

FARMER'S ADVOCATE

AND HOME MAGAZINE

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NO. 1.

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THE FARMER'S ADVOCATE —AND— HOME MAGAZINE.

WILLIAM WELD, Editor and Proprietor.

Only Illustrated Agricultural Journal
Published in the Dominion.

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Address

THE FARMER'S ADVOCATE
AND HOME MAGAZINE,
London, Ont., Canada.

A very happy and prosperous New Year to all.
Bound volumes of the FARMER'S ADVOCATE for
1881 will be mailed, postage prepaid, to any ad-
dress in Canada or the United States for \$1.50.
Orders can now be sent in.

Our Prize Essay.

Our prize of \$10.00, given for the best essay
on "The best and most practical method of pre-
serving timber used for building and fencing pur-
poses," has been won by Mr. P. E. Bucke, of
Ottawa, Ont.

A prize of \$5.00 will be given for "the best
plan, description and specifications of a cow
stable, 60 feet long by 30 feet, with walls of con-
crete." This plan must be in this office on or
before the 6th February next.

The Month.

Perhaps the month just past may have been the
mildest December yet experienced in Ontario. We
do not remember a milder one. Stock have been
seen in many fields at Christmas. Very little fuel
has been required in comparison with other years.
The roads have not been as good as when we have
had sleighing, but such a crowded display as the
Christmas market afforded has never before been
seen in this city. The prices received for all kinds
of farm produce were higher than usual, and pur-
chasers were more than usually fastidious about
procuring the best. The large purchases made by
mechanics and the laboring classes were a sufficient
guarantee that money was easy. The store-
keepers had a rich harvest, an immense number of
handsome presents having been purchased by
farmers and citizens. The crowded state of the
shops was such a sight as we never before wit-
nessed. In many of the shops the business was
kept up until midnight; in some lines of goods the
stocks were entirely exhausted. A deserving poor
or needy person would be a difficult object to find.
In speaking to the Mayor of the city, he said there
was no distress in the city. We think it would be
difficult to find any city in the world where such
a state of plenty and prosperity pervades the
whole mass of the people as in this city. We
never have seen or heard of anything to equal it.
We should be pleased to hear such reports from
every city and hamlet in this Dominion. We be-
lieve that peace and plenty prevail in our land.
We should be thankful to the Giver.

The winter wheat is looking well. Stock are
thriving. There has been a full share of fall plow-
ing done, and there exists plenty of fodder for
stock to withstand the coldest and latest spring we
have ever experienced.

If you have not finished your marketing, do not
think of keeping over a lot of grain. Prices are
good. Sell all you can spare, but feed all your
coarse grain to your stock, that is, if you have
suitable stock to feed it to. If you have all your
building and fencing material on the ground, your
spring seed ready, implements and buildings all in
order, and your ice-house ready to receive the ice
when it freezes sufficiently thick (we expect you
will have it thick enough before the 1st of March)
—if all the above are attended to, and you live
near a city, town or village, perhaps you might

find it profitable to devote a few days in drawing
home a little manure. You have some land that
would be improved by a little more manure. Get
stable manure if you can; if not, see if you can
get some gas lime, and if this cannot be had, per-
haps you can get leached ashes for a trifle. Fail-
ing in any of these, perhaps you can get up a pile
of swamp muck. Some of our Maritime Province
subscribers can procure useful mud or sand. We
wish our subscribers to secure as much of such
material as they can. Purchase loads of manure
of any kind, and secure a long engagement for the
supply obtainable at hotels and slaughter-houses.
The enrichment of your land is the best bank stock
you can invest in. We have never seen a farm
that was too rich to satisfy us—have you? We
have seen many that are too poor to own.

Some of you can get sawdust to use as bedding
or as an absorbent of the liquid manure. Some of
you may be able to secure lime, which is one of
the best fertilizers when it can be procured at
moderate cost. Teams are not generally busy
now; it might pay to go longer distances and give
more for manure now. When summer comes you
will have all the work you want to attend to on
your own farm.

If your horses have been kept up without a run,
you might find it beneficial to give them a clay sod
to nibble at occasionally. We know some of you
have not a good warm place for your hens, not as
good as you should have; neither have they a nice
bed of dry sand to scratch in, and perhaps neither
lime nor shells in reach. Just see to it if you want
early eggs and profit from your hens.

Subscribers are desired to send the name and
address of any farmer who should take the FAR-
MER'S ADVOCATE, and a sample copy will be at
once mailed free to him. As our subscription lists
swell, so greater improvements can be made. Our
receipts so far for 1882 have been greater than any
previous year. We thank our subscribers for their
efforts, and ask for their continued support and
good will.

"YES OR NO."—Having made a very liberal ar-
rangement with the publishers of the handsome
crayon by the world-renowned J. E. Millais, R. A.,
entitled "Yes or No," we are now enabled to
offer a copy of this fine picture as a prize to any
subscriber who sends in one new name for 1882,
with \$1.00.

THE FARMER'S ADVOCATE AND HOME MAGAZINE
contains 36 pages this issue. As promised,
this journal will, except during the dullest season,
be enlarged at times to meet the requirements of
the season and valuable information on hand, and
will be much improved during 1882 in many
respects.

A few volumes of 1880 still on hand, and can be
obtained at \$1.50 each per mail.

Agricultural Societies.

