a permanent position. If, however, it be conducted injudiciously, I believe it will in a few years detract so from the fertility of the soil that it will be partially abandoned. I believe, also, that many have got already into the down track. Many have supposed that the more cattle they kept, no matter how, the richer their farms were becoming. This idea is the bane of many of our farmers to-day. I am not going to tell you a great string about the chemical composition of milk—how it is largely composed of nitrogenous matter, and also contains a tolerable share of the phosphates—but I am going to try and show how dairying, as it is generally conducted, is against the fertility of the soil, outside of chemical analysis or scientific argument. In talking to farmers generally, and our biggest dairymen particularly, you will find they have difficulty in getting clover to take. A real good clover crop is the exception, not the rule. Now you all know that continuous failure in getting clover is a sure indication of deterioration. Why does clover fail so much? Some say it is because of the dry summers, and others say the heaving frosts of winter and spring. But did we not have droughts in former days, and did it not freeze and thaw in spring then the same as now? You will always find that clover comes up well, but shortly after harvest you begin to hear complaints. Now how does cheesemaking effect this? In this way: A farmer stocks with cows to the utmost extent. Everything in the shape of straw, hay and coarse grain he puts through his cows, and squeezes all the milk he can out of it. He has his pastures gnawed into the very ground, and as soon as harvest is off in go the cows on the young clover and timothy, and they stay till it freezes up. You hear him say it didn't pay to raise grain and it is useless to sow clover because it is so seldom you can get a catch, and when it does catch it freezes out. He don't think to charge his cows damages for destroying that field of young clover. He don't think the cows have anything to do with cut worms, white grubs, wire-worms, and other insects which so infest the old sods where his cows did so well. I was talking to a farmer last spring about clover. He was sowing clover seed on fall wheat. Said that was the fifth time he was trying; the other four times failed. I was over the same field a few days ago; there was a good catch of clover, but all his cows were on it. Need he wonder if next spring he has to plow that field up? No; but it will be a wonder if he don't. Surely cheesemaking is to blame for this. I am not going very far into this subject, but will just show one more thought. The great point with many seems to be in wintering cattle to have the feed and the cattle just balance. It is not who can feed the best, but who can feed the cheapest and carry the most stock through. To do this they chaff their straw and cornstalks, mix them, dust on a little corn-meal, and the cattle eat all clean. There is no bedding even for the horses. In the spring there are about twenty loads of manure in the yard, and twenty head of cattle in the stable in moderate, perhaps poor condition. The manure is applied to a small piece of ground to raise an extra crop of something

for the cows, and this, too, goes into milk and goes off the farm. Now, I ask, is this system good farming? I tell you it is as certainly exhaustive as is the system which sells all grain and burn all straw, and there is not the toss of a copper difference between the two. What is to be done? We must keep our cows off young grass, even if they do shrink in milk considerably. Secondly, we must have bigger piles of manure, enough at least to cover ten acres annually. Thirdly, we must plow up oftener, and use clover more, and so keep out injurious insects. To make up for the loss of phosphates we must sow superphosphates of lime. Such a course would for a time lessen the amount of stock, but in a few years I believe the land would enrich sufficient to carry as much stock as before, and in a great deal better manner.

**Pasturing Hogs on Clover.**

There may be different opinions as to the accuracy of the tables given in the following article, which we take from the *Western Stock Journal*. That clover will pay in feeding pork ten times the money that wheat will pay, and twice as much as potatoes, is a result that few would expect could be attained from comparison such as is here made. There can, however, be no doubt that pasturing hogs on clover is the most economical way of feeding them throughout the summer. In some places whole fields of clover are entirely put to that use, pastured by spring pigs, which are then finished on other food for the shambles.

Range gives exercise, grass feeds the system from disease and is rich in muscle and bone material. The economy of grass may be stated by a table to the amount of the nutritive material an acre of land will produce in cereals and in grass:—

Gross Produce	Wheat		Heat		Muscle		Fat		Saline	
	bu.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Wheat.....	15	900	135	495	135	23	18			
Barley.....	35	1,680	255	1,008	168	25	83			
Oats.....	40	1,320	264	792	264	79	59			
Corn.....	40	2,240	336	1,456	224	156	33			
Peas.....	25	1,500	120	760	350	37	38			
Potatoes.....	150	6,000	450	1,800	180	47	90			
Tons.										
Clover hay.....	2½	4,500	1,125	1,800	585	135	405			
Wheatstraw.....	1	2,000	1,000	600	40	20	100			
Oat straw.....	1½	3,000	1,350	1,050	60	30	180			

By examination of the foregoing table it will be observed that for growing stock an acre of clover is worth more than four acres of wheat and more than two acres of corn and oats. The true method of feeding grass is to feed early and late upon blue grass, and between (from June 1st to October 1st) upon clover. Clover obtains a large portion of its food from the air, and therefore it is a great mistake to feed it close. It must have plenty of leaves by which to grow. Allow a portion of the second crop to go to seed.

To continue the comparison, if we allow four pounds of nutritive matter to make one pound of pork (it will do that judiciously fed), we have a new table that somewhat startles us by its results:

Gross Produce	per acre	Pork		Value at 4 cts per lb.
		per acre	per lb.	
Wheat.....	15	900	225	\$ 9 00
Barley.....	35	1,680	420	16 80
Oats.....	40	1,320	330	13 30
Corn.....	40	2,240	560	22 40
Peas.....	25	1,500	375	15 00
Potatoes.....	150	9,000	2,250	90 00
Tons.				
Clover.....	2½	4,500	1,125	45 00

The above estimate upon clover is low; when thoroughly manured it will yield double that amount per acre. This exhibit is sufficiently astonishing to those who have not given the subject particular attention. It points out a sure road to wealth—pork and clover.

But our subject was not only grass for the hog, but the hog for the grass.

Swine differ in their ability to subsist upon grass as much as cows. Some will become fat upon clover. Others require grain.

As a rule swine reduced to a dry corn diet or raised upon corn principally are poor grass feeders. The stomach is too small to allow the taking of a sufficient quantity at once. If desirable to cultivate and increase the ability to subsist and fatten on grass, it will be necessary to keep the stomach properly distended summer and winter, by feeding a certain proportion of bulky food. Grass for summer, roots and bran for winter, should be the rule.

**Reports on Various Machines by Committee of Royal Agricultural Society.**

**I. THRASHING AND FINISHING MACHINE.**

This machine was exhibited by Messrs Robey & Company, Lincoln, and was tried with barley on the 15th, 16th, and 17th of November, at Mr. Monteith's farm. It is said to be of new design, and to embrace many improvements, chiefly the reduction of the weights of the shoes and riddles, and having enlarged bearings for the spindles. The lower part of the framework is also left open, so as to shew the working parts, which is an advantage in regard to attention. The patent self-feeding apparatus consists of a covered hopper on the top of the thrashing machine, containing a shaking board, on which the crop falls as it is filled in, and means of adjustment are provided to regulate the quantity of feed. There is a lever close to the attendant, so that the machine can be quickly stopped if required. The price of the machine is £160. The machine was driven by a six-horse power traction engine, and the quantity of grain finished for the market per hour was 6 qr. The Committee consider that the work done was most satisfactorily performed; that the various improvements which have been introduced, especially the new feeding apparatus, are most ingenious, and likely to be useful, and think it worthy of a gold medal from the Society.

**II. DIGGER OR CULTIVATOR**

This implement was invented by James W. Barclay, M. P., and was tried at Mr. Monteith's farm, on the 15th and 16th of November.

The objects sought to be accomplished by the digger are, as in the case of stubble land, to open and pulverise the soil more effectually to the depth required; to cut the roots of thistles, and other deep-rooted weeds; to turn over the upper two or three inches of the soil so as to cover the stubble, expose the roots of weeds to the winter's frost, and to bring up and mix a portion of the subsoil with the upper mould. The effects to be produced are thus a combination of the work of the plough and the cultivator. In the case of green crop land for a seed furrow, the objects are to stir and pulverise the earth, without exposing the dung or leaving the soil so open as after the ordinary plough, and in the case of both stubble and clean land, to avoid the packing of the subsoil and consequent separation from the upper soil caused by the horses' feet on the furrow, and by the sole of the plough. The digger was first tried in a stubble field, making two furrows 9 inches deep. The average draught was about 6 cwt. The committee recommended the Directors to award the silver medal.

**IV. TURNIP RAISERS.**

The Local Committee met at Balhaggardly on the 30th. After inspecting the four machines set aside for trial, all were considered nearly the same as those exhibited at Aberdeen, and all were allowed to compete. The field was admirably adapted for the purpose, being quite free from stones, and the whole of the machines were very efficiently horsed by Mr. Maitland, Balhaggardly. The turnips were a superior crop, and at least a fourth of an acre was allowed for each machine, both of swedish and yellows. There was little difference in the speed of either machines, all performing at the rate of three-fourths of an acre per hour. The work done, taken all over, was fair. The judges separated the machines into two classes.

First-class machines that topped and tailed, of which there were three entries:—

1st. James Thom. This machine requires two horses, takes one drill only, throws the turnips to one side, the same as a potato-digger, and performs the work far superior to any of the others. Recommended to be awarded a silver medal.

2nd. Adam T. Pringle. This machine also requires two horses, takes two drills, lifts the turnips and leaves them on the surface, and performs the work fairly. Recommended to be awarded a medium silver medal.

3rd. Duncan Ross. This machine also requires two horses, takes two drills, and simply tops and tails, without removing them from their original position. Recommended to be awarded a minor silver medal.

Second-class machines that tailed only, of which there was only one entry:—

John Gregory. This machine requires only one horse, takes two drills, tails only, and leaves the turnips in their original position. Recommended to be awarded a medium silver medal.



Machines by Agricultural

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**Agricultural Education.**

The recently organized Erin Farmers' Club held the first of their meetings for the winter months in the Hall, to hear an address on Agricultural Education by Mr. Wm. Johnston, President of the Agricultural College. From Mr. Johnston's address we take the following condensed extracts:

Agricultural Education.—I like the term. It implies, in the first place, that every farmer should have an education. I use the word in the simplest and most technical sense of the term. It is true that amongst us there are those who are unable either to read or write, whose farm practice is of the best. Naturally intelligent, they have educated themselves, or have been educated by the circumstances in which they were placed. But these are the first and most anxious to procure for their children the privileges which were denied to themselves. And, after all, gentlemen, these are the exceptions, not the rule. The majority of our best and most successful farmers have had the benefit of a fair education, can, at least, read and write, and upon those as a foundation have built faithfully and well. Only now are we beginning to recognize the fact, that in order to keep abreast of the age the farmer too, if he is to stand at the head of his occupation and do battle for his class with other and encroaching interests, must have not only a general but a special education. After laying a sure and sufficient basis the term implies that his education must be specified in order that it may advance not only his own interests, but raise and help forward what he and all our class should have at heart, the cause of agricultural progress.

In the first place let us consider agriculture a business. For it is a business. True, the capital in the latter is fixed, whilst in the former it is circulating. But the profits in both cases determine success. True, the principle of division of labor cannot so readily be applied in the latter as in the former, but the question of labor enters as a factor into the problem of management in one case as well as the other. In order to be a successful farmer there is needed a knowledge of the markets and the causes that effect them, a knowledge of the most profitable productions in his particular circumstances, and the best methods of producing. Yes, agriculture is a business; and in order to be successful the young farmer must previously have acquired an education sufficient to enable him to understand the forms of his business. He should know his place in time as History and his space as Geography. There are books to keep, and fields to measure, and however simply done, the elements of Bookkeeping and Mensuration are necessary for them. And these are but the tools with which his intellect is to work. That intellect itself must be trained. There must be accurate judgment, concentration of thought, thoroughness of intellectual grasp, and these intellectual habits are not born with the majority of men, but obtained only as the price of effort. I hold then you will see that the education required for the business of agriculture, as well as the intellectual habits, requisite to grasp the problems of farm management, should be acquired, and can be acquired at our Public Schools.

But, gentlemen, we have not finished the consideration of the education requisite for the business of agriculture. If we are to draw from amongst ourselves, our councillors and legislators, we must have those in our midst who can express themselves correctly and well, and defend their own interest successfully against all comers. To be able to do this, they should on the one hand have studied some of our English authors, and on the other possess a knowledge of the laws relating to the agricultural interest. Besides this, they should have a knowledge of the causes which affect the prices and value of their products in the world's market, the relations in which our interest stands to the other industries of the country, and understand, and have solved some of the problems relating to the laws of the production and distribution of wealth. In other words, they should study the elements of Political Economy.

Let us now in the second place look at Agriculture as an Art. Agriculture, too, needs apprenticeship. It is not enough that the student shall know how the various farm operations are performed. He must be able to lay hold of and do them. It is not enough that he knows how a horse is harnessed or driven, a plough set or held; but he must be able, at a moment's notice, to harness or drive the horse and hold the plough. It is not sufficient that he knows a scythe or a cradle, a mower or a reaper, he must be able to handle and

work any of them. If years are to be spent in learning a trade, so must years be spent in learning the best, the most economical and the most expeditious methods of performing farm operations. And this can only be acquired by taking part in the daily work of the farm. If the student is to be made a skilful farm workman it can only be by constant and continual practice.

And now, in the third place, let us look at Agriculture as a Science. Science is a collection of principles and laws derived by induction from the facts of observation and experiment. And is not every farmer in possession of a collection of such principles? Does he not every day use them as rules of practice? He may not have observed or experimented, and drawn his rules of practice from both, but if he has not, his forefathers, or those around him have, and he is but to day applying principles of procedure, which were thus gained from facts observed or learned from oft-repeated practice. When any of us determines upon the particular condition of the soils for sowing, and of the crop for cutting, upon the method of cultivation of the various cereals, upon the plan of rotation we shall follow on our particular farms, upon our principles of manuring or of feeding, we are but applying to practice the results of past observation and experiment—are but in fact applying to practice those principles, which taken collectively, make up the Science of Agriculture. Is there an enterprising and energetic farmer who does not try various modes of cultivation, varieties of the different cereals, various methods of feeding, nay, even various plans of rotation? And is not this done in order, as he says, to find out the best in other works from his experiments, to make for himself in his own place, and in his own circumstances, rules of practice? Chemistry, Botany, Zoology, Physiology and half a dozen other ologies, it is true enter as factors into the problems relating to the subject matter of agriculture, but they do not enter into the science itself. The investigation into the relation between them and agriculture should assist us greatly in building up the latter, yet though making stones in the structure they are not the structure. The science is advanced by a careful observation of agricultural facts and a careful noting of the results of agricultural experiments, and from both of these deducing the principles running through them. So that the more closely we observe and the more carefully we experiment, the more we advance this science.

**Crops in Michigan—Do Varieties Run Out?**

By L. S. A. in Western Rural.

If there be any Canadian farmers dissatisfied with their lot, a glance at the condition of farmers in some of the States would teach them that there too fortune is sometimes adverse, and that taking all things into consideration the life of the farmer is as favorable in Canada as in other countries where all things appear so bright, even at a distance.

The crops for the year in quality and quantity scarcely ordinary, I judge. The wheat had a stout, thickly standing straw, but the midge hurt the heads so that the yield has not been more than from ten to twelve bushels per acre. Hay was good. Corn I hear the farmers say is very good. But it does not appear to me that from 25 to 35 bushels of shelled corn to the acre is much of a yield. In a corn country 50 bushels shelled to the acre is little enough. Oats and heavy straw, but not a very heavy yield. Potatoes are almost nothing. The price was almost priceless last year, and this season the farmer gave the fields over to the Colorado pest. Without tops, tubers will not form. Apples were not as abundant per tree as they frequently are, but almost every tree in almost every orchard bore apples, and the aggregate, therefore, was very considerable. The price has been very low, and buyers have been very particular, culled closely, and yet most of those who bought on their "own hook," and trusted the marketing to commission men, I think have lost money. In the orchards, apples that in ordinary years would be deemed merchantable, have been allowed to remain and rot by the thousands and thousands of bushels.

That times are almost unprecedentedly close and severe on all who are dependent on their neighbors and fellow men for employment. There is but little work to do. Digging potatoes and picking apples—as was done in the Fall—at five shillings

per day, is very hard for a man with a family to support. For men who are out of business, for any cause, it is the next thing to an impossibility to find employment. Nor is it the time now to start business.

The plant cereals and vegetables run out is the opinion held by many practical farmers besides L. S. A.; but it is certainly a question worthy of enquiring—Is not this degeneracy due in a great measure to the carelessness of the cultivator in everything connected with seed and plant? We know that after a variety has, as it has been said run out, the same variety still continues to be grown without any degeneracy by some who are good farmers.

On this subject L. S. A. says:—Do varieties of plants, cereals and vegetables run out. I think in many cases they do. I am quite sure they do in potatoes, wheat, corn, squashes, peas, etc. Many at one time excellent varieties of wheat are now rejected because, as growers complain, they do not produce as well, character of straw is changed, and the quality of the kernels has deteriorated. Certainly, if corn is removed to distant localities, in acclimatization, it is materially changed in character and often in quality. Take the Peach-blow potato, in the potato list, as an instance of running out. It has lost almost entirely its primitive form. It is not uniform in outline as it once was. It does not produce as well as it did formerly, nor has it the quality. I have seen, this season, that it was quoted in Eastern marts lower than the Peerless, and that was always a potato of inferior quality. It seems to be developing—if that be possible—some ancestral peculiarity; it is running out. I have been of the opinion for many years that cutting the potato in planting was the fruitful cause of an injury, which the course of the years demonstrated. Avarice cuts the seed potato. But I cannot go into detail in this matter.

AN AMHERST FARM.—To-day we give our readers the results of an experiment in farming attempted by J. E. Page, Esq., of Amherst. Mr. Page owns a tract of land on the old Halifax road, about a mile from the corner. It possesses a thin, sandy soil, with a gravelly subsoil. Seven years ago, when he first commenced working it, it was considered almost worthless, but by careful and generous treatment he now has as handsome and productive a 30-acre field as there is perhaps in the Maritime Provinces. A cardinal principle with Mr. Page is a manure well; the soil has been fed to the extent of about 300 loads per year. What he cultivates, he cultivates thoroughly. Three or four large composts for next season's operations show the liberal and provident manner in which it is framed. This present year, there was taken off it the following:—

- 1,000 bushels of potatoes,
- 180 " " wheat,
- 10 tons of hay,
- 50 bushels of buckwheat,
- 50 " " oats.

The wheat is full and very free from weevil and rust. By selecting good seeds and sowing early wheat, Mr. Page's crop has never failed. He has not only succeeded in raising wheat for a number of years continuously, but has made its cultivation pay. What is to prevent more of our farmers turning their attention to raising breadstuffs for home market and thus checking one of the most serious drains to which our country is subject?

A barn 60x32 has recently been erected on the field that is worthy of mention. It has this peculiarity—it has no collar beams. The rafters rest on purloin plates, on which there is a track for conveying hay back to the mows by means of a patent horse hay-fork. This hay-fork is a great labor saver, and our big farmers would find it an advantage were they more generally to adopt it.

DIVERSITY.—If you have been endeavoring to get ahead in the world by simply growing a single crop, we suggest that you diversify in future, for we are assured you find yourself getting behind hand every year. All cotton, all corn, all cane, all anything, is poor policy, especially if you depend, wholly or in part, upon advances.

Williston, S. C., boasts a stalk of cotton fifteen feet high, which resembles a three-year-old pear-tree in size and form.



Correspondence.—Continued.

**Does it Pay to Churn Milk?**

SIR,—This important question with dairymen is one upon which there is a great diversity of opinion. Some will tell us, that we will get more butter by churning all the milk, others will tell us, that we will get more butter by churning only the cream. Finding, I could get no reliable information from writers on the subject, I thought it better to make an impartial test myself; the result of which I will give you. I may state, I have only a small dairy of eight or ten cows, yet the churning of the milk, in the hurried seasons of seed time, and harvest, was quite a task, and I would have been willing to adopt the mode of churning only the cream, if I had sustained a small loss. But contrary to my expectations, I found by churning only the cream, I was the gainer of more than twenty per cent. without taking into consideration the difference of labour. Perhaps it would be more satisfactory to the readers, to give the experiment. In the first place, I churned 60 qts. of milk, which gave 4½ lbs. of butter; then I set 120 quarts, or double the amount of the first, which sat 36 hours, which gave 11½ lbs. butter. The experiment was made in the month of June: there was an equal proportion of morning milk in each test. In removing the cream there was about as much milk allowed to go into the churn as cream. The milk was not heated but set in a cool milk room, with plaster floor. If others have made similar tests with different results, I would like to hear from them, as I believe farmers should compare notes and give one another the benefit of their experiments.

BLUENOSE. Stewick, Colchester Co., N. S.

**Chess—Salt, Ashes and Plaster for Top-Dressing.**

SIR,—I wish to know whether salt, plaster and ashes mixed together would make a good top-dressing for meadows. Would it have a tendency to preserve young clover from being killed by the drouth? We loose our young seeds sometimes after the barley or other crop is cut. When the ground is left naked, would an application of the above be of any use after cutting the crop? As regards grain crops, could it be used to an advantage and profit? When should it be applied, what quantities, what kind of grain would be most benefited, etc.?

I find in this neighborhood a firm belief that wheat crops damaged or killed by wet or winter will turn to chess. Also, that chess is a spring plant; if sown in the fall the winter will kill it. There is no pains taken to clear it from seed wheat, and the result is that plenty of chess is grown. I forgot to say that our land is a heavy clay loam. As to the wheat and chess question, we have agreed to abide by your decision.

Now, if you think the above is worth any notice, you can condense, abridge, and put it in ship-shape for your much to be desired paper.

O. ROBERTSON.

Esquessing, Jan'y, 1877.

[Scientific men insist that inasmuch as wheat and chess are entirely distinct species, there can be no changing of wheat into chess. On the other hand, farmers hold as firmly the other opinion; they know from their own experience that such a change—owing to various circumstances—does take place. One thing at least, in connection with this subject, is certain: chess, if sown, will produce, so it is absolutely necessary that wheat having chess in it be rejected as seed, and that wheat and all grain be pure and clean for seed. Salt, plaster and ashes mixed would be a good top-dressing. Some experiments with salt appear in another column.—Ed.]

**FREE TRADE VS. PROTECTION.**—SIR,—When so much is being said about Free Trade and Protection, perhaps you will allow me to ask a question. If Free Trade and Reciprocity are of such great benefit to us, how is it that Americans are paying off their enormous debt with high duties?

Did not the absence of reciprocity, by throwing us on our own resources, do more to develop our manufactures, and foster a feeling of pure Canadian loyalty and independence of the Americans than all else besides?

We never had justice in any treaty with the States, and we never shall. Retaliation is a word not liked, but a good dose of it at any time in our dealings with the U. S. would do us more good, and make us more respected than anything I can think of. Only middlemen, and those too indolent to earn their bread by the sweat of their face,

would be likely to complain. We have too long played the whipped spaniel, and kissed the hand that struck us, only to be struck again.

Yours respectfully,  
A REFORMER.

Port Hope, Ont., Jan. 13, 1877.

[We do not think that this subject has yet been fully discussed by farmers, and we have several times asked communications on the subject, handling it as a farmer's question. We have received the above letter in reply to our repeated invitations. We have but to add another invitation to the same effect. The columns of the FARMERS' ADVOCATE are still open to communications from farmers.—Ed.]

**To Make a Ewe Take a Lamb.**

SIR,—Last spring one of my ewes had two lambs, and she would only let one of them suck. I kept her in a small place with her two lambs to see if she would take up with the second, but to no purpose.

In eight days after another ewe had two lambs; both died. I skinned one of them and tied the skin on the lamb the first ewe would not take. I then took the lamb and the last ewe to my stable, and closed them up in one stall. As soon as the ewe smelt the skin of her lamb, she immediately stood quiet, and in two days after I removed the skin. I never had a sheep more fond of her lamb than this ewe was of this adopted one.

RICHARD RICHARDSON, March, Ont.

**Cheviot Sheep.**

SIR,—I have a small flock of very fine sheep which I bought for Cotswold and Leicester, but at our Provincial Exhibition last fall they were called Cheviot sheep, and no Cotswold about them. The Cheviot sheep I am quite unacquainted with.

A cut, with full description of said sheep, in the FARMER'S ADVOCATE, will be thankfully received by a subscriber to your paper.

T. H. FITCH, Cornwallis, N. S.

[Cheviot sheep are short in the leg, have smooth white face, and wool fine, of excellent texture on the back and sides; is inclined to become hairy on the lower part of the hind leg. We have no cut of the Cheviot sheep, and it would not pay to get one unless more interest is taken in your locality than in Ontario in that class of animals. When you next purchase pure-bred stock, procure them from reliable breeders; then your judges should be expelled from office if they make such a mistake as you speak of.—Ed.]

**Yield of Red Fern Wheat.**

SIR,—I sowed seven acres of red fern wheat this year on stubble, clay soil, and it yielded eighty-five bushels of clean wheat, by measure, and weighed sixty-three pounds to the bushel. I have sold it all for seed what I had to spare. It has done well for the season, and I think it will be a fine wheat when it has a fair chance.

JACOB WISMER, Markham.

**Ticks on Sheep.**

SIR,—What is the best preparation for destroying ticks on sheep, and also the best mode of its application?

JOHN KERNIGHAN, Benmiller P. O.

[We have tried Miller's Tick Destroyer, and found it effective. We do not know of any better exterminator. Directions are found on the packages.—Ed.]

**Drying Fruit.**

SIR,—Can you or any of your numerous subscribers give me any information as to the best kind of a kiln for drying apples and other fruit? I saw a notice about a first-class drying machine. Can any plan of it be inserted in the columns of your paper? If patented, I hope it will be made known. I have seven acres of a bearing orchard, so that there is always a large quantity of apples that do not answer for shipping. If any good plan of drying can be found out it will be a great benefit to fruit growers.

ANDREW D. GIBSON, Clyde, Ont.

[W. G. Tossell, Marion, Wayne County, N. Y., claims to have the best and cheapest drying-house. We do not know of any one making any in Canada.—Ed.]

**MAKE FEED RACKS.**—A stormy day improved by making a few racks to hold hay and fodder for cattle, sheep and horses, will return large profits before summer comes, in saving the feed from being trampled under foot and in the mud, and thus wasted and destroyed. Plenty of feeding racks about the barn-yard is an evidence of a careful, painstaking farmer—and only such can make anything now-a-days. It is not those who make the most that thrive best, but it is those who save the most of what they do make. The secret of success is in saving all that can economically and wisely be saved.—*Colman's Rural World.*

**FEEDING SOFT CORN.**—Feed the soft ears of corn to milch cows, a gain in the flow of milk follows. Now stop feeding these soft ears, and give them the big ears, set with hard kernels, and it will at once be seen how much more good the soft corn does them. If the cows are over-fed, or, perhaps, should they have but little of the hard corn, the kernel will be found in the manure, unutilized by the animals. In feeding a herd of cows on hard corn, some cows will be always found not digesting completely the kernels. It is also observed that when corn is sent to mill before it is sufficiently dry to grind fine with the cob, it is an unsatisfactory feed. It does the cows less good than we should expect, thus clearly betraying the fact that at this time the meal is less nutritious, in itself is less digestible than meal made from old corn.—*Scientific Farmer.*

**EXTERMINATING RATS AND MICE.**—Rats, mice, and squirrels may be kept from barns, stables, cribs and pens only by removing all their hiding-places and leaving these open to light and the entrance of their natural enemies—the cats and dogs. The mischief done by these pests is enormous, and beyond every belief. It is within easy probability that five per cent. of the crops grown in this country is consumed by them. The money value of this loss will easily amount to thirty or forty million dollars yearly. Ground floors should be of cement or paved with stone, and the foundation should be of stone or brick carefully laid. The space around the walls should be kept clear, and no hiding-places should be left beneath any of the fittings.

The Agricultural Society of Iowa offers a premium of \$1,000 for the best ten acres of timber plantation, the premium to be awarded in 1881. There are four contestants for this magnificent premium. The society also offer \$250 for the best five acres of orchard in 1878—two contestants. In 1874 there had been planted to timber in that State 46,007 acres.

**CONTRACTED HOOF.**—Contraction of the hoof is brought on by cutting the frog, and by ignorance in setting the shoe, by carrying the seating or bevel of the upper side of the shoe so far back that the heel rests on the slope of the seating, otherwise on two inclined planes; so that every step presses the heel together. The frog, having been cut, loses its elasticity. The heel should rest on a flat surface, and the shoe set flush with the outer shell of hoof all round, and the frog should seldom, if ever, be cut. Nature has made ample provision for throwing off all superfluous frog. Contracted hoof operates on no part of the leg above the fetlock joint. The coffin joint is most affected.

**BARLEY FOR HOGS.**—We are informed by one who has had experience in fattening swine on barley, that it makes most excellent pork. That it is not oily, not quite so firm as that made from corn, but has a milder, pleasanter flavor.—*Boston Cultivator.*

**CRACKED HOOF.**—Mr. Defay has discovered a preparation, by means of which sand-cracks or fractures in hoof or horn may be durably cemented up. Even pieces of iron can be securely jointed together by its means. The only precaution necessary for its successful application is the careful removal of all grease by spirits of sal-ammonia, sulphide of carbon, or ether. Mr. Defay makes no secret of his composition, which is as follows:—Take one part of a coarsely powdered gun-ammoniacum and two parts of gutta-percha, in pieces the size of a hazelnut. Put them in a tin-lined vessel over a slow fire, and stir constantly until thoroughly mixed. Before the thick, resinous mass gets cold, mould it into sticks like sealing-wax. The cement will keep for years; when required for use it is only necessary to cut off a sufficient quantity and remelt it immediately.

Mr. F. W. Stone, of Guelph, has shipped to Mr. C. Prichard, Mobile, Alabama, three Berkshire pigs, viz., one boar and two sows. He also shipped last week to Mr. T. G. Grieve, Lakefield, Ontario, a Cotswold ram lamb.

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The Story.

Three Times.

A TALE OF EVERYDAY LIFE.

THE FIRST.

It was only a very tiny, dirty scrap of paper, and the ragged lad who was standing under a gas lamp to decipher the words written upon it, was so poor a scholar that he spelled them out with difficulty.

"No—yes, that's it, number twenty something; oh! it's a three; no 'tain't, it's a five; number twenty-five, Dalby Street, is it? I know's now—it's Green! Dalby Green; and that's the identical place my poor mother took me to when we came up to London, before the cold and the want of vittles killed her!"

The lad drew the sleeve of his miserable jacket across his eyes and shivered—not so much because the biting wind of the December night was chilling his attenuated frame, as in sorrowful recollection of the sad-hearted woman whom he had seen perish from starvation on just such a winter's night as the present one.

"She took me there," he moaned. "I was a very little lad at the time, but I've never forgot how she held me up to look in at the gay folks that were dancing; and says she, 'Leu, if we had our rights this is where we should live. Fancy me, since she died, living in a grand house like that! I'll go and have another look at it to-morrow, see if I don't!'"

A shrill cry of "Leu!" made him hurriedly hide the scrap of paper, and return with a sullen "Well, what's up now? Can't a feller have a minute to himself, without being yelled after? I'm coming, ain't I?" And Leu, the outcast, the homeless orphan—who, having a curious aversion to joining either of the bands of thieves and rogues amongst whom he lived, was the drudge of a new lodging-house—shuffled back to the kitchen of his mistress. She was a virago, who paid his services with scraps of broken victuals, a share of a straw pallet when it could be spared, a corner of the dirty floor when it couldn't, and so many blows and hard words, that the once bright, sweet tempered boy, whose mother was still remembered in St. Giles as "the little lady," was rapidly becoming brutalized.

"Leu has been turning over his hoards," a dissipated vagrant facetiously suggested, when he was fiercely asked where he had been skulking; "he knows as Christmas is coming, and he's going to give us a handsome present all round."

"Maybe I could do that, if I had my rights," muttered Leu, whose thoughts were still dwelling on the words of his dead mother.

There was a roar of laughter from his rough companions, and the virago came towards him with upraised hands, vociferating, "I'll right ye, I will, you bragging vagabond!" But a sturdy little Irish apple-woman, who had been sitting in the chimney-corner taking a blast of the pipe, suddenly interfered in the victim's behalf.

"Ye'll let the boy alone, mistress. It's the drop o' whiskey I give him has got into his head and made him fool quarre. Come here, Leu, and sit quiet till the sines has come back to ye."

"What made ye say that? I ain't had no whiskey," said the lad, as she unceremoniously pulled him down on the up-turned basket that formed her own seat.

"Whisht, lad! Wasn't it to save yer bones from that great blacksmith's fist of hers? Why do ye vex her, seem' this is all the home ye have? What were ye a doin' when she called an' called, an' could get no answer out o' ye?"

Leu looked over his shoulder to make sure no one was listening before he replied.

"Looking over a bit of paper I got out of the big box beneath her bed," and he jerked his thumb in the direction of Mrs. Betsy Grimshy.

"When mother died there was a bundle of them papers under her pillow, and a chain and locket that she wore round her neck, and wouldn't part with it, not even when she was too ill to work, and I cried to her for bread. Old Betsy has sold the chain, but I'll have the papers some day."

"Sure, then, if they're yer own, why shouldn't ye?" observed the basket-woman coolly, and Leu nodded and whispered again.

"I drew this out through a crack, but the others is tied together, and she never lets the key of the box go out of her own hands."

But another shout for Leu put an end to this colloquy, and Irish Bridget had forgotten it when two days afterwards the lad slouched past the corner of the busy thoroughfare at which she retailed her fruits and nuts, on his way to the handsome mansion in Dalby Crescent.

It was Christmas Eve. The weather was bright, but piercingly cold; and Leu, who for some days past had been conscious of strange aches and pains in all his limbs, was blue with the cold when he dragged himself to the railings in front of No. 25. There he stood, and looked down the area and through the windows of the great kitchen, in which a plump cook and a couple of attendant satellites were rolling out paste for mince pies, and making other dainties for the morrow, regardless of the half-starved lad who watched them.

"Who lives here?" Leu asked of a newspaper boy, who had stopped to gaze with him, and only laughed derisively; when Mrs. Cook, with a threatening shake of her rolling-pen, made signs to them to go away.

"Lives here? Why, Capel, Esquire, the great banker, Han't you heard of him?"

Leu started.

"My mother's name was Capel—Mary Capel. They put it on her coffin."

"My wigs!" exclaimed the vendor of papers incredulously; then you must be one of the banker's rich relations. Why then you must be carried, and pay him a Christmas visit!"

He ran on, laughing; and Leu, feeling as if his weary limbs would support him no longer, sat down on the lowest of the broad steps leading to Mr. Capel's door, staring vacantly at the white at a well-dressed boy and girl, a few years his junior, who were coming rapidly towards him, hand in hand.

Hetta the jolliest little darling in the world. Neither of them saw the pallid outcast till they stood beside him.

"What are you doing here, fellow?" exclaimed the boy angrily. "Go away directly, or I'll make you!"

"Oh, Maurice, he looks so ill—so hungry! Don't speak so roughly to him," pleaded the gentle girl.

Leu raised his sunken eyes to the delicately fair face of the little speaker, and gazed at it till his fixed stare frightened her.

"He's no business here," said Maurice Capel, the banker's son. "We can't have such a disreputable cad lurking round our door."

"Give him something, and he'll go away," whispered Hetta.

"Papa said we should not encourage beggars," Maurice told her, with a dignified air.

"But it's Christmas time," she pleaded, "when everybody gives to everybody—won't you? Then the poor lad shall have my sovereign that grandmamma gave me. I wanted to make some one happy with it."

Bidding Leu wait, the children ran into the house, Maurice returning alone with the children's solitary coin, for nurse had pounced upon the young lady to change her dress for dinner. By this time the porter, who opened the door, had oisted the outcast from his seat. Mr. and Mrs. Capel were coming along the Crescent, and what would he say if he saw his carefully whitened steps desecrated by the presence of a vagrant?

Hetta's golden gift—flung rather than presented to the retreating Leu—was scarcely in his hand when Mr. Capel stepped forward, stern and unyielding.

His first angry speech was for his son.

"How dare ye ignore his commands, and encourage such a disreputable vagabond as that? His next for Leu, whom he threatened with the police and treadmill, bidding him begone in such menacing tones that the lad attempted to obey—staggered a few paces, and then dropped on the pavement.

"Intoxicated, of course!" said the banker with a shrug.

"Dying, I fear," answered a surgeon, who chanced to be passing, and stopped to feel the pulseless wrist of poor, helpless, benumbed Leu.

"Better carry him to the workhouse," suggested some one else; and he was borne away by a couple of policemen, to spend his Christmas within the walls of St. Bonaventura's poor-house.

And thus ended Leu's first visit to the stately mansion of the Capels, No. 25, Dalby Crescent. Mr. Capel—touched for a moment by his condition—had resolved to do something for him if he lived; but in the festivities of the season the resolve was forgotten.

THE SECOND.

Years had glided by. Mr. Capel was entertaining a large party of friends and connections to dinner that night, in order to celebrate the advent of the New Year and the coming of age of his eldest son, the handsome, winning Maurice Capel.

How proudly he alluded to his boy as the prop of his old age, when Maurice's health was drunk in the rare wines brought up from the cellar for that purpose; and how his heart swelled and his eyes glistened, as he looked around the table, from his stately wife to the pretty daughter, who had just come out; from the merry romping schoolboys, who sat on every side of mamma for this night only, and then retired, where their glances had just fallen—on the well-shaped head of his heir.

Maurice vexed him sometimes—he was heedless and extravagant; but these were merely faults of his age, and could be overlooked; if he would but conquer that foolish passion for his penniless cousin, Hetta—a fancy that was all very well while her father held high office in India, and could dower her well, but must not be encouraged now he was no more, and the girl a mere dependant in the house.

But where was Hetta, the pretty child, who had given her all to the outcast Leu? She sat in her aunt's boudoir alone. Mrs. Capel had advised her to nurse herself for a slight cold, and Hetta had understood that the wish was a command, and that she was not to appear at the banquet. It was a trial for her to obey—for she was young and fair, and had looked forward as hopefully as her more fortunate cousins to the dance which was to follow the dinner. But Aunt Capel had so willed it; and a little sadly she sat over the fire, sometimes listening to the merry voices below—sometimes dreaming of Maurice, till the entrance of a servant aroused her.

"What's to be done, Miss Hetta? Here's a young man demanding an interview with master, and refusing to go away until he has seen him. Mr. Capel would be so angry if he were called from his guests without sufficient cause, that I don't know what to do."

The footman—a mere lad, mortally afraid of his stern employer—looked so perplexed that Hetta, who was dearly loved in the house for her thoughtful kindness, took pity on him.

"Perhaps this stranger's business is important. Are you sure he said it cannot be deferred until to-morrow?"

"Quite, Miss; and he speaks so resolute there's no gain saying him. He says he must and will see Mr. Capel before he leaves the house."

"Bring him in here, and I will speak with him. It would be a folly to disturb my uncle unless it really could not be avoided. Perhaps I may succeed where you have failed, and induce this very obstinate personage to call again."

Walter hesitated.

he picked it up. The price of this toy would have saved the life of his mother, and, in bitterness of spirit, he threw it from him with such force that it fell on the floor, and broke.

But when his eyes fell on the young lady, and he saw that his violence astonished and terrified her, he grew calm again. He remembered that sweet, child-like face; it had haunted his visions at St. Bonaventura's, when he was delicious with pain, and more than once since then he had hovered near the house to catch a glimpse of it.

The color returned to Hetta's cheek when he apologised for his rudeness, and she frankly asked if she might be entrusted with his reasons for insisting on an interview with her uncle.

"I am Leonard Capel!" he startled her by asserting—"the only son of his brother Robert."

"But Mr. Capel has no brother living!" said Hetta, as soon as she could command her voice. "The only one he had—my own dear father—was killed in a remote district of India some three years since."

"Pardon me, young lady: Mr. Capel once had two brothers; but I know why you are ignorant of this. The name of Robert Capel was never spoken in this house, for his relatives considered that he had disgraced them when he married the governess of his sisters; and so he died unrepented at that obscure country town to which he had retreated. His widow, after vainly struggling to support herself and her child, appealed to his family for help, and was insulted with a refusal to believe that she had ever been legally married to her dead husband. Gathering together the proofs of her union, she traveled to London slowly and on foot, to seek an interview with the father of Robert Capel, and your grandfather, and prove to him that the assertion was a slander. But he was dead; his son ruled in his stead. One look at his stern face told her there was nothing to be hoped for at his hands; and, after wrestling for her child's sake with poverty and sickness till wearied out, she died."

"This is a sad tale, indeed!" murmured Hetta tearfully.

"And her son—why has he not told it sooner?"

"Ignorant of the papers in his mother's possession, and robbed of them as soon as she was no more, he was a poor, ill-used wretch, until curiosity leading him to come and look at a house his mother had pointed out to him when they first met in London, he met with two strange adventures. An angel, in the shape of a fair, gentle child, pilfered the ragged wretch, and bestowed on him her all; the first piece of gold he had ever possessed."

Hetta blushed deeply, for she remembered the circumstance.

Before he could make use of this generous gift, he was stricken with illness brought on by want, and carried to a workhouse, where, for the first time in his life, he found friends. The doctor who tended him, took his patient to his own house; and, as soon as he was sufficiently restored, clothed him, enabled him to earn his daily bread honestly, and encouraged him to try and recover the lost papers, that he might ascertain their contents. Miss Capel, this very night I succeeded in wresting the packet from the man who had taken my child; and I could pay her as much as her greed extorted. I have those papers here," (he touched his breast); "and they contain unanswerable proofs that I am the legitimate offspring of Robert Capel."

"My uncle is just. Surely he will be pleased to hear this—to acknowledge you as his kinsman!" Hetta faltered. She felt that this was scarcely the truth, and Leonard smiled rather scornfully.

"Pleased! Forgive me if I doubt it. Have you forgotten that I am the son of his elder brother, and that by right of birth I can claim all the property that he succeeded to at his father's decease?"

Hetta pressed her hands to her bosom and gazed at him wildly, as with triumph in his eyes he once more looked around him. Who would dare to despise him now? The proof he had just given him of the outbreak he had surmised and—ah! sweetest hope of all—was the equal of the fair girl who stood trembling before him.

But she spoke—she roused him from his dream, and his gladness vanished.

"Do you know what will be the consequence to my poor uncle?" she cried. "It will be ruin; yes, ruin! For his wife will not let him accept any concessions you may offer. But worse than this—more terrible to bear—will be the disgrace that will fall upon him when the world puts, as it will do, the worst construction on his conduct."

"I am but claiming my own!" said Leu, firmly. "If it is his turn to succumb and suffer, is the fault mine? Those who had no mercy on my innocent mother, but left her to perish miserably, whilst they revelled in luxury, cannot expect any from me."

"But, my uncle is no longer young," pleaded Hetta. "His health is infirm. Any sudden shock might kill him; and rely upon it he did not knowingly wrong you! Oh! pity him!" and, in her excitement, she came and laid her hands on Leu's arm. "This very night he sits with his children around him, happy in the thought that their future is secured; that, die when he may, his son, his first born, his best-beloved, his noble Maurice, will inherit his wealth and unstained name. Can you have the heart to bring such sorrow, such shame, upon them all. Must all these innocent ones suffer?"

"Will you enjoy the riches, and station, to grasp which you must break so many hearts? Oh! think a moment ere you take so terrible a step!"

"You plead for those who do not deserve it," answered Leu, turning away that he might not see her beseeching eyes. "Had I come to them for help—had I said to Mr. Capel, 'I am your brother's son, and I starve, would he have listened to my prayer? Why, then, should I renounce my rights that he may continue to enjoy what is not his own?'"

Still Hetta clung to him.

"Spare them, at least, for this one night. Break the tidings of their ruin gently, and try and see in Mr. Capel not the man who long years of affluence have made hard and worldly, but the brother of your own father. You will do this much!"

"For your sake I would do anything," Leu answered, fervently. "Ask what you will, it shall not be refused."

"You promise!" she cried, blushing deeply. "Then be a brother to Maurice."

"Ab, you love him!" cried Leu, starting as if he were stung. "If I destroy his prospects, I make you unhappy. I will never do that!"

He stood for some moments, his head drooping, his lips compressed, Hetta gazing at him anxiously, hopefully. After all, what would he gain by asserting his rights, if she were lost to him? How could he enjoy his newly-acquired riches, if he brought sorrow and degradation on her and the handsome youth she loved?

TO BE CONTINUED.



### Minnie May's Department.

#### Food for Cold Weather.

This is an important question which naturally arises with us, for I dare say you find the way to please father and brothers is to prepare a good meal (and have it ready at the proper time). I know I find it the case. However, the question is, do we vary our food to make it consistent with the weather?

We are more apt to give winter's food in summer time than summer's food in winter. Still there are certain dishes especially adapted for cold weather, and at the present season of the year we may call attention to some of them. First, however, it may not be amiss to consider on what general principles one kind of food is adapted for hot countries, and another for cold. The first principle is to remember that in cold weather we require fat. Fat and grease contain a large quantity of carbon, and this carbon taken and absorbed into the system keeps up the animal heat.

Of all winter dishes, perhaps none is so suitable for cold weather as that rather vulgar dish, pea-soup. Persons who affect to despise pea-soup should remember that it is one of the most variable soups ever made. Poor pea-soup, which really owes almost its whole goodness to the split-peas from which it is made, is indeed poor stuff for epicures, though a very cheap and wholesome form of nourishment for the hungry poor. Good pea-soup is an exceedingly delicious compound, and I will describe how to make it.

First of all, one great advantage of pea-soup is that a greasy stock, scarcely adapted to make any other kind of soup, is really best suited for the purpose. For instance, the water in which a large piece of pickled pork has been boiled, or even the greasy water in which ham or bacon has been boiled, is admirably adapted for making

pea-soup. As a rule, the water used for boiling salt beef is too salt to be used for making soup; however, very often by soaking a piece of salt beef in fresh water for twenty-four hours before boiling it, the liquor left will be found to be not too salt for making pea-soup—the cook, of course, remembering that no further salt is added.

We will suppose, therefore, that some stock, or rather some greasy liquor, has been left, say in quantity about two quarts. I would here suggest that the water in which, say, a piece of fresh silver-side of beef has been boiled, should be used again to boil a good-sized piece of bacon, that may be served up hot with some roast fowls, that which is left forming a cold breakfast dish. First of all, take a quart of split-peas, and put them in a large basin, and let them soak in fresh water for nearly a day, a little piece of soda rather bigger than a pea being put into the water to render it softer. Should any of the peas float on the water, take them off and throw them away. Next, strain off the peas, and put them in the greasy stock mentioned to boil, adding to the two quarts of liquor one good-sized head of celery, four good-sized onions, two carrots, two turnips, and a little parsley. Let all this boil till the whole is thoroughly soft, occasionally skimming the soup, taking off that nasty thick film of fat which will sometimes rise to the surface. When the peas are thoroughly soft, strain the whole through a wire

sieve into a large basin; pick out the stalk of the parsley, and with a good-sized wooden spoon rub the whole through the wire sieve.

This is the great secret of good soup. Too often the cook will not take the trouble to send the whole through the sieve. It is undoubtedly a troublesome affair, and very apt to make the wrist ache. However, the result well repays the trouble, and the cook generally can call some one to her assistance to take a turn with the spoon. It will also be found advisable every now and then to moisten the ingredients in the sieve with some of the liquor that has run through; this rather helps the process. Now, soup made in this way, in which the head of celery, the onions, the carrots, the turnips are all sent through the sieve, as well as the peas, is a very different affair from soup which has been simply flavored by having them boiled in it. Indeed, pea-soup should really be called puree of peas, and when care is taken in its composition a very nice puree it is.

Pea-soup should, of course, be sent to table hot; and as it possesses, like all purees, the power of retaining its heat for some time, it is the better adapted for cold weather.

Some dried mint and some small pieces of toasted bread should always be sent to table with pea-soup; or pieces of bread cut square, the shape of

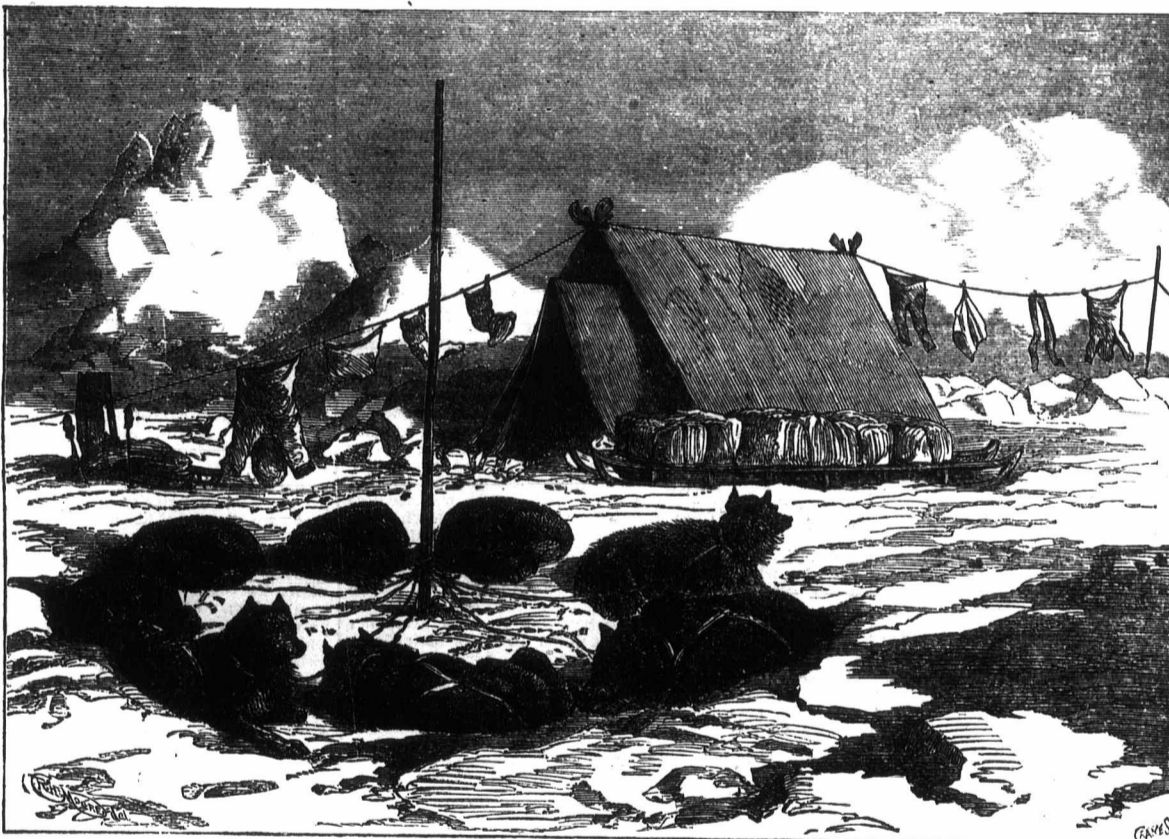
arate pieces. Again pepper and salt the meat, and cover it over with a thin layer of sliced potato and onion. The whole should be packed rather loose—i. e., not much space should be left between the pieces, so that a very little water added will be sufficient to fill up the stew-pan, till the top layer is moistened. Add this quantity of water, so as to avoid leaving any of the potato or onion uncovered. Next cover over the stew-pan, seeing that the lid fits close; place something heavy, such as a four-pound weight, on the lid to keep it down, and allow the whole to simmer gently for about three hours. Be careful, however, not to let it boil, as that is apt to render the meat hard. Also on no account take off the lid during the stewing process, as by so doing you let out the flavor.

It will be readily seen how exceedingly economical this dish is, as absolutely nothing is lost, for the liquor is served up as well as the potato and onion. In roasting a joint some of the flavor necessarily goes up the chimney, and in boiling a joint some goes into the water in which the joint is boiled. Irish stew is, however, one of the few dishes in which there is absolutely no waste whatever.

#### The Arctic Expedition.

The latest of the expeditions that have made

voyages of discovery in search of the North Pole, has returned, and how far their labors have been crowned with success, and what they have proved to be impossible to be done, are the themes of a thousand writers. Nearly two years ago the good ships Alert and Discovery sailed from Portsmouth manned by British sailors, under the command of Commanders Nares and Markham. The result of the expedition has been happily called a successful failure—successful inasmuch as they sailed farther north than any ship had ever before sailed and planted nearer to the summit of the globe than flag had ever been planted, the British flag,



That flag that braved a thousand years  
The battle and the breeze.

very small dice, may be fried a bright golden color in some hot lard.

Another very excellent dish for cold weather is Irish stew. Irish stew has the following strong points in its favor as a seasonable dish—First, it retains the heat for a long time; secondly, it contains a considerable amount of fat; and thirdly, which makes it a desirable dish for all weathers, it is probably the most economical dish ever sent to table. The best joint for making Irish stew is neck of mutton. First cut off nearly all the fat, the reason being that when mutton is boiled the fat swells enormously. What is cut off will make an admirable suet-pudding—another dish adapted for cold weather—that can be flavored with grated lemon-peel. Pare about four pounds of potatoes, and cut them into slices, and allow them to boil for about a quarter of an hour; by this means the water contained in the potatoes will be extracted—and all water held in roots is far from wholesome. Next slice up five large onions, cutting them cross-ways, so that circular rings fall in slicing. Then take a good-sized stew-pan—an enamelled one is best—and cover the bottom with slices of potato and onions; add a little pepper and salt, then cover this with a layer of meat, the quantity required being about three pounds. The trimmed neck or loin of mutton should be cut into rather thin chops, and the short bones at the end of the neck should, of course, be all cut into sep-

Nor was this all they accomplished; they doubled the northern part of America, and discovered in Cape Columbia the Polar termination of the continent. Sledge expeditions went still farther to the east and to the west from the ice barriers that forbid the good ships' progress. They failed to find the expected sea, but they proved that there was none, but, on the contrary, a dreary expanse of ice, apparently illuminable, cheerless, and chilly, presented itself to the voyagers, where it was reported that an open sea awaited them. Captain Hall in his voyage had thought he saw a hazy land far away to the northward, but it has proved to be one of those illusions that vanish on near approach. The Alert went into winter quarters in latitude 82° 27'. They had already convinced themselves that navigation beyond that point was impossible, that the Polar ocean so long talked of was a mere chimera, that an immense frozen, rugged ice-field—ice averaging eighty feet thickness, and frozen throughout unnumbered ages—occupied the vast area where it had been said an open sea existed. Capt. Markham, who headed the Polar sledge party, after reaching latitude 83° 20' 26" north wisely determined to halt. He had now attained the highest latitude ever gained by man. He had not reached within 400 miles, though he had surpassed the efforts of even that prince of discoverers, the match-



less Parry. The sufferings of the party were intense, only to be equalled by their heroic endurance. Well have they merited the honors bestowed upon them by their grateful Queen and country.

**RECIPES.**

DEAR MINNIE MAY,—I send my recipe for keeping hams and dried beef for your department, hoping it may prove useful and beneficial to those who give it a trial. I have kept mine for years in the following manner:—

**KEEPING HAMS AND DRIED BEEF.**

After the hams have been smoked, take them down and thoroughly rub the flesh part with molasses; then immediately apply ground pepper by sprinkling on as much as will stick to the molasses; then hang up to dry. Hams treated in this manner will keep perfectly sweet and free from insects. Treat dried beef the same, and then hang up in the cellar or some damp place to prevent it from becoming too dry. You will not be troubled with mold or insects.

Yours respectfully,  
A FARMER'S WIFE.

MY DEAR MINNIE MAY,—As the old saying is "Better late than never," I must try and write this month, as I have long wanted to, but thought

I could not help you any, though your department helps me.—Many thanks for your kindness in trying (and succeeding) to help farmers' wives, and for the trouble you take to obtain information for them and render your department so interesting to them. Enclosed find a recipe for

**MARBLE CAKE.**

Light part—White sugar, one and a half cups; butter, half cup; sweet milk, half cup; soda, half teaspoon; cream of tartar, one teaspoon; whites of four eggs; flour, two and a half cups; beat the eggs and sugar together; mix the cream of tartar with the flour, and dissolve the soda in the milk.

Dark part—Brown sugar, one cup; molasses, half cup; butter, half cup; sour milk, half cup; soda, half teaspoon; flour, browned, two and a half cups; yolks of four eggs; cloves and cinnamon, ground, each half teaspoon; ingredients mixed the same as light part. When both are prepared, put in the cake-pan alternate layers of each, or put them in spots on each other, making what is

called leopard cake, until all is used; then bake as usual.  
BETSY ALLAN.

DEAR MINNIE MAY,—I take great pleasure in offering my mode of washing colored clothing, which I think may be beneficial to some of your nieces:—

For washing scarlet flannels, I pour some boiling water upon some bran, strain it, and while hot wash the flannel in it and rinse with hot water. Soap should not be used. Purple cloth may be washed in hot water and pure ley. In washing dark print dresses, I use a little ox-gall poured in the water, or soap made with ox-gall in it, which freshens reds, blacks and greens, and a handful of salt added to the last rinsing water will prevent the colors running.

OYSTER PIE.—One hundred large oysters, the yolks of three eggs, boiled hard, two ounces of stale bread, crumbed or grated, two ounces of butter, two teaspoonfuls of flour; chop the eggs very fine and mix with the bread crumbs; season them with salt and pepper; put the oysters in a colander, and drain them; line the sides of a pudding dish with good paste; put the oysters in the dish; rub the butter and flour together, seasoning with a little salt and pepper; pour over it enough boiling water to make it smooth and quite thin; pour this over the oysters, then put the egg and bread crumbs over the top, cover with a rich paste, and bake in a quick oven, fifteen or twenty minutes, or half an hour.

GRAHAM CRACKERS.—Seven cups Graham, one cup thick sweet cream (or butter), one pint sweet milk, two teaspoonfuls baking powder. Rub the baking powder into the flour; add the cream with a little salt, then the milk; mix well, and roll as thin as soda crackers, cut in any shape; bake quickly, and then leave in a warm place about the stove for a few hours to dry thoroughly. They are then brittle, and are very nice with tea or coffee, and will keep any length of time.

GRAHAM OR RYE GEMS.—One egg, one pint sour milk, with a few spoonfuls cream added, one teaspoonful soda, a little salt, and enough Graham or rye meal to make a stiff batter; bake in gem-pans in a quick oven. These are very nice either hot or cold.

**FRENCH TAPIOCA PUDDING.**

Take two ounces of tapioca and boil it in half a pint of water until it begins to melt, then add half a pint of milk by degrees and boil until the tapioca becomes very thick; add a well-beaten egg, sugar, flavouring to taste, and bake gently for three-quarters of an hour. This preparation of tapioca is superior to any other, is nourishing, and suitable for delicate children.

**ANOTHER WAY.**

Boil good cider in a brass or copper kettle; skim it well, and keep it hot long enough to remove all impurities; then put in a warm place as above. All wooden vessels to hold vinegar should be painted on the outside.

DEAR MINNIE MAY,—I send you a few good recipes that have been used constantly in my house, hoping they may be of service.  
E. ASPDIX.

**DUKE OF DEVON CAKE.**

One pound flour, 1 lb. sugar, ½ lb. butter, half the peel of a lemon cut fine, ½ lb. citron or candied peel, 8 eggs beaten separately; add a little brandy; bake two and a half hours. Half the quantity makes a nice size cake.

**VEGETABLE MARROW PRESERVE.**

Peel, and take out the seeds quite clean; cut in slices one-quarter of an inch thick; put them on a dish, and sprinkle with coarse sugar to extract the water; let them stand a day or two, then make a syrup of equal quantities of loaf sugar, the juice and peel of some lemons, bruised ginger, and a little water; when boiling, put in the marrow, having previously drained them; let them simmer one or two hours, or until clear; pour in half a glass of whiskey to every pound of vegetable before taking off the fire.

To four pounds of vegetable juice of two lemons, two oz. ginger, very little water.

**CARROT PUDDING.**

Three-quarters lb. carrots; ¼ lb. potato; ¼ lb. bread, grated; ¼ lb. currants; a little sugar, salt and suet.

**PLUM PUDDING.**

Half lb. raisins, stoned; ½ lb. currants, washed; ½ lb. beef suet, chopped fine; ½ lb. sugar; 3 eggs; 2 oz. sweetmeats, cut fine (orange peel, lemon peel and citron); 1 wine-glass brandy; 1 wine-glass cider; nearly 1 pint of milk; half a nutmeg, grated; allspice; cinnamon; cloves; about 9 tablespoonfuls flour. Do not tie it too tight, but allow a little room for it to swell; boil 5 hours; send to table with wine or brandy sauce.

The above two recipes were kindly sent in by our niece, Mrs. J. P.

**TO MAKE GOOD CIDER VINEGAR.**

Take good apple cider, new or old; rack off and put in clean barrels or tubs, then rinse out the empty barrels with clean water and throw away the dregs. Let the cider stand about three weeks, then draw off again, putting it back into the barrels first used; then put them into a warm place, but not a cellar, and you will have good vinegar in a short time.



**The Conservatory.**

There are many wealthy gentlemen, and some farmers, in Canada who can afford a good conservatory. We are pleased to know that there are many who have good conservatories in Canada, and thousands who are cultivating their miniature conservatories in their rooms. We give you the above cut of one that appears in Mr. Jas. Veck's catalogue; his description and information regarding the management of flowers and plants is very complete. If you have the opportunity to visit one during the present winter, by all means do so. The Hon. D. L. McPherson, of Toronto, has the best one we have seen in Canada, and kindly opens it for the public at almost all times. Sir Hugh Allen, of Montreal, has a very fine one. The Hon. John Carling, of London, also has one; he allows visitors to see it also. If you wish to give your wife and family a rare treat, take them to see a conservatory during February or March; it will well repay you for the time. Many other gentlemen have conservatories, and no gentleman will object to show a farmer and his family through his conservatory, but would be pleased to do so.

**Chill-Blains.**

Can you inform me what will cure chill-blains? I have a brother who is very much troubled with them.  
G. B., Nova Scotia.

Wash the feet with rusty iron water.

DEAR MINNIE MAY.—In this locality there are some that object to dancing. For my part I do not think there is any harm in dancing with our acquaintances, and it is far preferable to those abominable kissing games that the opposers of dancing tolerate. I should be pleased to hear other persons' opinions on this subject.—NEW HAMBURG.

There is a time for all things. Dancing is a promoter of health and happiness. Those who condemn it are not apt to be the most enlightened, or superior in any way to those that encourage it. The greatest statesmen dance, and our noble Queen has often engaged in a dance. Those who condemn it are not liable to leave a better record or be more respected than their ancestors.

MINNIE MAY.

We learn from a statement in the *Journal of the Chemical Society* that sham coffee is manufactured from tough dough, squeezed into little moulds, and baked until the colour becomes dark enough to deceive the eye. Real coffee-berries, when small and worthless, are improved in colour by rolling them about with laden bullets in a cask. The green berries, too, are treated by a colouring matter. In coffee sold ready ground the difficulty of detecting adulterations is greatly increased; beans, beet-root, carrots, and carrot-like roots are roasted and mixed in large quantities with the genuine article. In the South of Europe, especially in the provinces of Austria, figs are roasted in enormous quantities and sold as coffee.



**Aunt Tom's Department.**

MY DEAR NEPHEWS AND NIECES, — I welcome your many cordial letters wishing me success and expressing the interest and pleasure you take in our little corner. Thanks to one and all; and now allow me to congratulate many of you upon the great improvement I find in your little letters, both in composition and writing. Your old uncle watches your progress with great pleasure. I have received some capital rebuses and puzzles this month, some of which you will find in this issue and others in after numbers.

**The Boy for the Times.**

We like an active boy, one who has the impulse of the age—the steam engine in him. A lazy, plodding, snail-paced chap might have got along in the world fifty years ago, but he won't do for these times. We live in an age of quick ideas; men think quickly, speak quickly, and slow coaches are not tolerated. "Go ahead and burst your boiler," is the motto of the age; and he succeeds the best in every line of business who has the most of the do or die about him.

"To all the prize is open,  
But only he can take it  
Who says with Roman courage  
I'll find a way to make it."

Strive, boys, to catch the spirit of the times; be up and dressed always, not gaping your eyes as if you were fast asleep, but wide awake whenever you turn up, and you may besomething before you die.

Think, plan, reflect as much as you please before you act, but think quickly and closely, and when you have fixed your eyes upon an object, pull off your coat cheerfully, roll up your sleeves in earnest, and with a merry song spring at the mark at once.

"A cheerful spirit gets on quick,  
A grumbler in the mud will stick."

But above all this be honest. If you intend to be an artist, carve it in the wood, chisel it in the marble; if a merchant, write it in your day book and spread it in capitals in your ledger. Let honesty of purpose be your guiding star.

**PUZZLES.**

**18—RIDDLE.**

Made by man's hands, a wondrous thing,  
With power he did imbue it;  
For, while packed snugly in a case,  
You may see right through it. JESSY.

**19—RIDDLE.**

My first receives, but never tells,  
The secret of a friend;  
My second does upon my first  
For its success depend.  
My whole with pain the fair admit,  
Yet gladly to receive sit,  
And while they cringe with pain and fright,  
They hail my entry with delight. JESSIE JOHNSON.

**20—CHARADE.**

My first is seen in cloudless skies,  
And in the rippling sea;  
Oft, too, in woman's limpid eyes,  
As they are bent o'er thee.

My second speaks in solemn tones,  
Again with cheery voice;  
Echoing now the saddest moans  
Then bidding to rejoice.

I dance for joy through Summer days,  
Ringing a fairy peal;  
Whilst from my cheeks the sun's warm rays  
Such wanton kisses steal.

I'm sweet, I'm pure, I'm true, I'm fair—  
Ah, touch me tenderly!  
Though trembling in a breath of air,  
I'm type of constancy. MELINDA M.

**21—CHARADE.**

Of all sorts and sizes my first may be seen,  
And varied in color too—red, black and green.  
My second you'll see on an early spring morn  
In the field o'er the sundries the dew on the corn;  
'Tis found in the garden and on the sea shore,  
And anglers for fishing lay up in a store;  
A student for knowledge is really athirst;  
My whole he is called if he pores o'er my first.  
MARY BOWMAN.

**22—CHARADE.**

Rattling 'neath the hill,  
Rumbling o'er the rill,  
Many people fill

**My first.**

Frisking lamb, snow white,  
Chirping bird at night,  
Or dog that does not bite,

**My second.**

Princely mansion tall,  
Vine-clad cottage small,  
Alike where footsteps fall,  
Claim my whole,  
FREDDIE BELL.

**23—REBUS.**

Complete I am a word of five letters, and cannot move without assistance, behead me, and I am part of the foot; again behead me, and I am a fish; again behead me, and I am a particle of Spanish grammar. SAM SLICK.

**24—PUZZLE.**

B O  
T H



B O  
T H

**25—A BURIED PROVERB.**

1. If a man will not work, neither shall he eat. 2. Fine feathers make a fine bird. 3. Keep in your place; none dare turn you out. 4. Be honest, and the reward is sure. 5. Hold out the hand to help a struggling brother. 6. It is weak; but by patience great things are done. 7. Do you think it worth notice? 8. We start by the half-past two train. 9. Come in and see mother before you go. 10. The vessel was a total wreck. 11. Oh, dear, they have stripped my currant-bush! One word taken from each sentence in rotation will form a proverb. L. SIFTON.

**25—CONCEALED TOWNS.**

I should be glad to assist you, but I cannot. Beware of woman in her power, O men of the nineteenth century! Do you see that chateau burning? How many perished under the Papal ban years ago?

**26—ILLUSTRATED REBUS.**



**27—NUMERICAL ENIGMA.**

I am composed of 15 letters.  
My 7, 8, 9, 2, 6, 1, means stout.  
My 4, 13, 9, 8, is a kind of mud.  
My 15, 2, 8, is a negative.  
My 7, 12, 9, 5, 15, 1, is a cord.  
My 7, 5, 6, to do wrong.  
My 4, 13, 6, is a noise.  
My 4, 3, 1, is a quadruped.  
My whole may be always seen in the FARMERS' ADVOCATE. V. S. McCOLLUM.

**28.—SQUARE WORD.**

A puzzle, an element, a creature without reason,  
to speak, a fragment of broken earthenware. EDITH H. CUTTEN.

**29.—SQUARE WORD.**

Something pendant, a land measure, a metal, a religious season of fasting. NELLY M. ADAMS.

**30.—ANAGRAM.**

Oronsi teh item cahe hiedl hsloud rty  
Ni elisf ghrbti usunny norm  
Ot aly chir setosr fo lkne drooeg yb  
Plee trwiny aeg somec no.

**32.—DECAPITATIONS.**

1. Whole, I am a term used in music.  
Behead, and I am a musical instrument.  
Behead and transpose, and I am of equal value,

2. Whole, I am a kind of weight.  
Beheaded I become an animal.  
Once more behead and I become a preposition. MARY BOWMAN.

**33.—POETICAL ENIGMA.**

My first three letters as you will find,  
Compose a nickname of a most common kind.  
My second syllable you'll soon discover,  
Is a word much used our country over.  
My last four letters all taken together  
Is sometimes used in very dark weather.  
My whole much loves in the meadows to dwell,  
Where its sweet and gay tones melliflously swell. M. B. ADAMS.

**34.—NUMERICAL ENIGMA.**

I am composed of twenty-three letters.  
My 11, 21, 2, 12, 10 is the sea shore.  
My 17, 7, 22, 9, 10 is an infamous being.  
My 16, 3, 8, 18 is a lively dance peculiar to Scotland.  
My 24, 11, 20 is what we all require.  
My 5, 23, 7, 15, 12, 10, 11 is what we like to obtain. EMMA L. IRWIN.

**35.—ENIGMA.**

What a useful thing am I,  
Daily used by low and high;  
Colors I lay claim to three,  
But their names I leave to thee;  
Over land and sea I travel,  
And many mysteries unravel;  
Tales of misery I show,  
And happiness I oft bestow;  
I can tell of wonders great,  
And deeds of men I illustrate;  
I'm used in every point of law,  
And much you've got to thank me for,  
For often I defend the right  
When victims of a cruel spite;  
So thus you see I am your friend,  
For in your trouble I attend;  
Tho' void of speech, I must confess  
Each person's mind I oft express;  
I'm not far off, and that is plain,  
So try and guess my simple name. HANNAH McLEAN.

**Signs of Prosperity.**

Where spades grow bright and idle swords grow dull;  
Where jails are empty, and barns are full;  
Where church paths are with frequent feet out-worn,  
Law court yards weedy, silent and forlorn;  
Where doctors foot it, and where farmers ride;  
Where age abounds, and youth is multiplied;  
Where these signs are, they clearly indicate  
A happy people and well-governed state.

**Answer to January Puzzles.**

1.—Robin Tomtit. 2.—I must sleep now. 3.—A book case. 4.—Philadelphia. 5.—Edinburgh. 6.—Don't buy a pig in a poke. 7.—Lena, Don, Ohio, Ganges. 8.—Raisin peach. 9.—Kettle. 10.—Sackville, Fredericton, Chatham, Waterloo. 11.—Thomas Middleton Taylor. 12.—Paint. 13.—Dartmouth. 14.—Paper, wall paper, paper collars, note paper, paper blind, papier mache, tea tray, tissue paper for trimming grate, paper fan.

G  
D  
S M O K E  
C O U R I E R  
H A N D L E S S  
G E N T L E M A N L Y  
G E O R G E P E A B O D Y  
B R A N D E N B U R G  
A N I M A T I O N  
S A B B A T H  
K N O W N  
A D A

17.—The wind.  
The contributor of No. 14 puzzle will oblige by sending the answer, as it was mislaid.

**Names of Those Who Have Sent Correct Answers to January Puzzles.**

Mary E. Woodworth, Jennie Johnson, Anthony McPhail, J. M. Taylor, N. A. Betts, Maggie Jane Johnson, A. J. Taylor, Mary Bowman, Nellie Johnson, John Barber Keady, Isabella Laing, Lottie M. Laing, Aggie Johnson, Henry Easdon, Hattie Hariland, Mary A. Robinson, W. B. Eagleson, Arthur L. Reid, Tabitha Nest, Louise Fairbrother, A. J. Smith, Laura Gemley, Eleanor Nest, L. Sifton, George Leslie, Mary Jane Flock, Jane Dixon, T. Simpson, Joseph Grosz, Abraham Willis, Samuel Herring, Jennie Godson, Lawrence Marshall, Harry Kennedy, Wm. Gould, Susan Jones, Minnie Morris, Chas. Flowers, John Wright, Helen Anderson, Dora McPherson, Fred. Baird, Nancy Neil, James Caruthers, William Ford, James H. Cross, Joanna Bell, Maggie Dunlap, E. J. Connell, Samuel Gunn, Harriet Cox, Octa Gibbons, Inman Johnston



**HUMOROUS.**

**MAXIMS FROM BILLINGS.**—True criticism consists in saying a kind thing by an author whenever you can, and whenever you can't it consists in holding your tongue. Tricks upon travelers are always dangerous. I have known a dead hornet to wake up an sting just once more. Truth can take care of itself, but a lie has got to be watched as careful as a sore thumb. Misery loves company, but it is always jealous. There never was a man yet but what thought his lame back was a good deal lammer than ennybody else's. Nature has turned out one so indifferent that art could duplicate it. The soverighn mistake is that things are valued for what they have cost, and not for what they are worth. Ingratitude is wuss than hypokrasy. Mankind have been falling for over 5,000 years, and I don't think they have struck bottom yet. Trying to interest a small audience with a komik lekture iz a great deal like trying to hit the two corner pins on a tin pin alley with a single ball.

**PROGRESS.**—"Oh, if yer please, Miss, hi wish you'd 'ear me my German lesson. Mother sez as I haint to neglect my heddication, though hi ham in service, has there's no knowing what position a good looking 'complished gal mayn't get nowadays. I learnt it while I was blackening the stove, Miss, and it won't take yer a minit to 'ear me."—*London Fun.*

**DENTIST TO HYSTERIC PATIENT.**—"Don't cry—don't cry; if the neighbors hear you they will lose confidence in my system of painless extraction."—*Boston Globe.*

"Husband, I don't know where that boy got his bad temper. I am sure not from me." "No, my dear; for I don't find that you have lost any."

"Oats wanted within," was inscribed on a placard hung to the ribs of a scrawny nag, that some wag had thrown adrift in the streets of Rochester, the other day.

An Irish gentlemen declared to his wife that he really wished the children could be kept in the nursery while he was at home; "although" he considerably added, "I would not object to their noise if they would only keep quiet."

A bald man made merry at the expense of another who covered his partial baldness with a wig, adding as a clincher, you see how bald I am, and I don't wear a wig. "True" was the reply, "but an empty barn requires no thatch."

A man who offered bail for a friend, was asked by the judge if he had any incumbrance on his farm. "Oh, yes," said he, "my wife."

A lady wished a seat in a crowded hall. A handsome gentleman gave her a chair. "You are a jewel" she said. "Oh, no, I am a jeweler; I have just set the jewel."

**KILLED "BULL."**—A young Highlander, on taking leave of his sweetheart a short time back, remarked, "I'll see ye at the kirk the morn, Maggie, if we're spared, and, if we're no spared, I'll see ye on Monday."

**"THE OFFER" AND "THE ACCEPTED."**—Many have enquired the price of the above lithographs. They are not for sale, and are only sent to old subscribers for a new subscriber sent in by them.

**The Honest Customer.**

One day about three weeks ago, a strange customer came to a grocer. He wanted some goods, and he paid cash down.

The next day he made another purchase and paid cash, and as the days went by his face and his cash became familiar. One day he returned with the change given him, and said:—

"I believe I am an honest man. You paid me twenty cents too much."

The grocer received it, and was much pleased. Two days after the stranger returned from the curbstone to say:—

"Another mistake on your part. You overpaid me forty cents."

The grocer was glad to have found an honest man, and was puzzled to know why he should have counted so far out of the way. Three days more, and he picked up a dollar bill in the store, and said:—

"This is not my dollar. I found it on the floor, and you must take charge of it."

The grocer's heart melted, and he wondered if the world was not progressing backwards to old-time honesty. A skip of one day, and then the honest man brought down a wheelbarrow, ordered eighteen dollars' worth of groceries, and would have paid cash had he not forgotten to bring his wallet. He would hand it in at noon as he passed.

That was the last of the honest man; morning faded to noon, and noon to night, but he never returned.—*Detroit Free Press.*

**Visit of the Ontario Legislature to the Model Farm.**

The Legislature of Ontario has taken a trip to their farm at Guelph. Mr. Johnston, the Principal, gave a very good address for the institution. The Legislature regaled themselves on the farm, and the good citizens of Guelph prepared a second dinner for them. Some of the speakers said it would be well to continue their expenditure for two or three years. The result of the trip and double dinner will probably cause a few more hundred thousand dollars of expenditure. It is a poor time to judge a farm when covered with snow. We doubt if the farmers of Ontario really approve of the expenditure. We have not heard of many farmers visiting it; and of those who have spoken to us about it, there is not one as yet satisfied with the institution, as all farmers are sure that every step taken in regard to it has been made more for a political purpose than for the good of farmers. Still some good may result if it is properly managed. If farmers themselves had a direct interest in it they would make it of use and of profit to the country, but when all work for what they can get out of it, it must be a constant sink of capital. No doubt by additional buildings and more expenditure, greater efficiency may be given to it.

**Ontario.**

**EXPERIMENTS AT THE ONTARIO MODEL FARM.**—We have received reports of experiments of feeding pigs at the Model Farm, from which we take an abridged report as follows:—The pigs were divided into five pens, two pigs in each, and fed; lot No 1 on raw pease and water; No. 2 on boiled pease; No. 3 on steeped pease; No. 4 on corn and water; and No. 5 on soaked corn. They were fed for three months and the results carefully noted. The period of feeding was divided into two stages, five weeks each. On adding up the several results the following are obtained:—

No.	Consumption.	FIRST STAGE.		Increase p. c.
		Food.	Water.	
No. 1	407	104½	Raw pease and water.	25½
No. 2	376½	82½	Boiled pease.	21½
No. 3	384½	81½	Soaked pease.	21
No. 4	290½	69	Raw corn and water.	23½
No. 5	156	45	Soaked corn.	25½
SECOND STAGE.				
No. 1	365	110	Raw pease and water.	30½
No. 2	196½	42	Boiled pease.	21½
No. 3	391	82½	Soaked pease.	21½
No. 4	340½	101½	Raw corn and water.	29½
No. 5	401½	96½	Soaked corn.	24

These give, on an average:—  
For raw pease and water, 27½ per cent. increase.  
For boiled pease 21½ " " "  
For steeped pease 21 " " "  
For raw corn and water 26½ " " "  
For steeped corn 14½ " " "

These placed in order of merit:—  
1. Raw pease and water.  
2. Raw corn and water.  
3. Steeped corn.  
4. Boiled pease.  
5. Steeped pease.

From another report we find the prices of food used were—pease, 68c. per bushel; corn, 56c. per bushel; and at the conclusion of this experiment, the pigs were sold for 5½c. per lb., live weight. Feeding with raw pease left a profit for the first stage of feeding of \$1.91½; second stage, \$1.13½.

Boiled pease, first stage, 9c.; second stage, 27½c. Steeped pease, first stage, 26½c.; second stage, 12½c. Raw corn, first stage, \$1.27½; second stage, 89c. Steeped corn, first stage, \$1.29½; second stage, 91½c.

**Quebec.**

Every branch of industry is essentially a feeder of agriculture. Workmen in any business must have their food from the produce of the farm. Railroads, the working of mines and minerals, manufacturing and shipping interests, and agriculture must, in the Dominion, prosper or else languish together. In North Stakely there is a quarry of excellent marble; some rare specimens of it have been exhibited and there is an inexhaustible supply of this valuable material. The M. & B. Railroad will open these quarries for the market. The benefits farmers are to receive from railroads are no longer a mere conjecture. This hundreds of cases in the vicinity of every new line demonstrate. For instance, at the various stations along the Intercolonial Railway potatoes are sold at fifty cents per bushel, while at places more remote from the line they are sold at half that price.

But little is known of the progress of Eastern Townships farming even in other parts of Canada. Many of our readers will be surprised to learn the amount of the receipts of the Missisquoi Agricultural Society; and their premiums for crops, and the examination of them when growing, are a good example to other societies.

The members of the Missisquoi County Agricultural Society met at the Court-house on the 30th ult. The meeting was called to order by the President, George Claves, Esq. The auditors, Hobert and J. F. Montle, reported the receipts by the Society for the last year at \$1,601.53, and the expenditures at \$1,754.42. The very flourishing state of the Society gave general satisfaction. The following officers for the coming year are elected without opposition, viz.:—George Claves, Stanbridge, President, re-elected; Rodney Holden, St. Armand, Vice-President; George Sully, Stanbridge, Sec. Treas.; W. C. Baker and Joseph Garrick, directors for Dunham; Rodney Derrick, St. Thomas; Merritt Beemont, Clarenceville; S. H. Throop, St. Armand West; Matthew Cornell, Stanbridge; Elwin Welsh, West Farnham; Zobel Herbert, Notre Dame. The meeting expressed by vote a desire that the judges of crops and farms should make but one visit.

**THE ST. CROIX FARMERS' LEAGUE—A DISCUSSION ON POULTRY.**—Our correspondent writes: At the last meeting of the League, held at Bay side, Charlotte County, a few days ago, the discussion turned upon the profit of keeping poultry. Some of those who have had experience in the matter ventilated their ideas on the subject, and the conclusion arrived at was, that poultry kept as it should be, was a very profitable kind of stock. The rule in most country places is to let the fowls shift for themselves, pick up a precarious living at the barn door, and find shelter at night on the beams of the barn—a practice not at all conducive to the health of the hens, or in any wise calculated to improve their productive powers. It was the opinion of some of the members that hens require 80 pounds of grain (or its equivalent) per year each; that different kinds of grain should be fed at different seasons of the year—barley, with corn, for the principal winter food; oats, barley, and portions of wheat for summer; and a ration of animal food regularly at all seasons. A plentiful supply of gravel, with half-burnt shells, when fowls are confined to their winter quarters. In summer one acre of ground is required as a promenade for every hundred hens to keep them in health and spirits. It is most desirable that all chickens should be hatched before the first of May, as early pullets commence to lay by the first of October, and continue through the winter; they moult early, and are prepared for the winter cold. Cleanliness in the henhouse is indispensable, the neglect of which causes parasites to appear, which are a deadly enemy to the poultry. A large shallow box of coal ashes should be constantly accessible, and if lice appear on your chickens, the heads should be at once greased with lard or oil.

Pure-bred fowls, of small size, are most profitable—as Leghorns, brown and white, and the buff Hamburgs.

Some of the farmers in the locality of the Bay Side are ambitious to help to supply the Boston market with eggs and poultry, the facilities of carriage being good, two steamboat lines, trading between Calais and that city, have signified their desire to call at St. Andrews, at any or every trip if freight is offered.



**The Northwest.**

FROM OUR CORRESPONDENT, A. YOUNG.

Estimates, based upon important statistics, place the Provincial and Northwest Territorial consumption of flour for the next year at ninety thousand barrels, an equivalent of 360,000 bushels of wheat. This would leave only 120,000 bushels for seed and holding over—plainly insufficient. However, we are disposed to believe that the flour consumption has been slightly overestimated; but not so much so as to leave any considerable surplus of wheat after the next twelve months' requirements are supplied. The flour manufacturing capacity of the Province has been increased by twenty run of stones.

Of the coarse grains the supply will be greater in proportion to the demand, and prices thereof may be expected to range low. But even these we confidently expect to see fairly remunerative, as a large quantity will be consumed in fattening meat for our own market, which hitherto has been supplied almost entirely by importation, not for the want of stock so much as the want of grain to bring the same to fair slaughtering condition.

Immigration being bound to keep pace with our increasing grain growing, it may be reasonably deducted that long before we have a surplus for exportation eastward we shall be in possession of competing routes of transportation in the Canadian Pacific Railway to Thunder Bay, and the American railway system. Neither is it going too far in the hopeful direction to conjecture that when we have a surplus to export an abundant and high priced market will be available in the wants of more southern Provinces and States for new and hardier seed. A very high authority on the subject has predicted that for the first ten years of our surplus production it will be exported for seed purposes, and at the expiration of that time the Northwest will be known all over the continent as its principal granary for the supply of breadstuffs.

Manitoba gobbled up nearly one-half of the immigrants arriving at Toronto this year. There were about 5,500 immigrants all told, who are distributed according to nationality as follows:—English, 1,763; Irish, 578; Scotch, 437; foreigners, including Swiss, French and Germans, 156; Icelanders, 1,167; Mennonites, 1,358.

The *Free Press* (11th) says:—So far the changes in the weather this month have been unusually numerous. On the 1st the thermometer changed from zero to 28 below; in a few days it reached 38 above, four above being the lowest figure; then in a day or two the mercury ran the gamut from 2 to 38 above in the coolest place in Winnipeg. The weather has varied between Pelly chilliness and Minnesota blizzards, but to-day really warm weather came to the front, to the great delight of everybody.

Messrs. John R. McMillan and John Williams, of Rockwood, have raised a quantity of wheat which weighs sixty-six pounds to the bushel. Forty-six bushels were taken to Pritchard's mill, St. Paul's, and each sixty pounds of wheat gave the following returns:—42½ lbs. flour, 4½ lbs. middlings, 2½ lbs. bran, 2 lbs. allowed for dust and dirt, and passing through the smut machines, stones and bolts. The flour, we are told, compares favorably with any other manufactured either inside or outside the Province. The wheat was raised on new land, and was the first crop the land produced.

There has been an exhibition of the products of Manitoba, at the Corn Exchange, Montreal, as the best fertility of that Province. Of the products exhibited, a Montreal writer says:

During the day they attracted much attention, and at the special request of a number of persons who take an interest in the great North-West, an opportunity was afforded all parties who desired to see what the district can do, to inspect the samples and interview their collector. We need scarcely assure all visitors that they will be amply satisfied. The agricultural products have been gathered all the way down from the Little Saskatchewan River to Winnipeg. What first strikes attention at the tables is a magnificent pair of elk antlers about four and a half feet in length, with numerous branches, and separated from each other, at their widest parts by some three feet eight inches. The wheat, though excellent both in quality and yield, was, we were told, scarcely up to the crop of some years. It was gathered in the Saskatchewan District and Mennonite Reserve. The oats were very fine, and the number of stalks growing from one seed showed how productive was the crop. The wild hops ri-

valled anything of the cultivated class that we have seen, and the peas and broad beans were really splendid. Fancy early rose potatoes, some tubers nine inches long, and weighing two pounds, the whole of the selections averaging 1½ to 1¾ pounds each. Then there were seedling potatoes of the first year as large as a good-sized hen's egg, and onions, the Red and Brown Pork, from a pound to a pound and three-quarters. A twenty-six pound marble-head cabbage is a rather substantial vegetable product, while a red cabbage of ten pounds was also on view. And these are no uncommon things. Indeed, while the kohlrabi were remarkable, the red beets measured about two feet in length, the mangolds a trifle more than that, and the Swede turnips bumped the scale at thirty pounds. The carrots were positively beautiful, while the horse-radish was perhaps the most remarkable exhibit. One of the roots weighed five and a quarter pounds, was fourteen inches long, at the widest part measured five inches in diameter, and had none of those little roots which detract so much from the quality of the ordinary horse-radish.

The crops in Sunnyside have averaged more under the thresher than was expected, wheat turning out 25 to 30 bushels, oats 75, barley 50. The former is much better in quality than anticipated, and the oats and barley are extra fine grains. The average per acre for the whole tract cultivated last season in this province has been estimated by returns which have been sent in from all parts, and comes to 32½ bushels of wheat, 42½ bushels of barley, 51 bushels of oats, 229 bushels of potatoes, and 662½ bushels of turnips.

The citizens note with an air of satisfaction the changed aspect of affairs on the streets as compared with last fall. The *Winnipeg Free Press* says: On fine days Main-street is crowded with teams laden with all kinds of agricultural and dairy produce, wood, hay, etc., for which the owners receive good prices—mostly cash—and in consequence city quadrants and dips are more highly fed than ever in this new country. Wednesday we noticed on the streets farmers from the Rosseau, Woodlands, the Boyne, Grassmere, Greenwood, Cook's Creek, Scratching River, Springfield, and in fact nearly every settlement in the Province was represented. Our merchants are buying liberally the products of the farmers, and the latter are thereby enabled to pay off their debts, which places them in a good position for next season's operations. At McMillan & Bassett's mills 2,409 bushels of wheat are at present ground every week; but with the new boiler which is being put in the quantity will be increased to 3,000 bushels.

**British Columbia.**

A FINE CLIMATE.—The *Dominion Pacific Herald*, published at New Westminster, on the mainland, boasts of the climate there, saying in its issue of December 9th:—"If those short-sighted and small-minded retrogressionists on the eastern side of the Rocky Mountains, who cannot appreciate the advantages to be derived from the union of British Columbia, and who would refuse to accord her that ample measure of justice to which her position as a member of Confederation entitles her, could but see the face of the country at the present moment, they would be apt to bid good bye to the land of extremes of heat and cold, and take up their abode in our more genial and healthy temperature. Our mornings and evenings are keen and frosty, with a lively bright sunshine during the day, and a glorious sunset, such as would dazzle the eyes of a landscape artist. Roses are again beginning to bloom: we were shown one yesterday by Mr. Crawford, grown in his garden, and also a couple of winter pears, plucked at the same time, and weighing 3 lbs. 2 oz.—no bad evidence of the mildness of our climate and the productiveness of our soil." And again:—"Latest mail advices from all parts of the upper country report the weather mild and open. It was raining at Berker-ville, Cariboo, when the last express left."

**Prince Edward Island.**

FALL SHIPMENTS.—We gave an account of the quantity of produce shipped by James Duncan & Co., in their own vessels. We copy from the *Argus* the shipments of oats by two other leading Island firms:—

Messrs. Peake Bros. & Co. shipped the following cargoes, the Prince Edward having taken away two shipments:—

S. S. Prince Edward.....11,500 bush.  
" " " ".....71,691 "

Bark Moselle.....30,000 "  
Bark Ethel Blanche.....31,150 "  
" Corisande.....24,050 "

Total.....168,391 bush.

Messrs. Welsh & Owen's shipments in their own vessels are as follows:—

Bark Isabel.....26,500 bush.  
Brig Lady Milton.....27,000 "  
" Lauretta.....26,000 "  
Brig Victor.....14,500 "  
" G. W. Wakeford.....15,600 "  
" Magic.....10,135 "

Total.....119,735 bush.

We learn from the Secretary of the Provincial Exhibition of Agriculture and Local Industry, that it is the intention of the Board to have a Grain Show at Charlottetown, open to the whole Island, in March next. At this Grain Show samples will probably be selected for the Paris Exhibition of 1878. It is also contemplated to award prizes at the Grain Show in March to the best fat cattle for Easter.

GOVERNMENT STOCK FARM.—This farm is charmingly situated on the right bank of the Hillsborough River, which here takes a sudden bend in its odd course of twenty navigable miles from Mount Stewart Bridge to its confluence with the York and North Rivers, at the "Three Tides" in Charlottetown harbor. It is three miles from the city by the road, and two by the river, upon which it has a frontage of three-fourths of a mile, contains 317 acres well wooded, gently undulating and locally known as "Falconwood." Even now may be seen upon it, embowered in trees, what must have been at one time a pleasant country seat, as, indeed, it was that of Sir John A. Macdonald during his stay on the Island some years ago, but now it is falling into decay, its bricks showing need of replacing.

This farm was started some 25 years ago, and has gone on increasing in usefulness and good reputation with results to back it, until to-day it can send stock to the county and inter-provincial exhibitions that would carry the palm from all others. This result has not been reached without some delays, disappointments, and much hard work, but within the last few years new "blood" has been infused both in the management and in the stock; and the directors may feel proud of their efforts, when one of their number was able to go to the World's Fair at Philadelphia, and draw the "Island Garden" into notice by the exhibit of the beautiful animal, Royal Harry, more than was done by all the other exhibits together as accomplished by Dr. Jenkins not long ago.

**New Brunswick.**

A CROP OF BUCKWHEAT.—Messrs. Rufus and John Stevens, of Doon, sowed a field of gray buckwheat last spring, which yielded 88 bushels for every bushel of seed.

A farmer of Sussex County is the owner of a hog two years and ten months old which girts 7 feet 3 inches, and is said to weigh 1,000 lbs.

NEW FACTORY.—Mr. A. C. Campbell, formerly of Newcastle, has leased the privilege of running a factory on Beaubear Island, for the manufacture of dimensioned lumber, barrel staves, heading, clapboards, shingles, laths, and box stuff, &c. One building has been erected, 40 x 22, two stories, and Mr. Campbell has commenced the erection of another, 70 x 18, two stories. The building already finished will contain the engine and boiler, planer, jointer, header, stave machine and shingle machine. The machinery, with the exception of the engine, is on the ground, and will be set up immediately. In the building now being erected will be placed a rotary saw and edger for breaking up the stuff. It is expected that the factory will be started about the first of March, and will give employment to between 20 and 30 hands in the summer season, and from 15 to 20 in the winter. The staves will be made for the P. E. Island market, and will be used for making up mackerel barrels. Mr. C. has been engaged for several years in running similar machinery for other parties both in Miramichi and P. E. Island, and feels confident that he can turn out work which will give entire satisfaction to all parties.—*U. Advocate.*

It is a generally admitted fact, that a hen's laying capacity averages about six hundred eggs, and that with good care that number can be produced in a little over two years, when she should be fatted for market.



30,000 "
31,150 "
24,050 "

168,391 bush.
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FRANK MILLER'S LEATHER PRESERVATIVE and Water-Proof Blacking received the highest and only award at the Centennial Exhibition.

NURSERY OF ELLWANGER & BARRY.—The wide celebrity of the nurseries of Messrs. Ellwanger & Barry of Rochester, and their long and successful labors in horticultural improvements, render interesting to readers whatever information we may furnish in relation to their mammoth establishment. Not only have their efforts been abundantly rewarded in a pecuniary point of view, but the enterprise they have exhibited by the introduction of new fruits, trees and plants, and the correction of nomenclature through the assistance afforded by their extensive specimen grounds and orchards, and the improvement in the taste of the community through the dissemination of the products of their grounds, have all had a wide and beneficial influence throughout the entire country, and proved a national benefit. No other nursery firm has equaled them in the exhibition of large and correctly labeled collections of fruits in the different States, as the announcement of first premiums which they have everywhere received fully indicates. Their grounds have been a model in landscape gardening, and their large and rare collection of specimen ornamental trees is a valuable arboretum. Even the catalogues which they annually issue have become useful works for reference, on account of their accuracy and copious and well-chosen selections.—Cultivator and Country Gentleman.

The heavy body of snow on the ground, which is an excellent protector for our wheat, will require the watchful eye of the farmer when the weather moderates, as it is packed and frozen in some places so that air cannot penetrate to the earth. This will cause the loss of the wheat from smothering. If you make holes through the ice on frozen or drifted places you will not have such large pieces of winter-killed wheat.

Catalogues Received.

Ellwanger & Barry, of Rochester, N. Y.—These gentlemen have the finest nursery we have seen. Their catalogue is most complete, and their reputation stands as high as any for trees, plants and shrubs.

Jas. Vick, of Rochester, N. Y., for flowers stands unsurpassed; his catalogue is worth perusing.

Jas. Gregory, of Marble Head, Mass., has sent out many valuable, new and good varieties; he aims for the best.

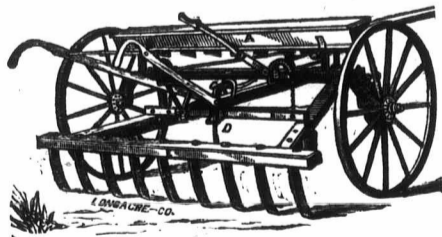
B. H. Bliss sends a fine catalogue, and varieties of potatoes to satisfy the most particular persons.

W. Rennie, of Toronto, sends out a very handsome catalogue this year; he means business.

Geo. Leslie & Sons, of the Toronto Nurseries, give a full account of nursery stock.

Messrs. Pontey & Taylor, of St. James' Park Nurseries, London, give a good assortment.

Any of these gentlemen will forward their catalogues on application.



Travis' Wheat Hoe, Grass Seed Sower and Broadcast Grain Sower.

When at the Centennial Exhibition we donated considerable time in the Machinery Hall to find any implements that we thought would be useful to our readers. Our attention was particularly taken up as soon as we saw this implement and were shown its workings and its use. We give the following accounts of it from the circular. Some of our manufacturers may find it of advantage to manufacture it in Canada, as the price it will cost to import it will make it too dear for general use, being from \$60 to \$120, without the duty and carriage. The advantage of having the wheat between the drills must commend itself. We here extract from Mr. Travis' circular:—

With this cultivating hoe you can largely increase the produce of your fields by hoeing your wheat and all similar crops as readily as you can corn, and as fast as it can be planted with the drill, it

being the same width and spaces of a drill, to follow between the rows of wheat, at the rate of about one acre per hour with two horses. The frame of this hoe is hung on a pivot to the draft pole by a universal hinge, and admits of eighteen inches lateral motion from right to left when in the ground, and with the use of the lever handles and medium of the lock shaft C, and slot D, (the depth being regulated by the ratchet lever B,) the prepared hoes can be held between the drills of wheat as readily and effectually as corn can be hoed with a cultivator at any desired depth, and as this thin form of tooth will not cover the plants in passing between the drills, but will loosen up the soil and allow it to fall back in its original place, and covering the roots that are bare by a heavy frost, and destroying the weeds, if there are any, by letting in light and heat, bringing the fertilizing gases of the atmosphere to bear upon the roots of the plants, thus enabling the plants to branch and bring forth more roots and larger heads and kernels than by any other means. I have sets of steel teeth for hoeing wheat and rye when sowed broadcast that won't destroy one plant in fifty, and the clover seed equally covered.

We are compelled to lay over some of our communications this month. Some have arrived rather late, and we have already encroached considerably on other space. We are much pleased to have received so many. Those laid over will appear in next issue. We also return thanks for the prompt renewal of so many of our subscribers. Our receipts during the past two months have been greater than at any previous two months.

Stock Items.

Mr. T. Gay, of Oshawa, has sold the following Ayrshires:—

To Arch. Park, Esq., Ingersoll, Ont., the two year old bull, "Rocket," (602).

To John Foot, Esq., Port Hope, Ont., the yearling bull "Warrior" (780).

To J. H. Holden, Esq., Belleville, Ayrshire cows, Fanny Fern (604), Cowslip (408), and Jessie Graham (204).

To Hon. G. W. Allan, Toronto, Ont., Peerless (129).

Mr. George Axford, of Southwold will sell 20 head of shorthorns on Wednesday, the 21st of February.

We beg to call the attention of our readers to the advertisement of Mr. John Lumbers. As far as we are able to learn it speaks the truth. We have seen a number of certificates from some of the most prominent cattle owners in the country, and they all speak in very high terms of the Great Devonshire cattle food. We advise our patrons to try it.

The Land Department of the Little Rock and Ft. Smith Ry. offers great inducements to settlers and Government homesteaders. See advertisement.

W. W. Bostwick & Co., whose advertisement appears in this paper, we believe send the goods as advertised, but we have no connection with them, and parties must write to them, not to this office.

FRANK MILLER'S HARNESS OIL received the highest and only award at the Centennial Exhibition.

DEATH OF MR. HUGH THOMPSON.—We regret to have to announce the death of Mr. H. C. Thompson, at his residence, Aikenshaw, near by Carleton, after a brief illness. Mr. Thompson was secretary of the Agricultural and Arts Association for more than twenty years; and to the energies of he and his father and Col. Dennison, we have to attribute much of the success that has attended it during that period. In justice to the deceased we must say that in the Board there was no superior to our departed friend.

Patrons of Husbandry.

New Granges.

535, Grantham—Charles Stewart, M., St. Catharines; Thos. Keyes, S., St. Catharines, P. O. box 409. 536, Barrow Court—Geo. McCalkin, M., Lorne, Ont.; John McFaden, S., Lorne. 537, Centre—Robert Forest, M., Newry Station; J. E. Robertson, S., Newry Station. 538, Mayburne—James May, M., Mayburne; Robert Russell, S., Mayburne. 539, Gaines—Edward Nash, M., Wheatley; J. W. Thompson, S., Wheatley. 540, Prince of Wales—Aaron White, M., Blytheswood; E. S. Irwin, S., Blytheswood. 541, Iron Hill—Ira Scott, M., Iron Hill. M. E. Bullard, S., Iron Hill. 542, Otter Creek—

Geo. A. Marlatt, M., Vienna; Thos. Halcumb, S., Vienna. 543, Spring—Edward Cooper, M., Fordwich; Peter Hepin-stall, S., Gorrie. 544, Bloomfield—Jervis S. Leavens, M., Bloomfield; David S. Hubbs, S., Bloomfield. 545, Victoria—Jno. Cullis, M., Fenelon Falls; Wm. Powles, S., Fenelon Falls. 546, Warsaw—A. K. Kidd, M., Warsaw; Geo. Forsyth, S., Warsaw.

Division Grange.

34, Rose Valley—Ira Argue, M., Woodville; Charles Jun-kin, S., Cannington.

Commercial.

NEW YORK MARKETS.

Wheat declining; receipts large. Rye firmer; Corn firmer, 61c. to 62c. for new Western, 62c. for new Western mixed. Barley dull and declining. Oats, 42c. to 54c. for mixed Western; 46c. to 55c. for white. Hogs dull, \$17.50.

CHICAGO MARKETS.

Flour, light demand; holders firm. Wheat du'l, weak and lower, \$1.14 to \$1.34; rejected, 98c. to 99c. Corn buoyant and unsettled, 42c. to 47c. Oats easier, 35c. to 37c. Barley dull and nominal. Dressed hogs fairly active; heavy, \$7.00 to \$7.50; light, \$7.20 to \$7.35.

LONDON MARKETS.

Wheat (Dethl), \$2.20 to \$2.40; Treadwell, \$2.10 to \$2.35; red winter, \$2.00 to \$2.15; spring wheat, \$2.00 to \$2.20; barley, \$1.00 to \$1.20; peas, \$1.15 to \$1.17; oats, \$1.20 to \$1.25; corn, 90c. to \$1.10; beans, \$1.00 to \$1.37; rye, \$1.00 to \$1.10; buckwheat, 80c. to \$1.00; flour, patent process, per 100 lbs., \$5.25; mixed do., \$3.20; spring do., \$3.25. Live Stock.—Cattle, per 100 lbs., live weight, \$3.00 to \$4.00; sheep, each, \$4.00 to \$5.00; milch cows, each, \$5 to \$40. Butter.—Roll, 25c. to 28c.; keg do., 17c. to 18c.; cheese, 10c. to 11c.; flocks wool, 20c. to 30c.; lard, 10c. to 12c.; hay, \$8.00 to \$10.00 per ton; turnips, \$2.00; clover-seed, per bushel, \$8.40 to \$8.60; potatoes, per bag, \$1.00 to \$1.25; cordwood, dry, \$3.75 to \$4.00; green, \$3.50 to \$3.75.

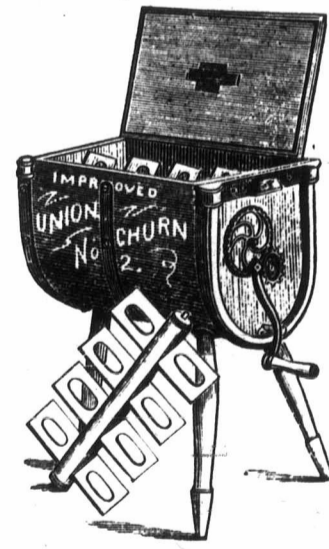


We offer for Spring of 1877, the largest and most complete stock in the U. S. of Fruit Trees, Standard and Dwarf. Ornamental Trees & Shrubs, deciduous and evergreen. Roses a specialty—all the finest sorts. Green & Hot House Plants, including best Novelties. Descriptive and Illustrated priced Catalogues sent prepaid to customers, free, on others on receipt of stamps as follows: No. 1. Fruits, with colored plate, 15c.; plain, 10c. No. 2. Ornamental Trees, colored plate, 25c.; plain, 15c. No. 3. Greenhouse, Free. No. 4. Wholesale, Free. No. 5. List of New Roses, Free.

Small parcels forwarded by mail when desired. Address, ELLWANGER & BARRY, Rochester, N. Y.

Improved Union Churns.

(Pat. 1276.)



1st Prize at Hamilton, Provincial Exhibition, 1876. 1st Prize at London, Western Fair, 1876. 1st Prize at Guelph, Central Fair, 1876.

The above Churn forwarded to any reliable farmer in Ontario on three weeks' trial. Satisfaction guaranteed, or no sale. Send for Catalogue and Price List. Agents wanted in every county in Canada.

McMURRAY & FULLER,

DB-41 31 Front St. East, TORONTO.

250 MARYLAND FARMS

In Tracts from 30 to 300 acres. Near railroad and navigable salt-water (with all its luxuries), in Talbot Co., Md. Climate mild and healthy. Titles good. New Pamphlet and Map showing Locality, free. Address—C. E. SHANAHAN, Atty., Easton, Md. DB-2

\$55 & \$77 a Week to Agents. \$10 Outfit Free.—P. O. VICKEY, Augusta, Maine. di-12





OUR SEED CATALOGUE for 1877 contains Illustrations, Descriptions and Directions for the Cultivation of the most extensive stock of Garden, Field, Flower and Grass Seeds we have ever offered. Mailed free to all applicants. DB-2

SHORTHORN SALE.

TO BE SOLD BY AUCTION, ON WEDNESDAY, the 21st DAY OF FEBRUARY, on Lot 26, Southwold, distant 11 miles from London, 5 from St. Thomas, TWENTY HEAD OF SHORTHORNS; also, Horses, Grade Cattle, Sheep, &c. For particulars address GEORGE AXFORD, Tesoro P. O.

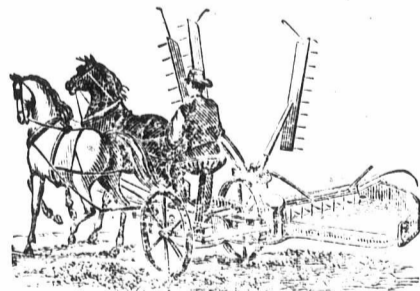
(CHOICE FOWLS FOR SALE.—White and Brown Leghorns and Plymouth Rocks, \$3.00 per pair; under value for quality. See Galt Prize List. J. H. McMECHAN, London P. O., Ont.

HAMILTON AGRICULTURAL WORKS!

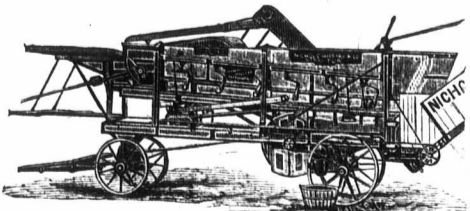
Awarded the only International Prize Medal, and also Silver Medal at the Centennial, given to Canada for Mowers and Reapers.



"IRON-CLAD" MOWER. Warranted First-Class. Has no superior in the World.



CANADIAN HARVESTER. Adapted to all kinds and conditions of grain. LIGHT DRAFT ADJUSTABLE TRUCK, instantly adapted to LODGED GRAIN. Guaranteed as represented, or money refunded.



"GRAIN-SAVER" THRESHER. Warranted Superior to any in the Market.

Send for Illustrated Catalogue. Address—**L. D. SAWYER & CO., Hamilton, Ont.** DB-12



My annual Catalogue of Vegetable and Flower Seed for 1877 will be ready by January, and sent free to all who apply. Customers of last season need not write for it. I offer one of the largest collections of vegetable seed ever sent out by any seed house in America, a large portion of which were grown on my six seed farms. Printed directions for cultivation on every package. All seed sold from my establishment warranted to be both fresh and true to name; so far, that should it prove otherwise, I will refill the order gratis. As the original introducer of the Hubbard and Marblehead Squashes, the Marblehead Cabbages, and a score of other new vegetables, I invite the patronage of all who are anxious to have their seed fresh, true, and of the very best strain. New Vegetables a speciality.

DL-5 JAMES J. H. GREGORY, Marblehead, Mass.



Fifty pages—300 Illustrations, with Descriptions of thousands of the best Flowers and Vegetables in the world, and the way to grow them—all for a Two CENT postage stamp. Printed in German and English. Vick's Floral Guide, Quarterly, 25 cts. a year. Vick's Flower and Vegetable Garden, 50 cents in paper; in elegant cloth covers, \$1.00. Address, JAMES VICK, Rochester, N. Y.

Thoroughbred Stock for Sale.

Male and Female Leicester and Cotswold Sheep; Durham Bull, "3rd Earl of Goodness," 3 years' old; and Berkshire Pigs. H. SNELL, Clinton, Nov. 1, 1876. DL-3

HEATH & FINNEMORE,

WHOLESALE AND RETAIL

SEED MERCHANTS.

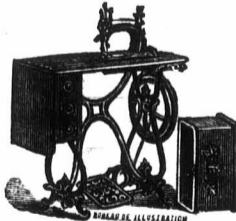
Sole Agents for

McMaster & Hodgson's Celebrated Liquid Annatto Rennets.

SCALE BOARDS, CHEESE BANDAGES, AND ALL OTHER CHEESE FACTORY REQUISITES CONSTANTLY ON HAND.

KING ST., MARKET SQUARE, LONDON, - - ONTARIO. de-1f

GUELPH SEWING MACHINE CO.



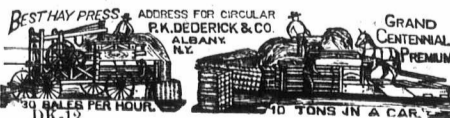
OSBORN A.

After a very heavy expenditure of money and time, we are happy to be able to put on the market the most perfect sewing Machine ever offered the public. Can be had from any of our numerous agents. PLEASE EXAMINE IT. Shuttle, Tensions, Stitch Regulator are unequalled, for which we have secured patents in the U. S. and Canada. The cheapest first-class machine in the market.—AGENTS WANTED where none are already appointed.

WILKIE & OSBORN,

MANUFACTURERS,

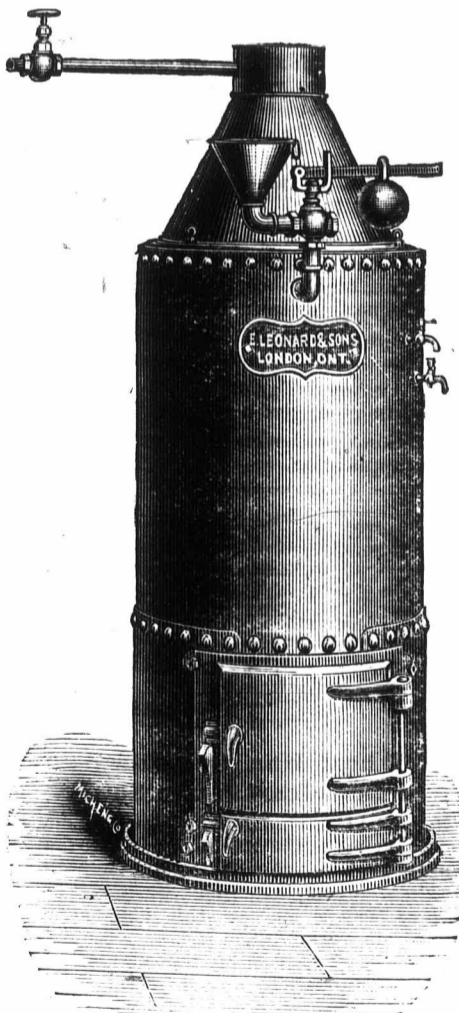
Guelph, - - Ont., Canada.



SEEDS My Catalogue of Field, Garden & Flower Seeds, etc., etc., for 1877, is now ready, and will be mailed FREE to all applicants.

WM. RENNIE, Toronto, Can. DB-1

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Our Combined CATALOGUE for 1877  
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**EVERYTHING**  
FOR THE  
**GARDEN**  
Numbering 175 pages, with Colored Plate,  
**SENT FREE**  
To our customers of past years, and to all purchasers of our books, either Gardening for Profit, Practical Floriculture, or Gardening for Pleasure, (Price \$1.50 each, prepaid, by mail.) To others, on receipt of 25c.  
Plain Plant or Seed Catalogues, without plate, free to all.  
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AGRICULTURAL STEAMER  
Saves One-third of Food  
IN FEEDING CATTLE.

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VOL. 3

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