The Act of Parliament that established Agricultural Societies was a step in the right direction for the advancement of the greatest interest in Canada—agriculture. The comparatively small grant that has been annually given for the encouragement and maintenance of these societies has, we believe, resulted most beneficially. Better stock, better crops have been the profit; the introduction and spread of the best labor-saving implements has been encouraged; the rapid strides in advancement never before known in the world have been the results. The numerous great Provincial and other great agricultural exhibitions have been an honor to our country. The smaller county and township exhibitions have also been adding to the progressive march, perhaps to a greater extent. The township exhibitions have brought forth the juvenile competitors, and have in their several localities done great good. Not only has this desire to excel each other in producing the best agricultural products been beneficial, but the fact that a day for mental agricultural improvement and social greetings is a great boon to each locality where these exhibitions have been properly conducted. Every honorable and honest farmer will, we believe, coincide in the foregoing remarks. We are on the eve of very great changes, and probably your voice or vote at the annual meeting may have some influence. We believe there will be a series of questions put to the meeting, and perhaps prepared speeches to advocate some particular measure or some new departure from the old regime. You should be present at the meeting, and before committing yourself to support any particular person or measure, weigh well in your mind the object of the measure; and also you should weigh well the character and position of every speaker. The first point to consider in any speaker should be this:—Is the speaker a really honorable person; has he the real agricultural interests foremost in his general transactions, or is he a mere fluent talker, having other and greater interests in view? Listen attentively to the few brief remarks made by any plain, honorable, reading or thinking farmer. Do not be led too much by a beautifully flowery, eloquent address from a glib speaker. Many of the soundest and best men we have known have not been gifted orators, and many of the most eloquent we have ever heard have been the most unprincipled villains.

You have, no doubt, noticed the attempts to destroy both the Township and the Provincial Exhibitions. We do not think that destroying either would be for the interest of agriculturists. Such a step might be deemed of benefit to large manufacturers, large stock importers, or city interests, but not for the real practical farmers. Do you not think it would be advantageous rather to increase the utility of the Provincial Association and of the Township Exhibitions than to destroy them? Could you not suggest some improvements in the existing management? Do you not think that it would be much cheaper and much better to improve than to destroy, and rebuild? Are not many of the new buildings now constructed of less utility and durability than the old solid stone walls of our ancestors? Were not the foundations of agricultural exhibitions on a solid and good foundation, and if so would it not be dangerous to build on drifting sand? Go to your annual meeting; endeavor to draw forth more light, and encourage more discussions on agricultural subjects. Ascertain why your representative voted against holding the Provincial Exhibition in Kingston this year. Enquire if he was aware that one of the members of the Board, without the knowledge or consent of the Board, promised to hold the Exhibition for two years in succession in To-

ronto. Should such a promise be binding on you? Should agricultural exhibitions be subservient to city interests, boat races, military and other processions, negro exhibitions, mermaids, aunt sallies or gambling institutions? Should the Provincial Exhibition be permanently located in Toronto, and placed under the control of a body of speculators, who have cunningly, and perhaps illegally, taken possession of property that did belong to the Provincial Association; whose object is and has been to make money out of the farmers, and compel exhibitors to remain in the city one week unnecessarily? Should the agricultural exhibition money, granted for agricultural encouragement, be expended for and by farmers, or not?

Contagious Diseases of Domestic Animals.

We have read this valuable work with great interest. It elucidates very clearly the origin, nature and treatment of the contagious diseases that have become more prevalent throughout the continent than ever heretofore. We beg to thank the authorities of the Department of Agriculture at Washington, under whose authority the work is published, who have sent us an early copy for our editorial library.

Continued investigation has further confirmed the opinion now generally held, that many contagious diseases are produced by the great increase of bacteria, exceedingly minute organisms that exist either in the form of filaments or granules in all putrifying animal and vegetable matters, and that where these matters are excluded such matters may be preserved indefinitely. The danger of anthrax devastating our flocks and herds, and the spread of the contagion, are so imminent that no research can be deemed too persistent which will enable us to fathom the mysteries of such disease. Recent French publications contain the results of many important experiments relating to the cause and manner of the transmission of contagious diseases among domesticated animals.

"One of the most deadly diseases of cattle and sheep is the disease known as *charbon* which is now spreading over the continent. Most of the Departments of France have suffered severely from the ravages of this disease. There are a number of these districts where the losses reach annually into millions. Among the many flocks of sheep raised, there is possibly not one that is not attacked each year. Farmers consider themselves fortunate when the number of deaths does not exceed two or three per cent. of the total number of animals in the flock. This scourge is known to all countries. Whence comes this disease? How is it propagated? Is it not possible that further experiments may lead to measures which may be easily applied and suited for rapidly extinguishing this disease?"

Does a possibility of contagion exist after the animal dead from contagion is buried? On this point M. Pasteur, having produced the result of carefully conducted experiments, continues:—"As long as the bacteridium in the filiform state is deprived of air it tends to become resolved into compact dead and inoffensive granulations. Putrefaction places it precisely in condition for decomposition of its tissues. Since the animal at its death contains the parasite in its filiform condition, it is certain that putrefaction destroys it through the entire mass." In this stage it is generally believed there is no contagion.

In the course of his experiments, however, M. Pasteur, after having made an autopsy, buried a sheep spontaneously dead from *charbon*. Ten months and fourteen months later the earth of the grave was collected, and it was easy to determine in it the presence of germ corpuscles of bacteridia,

and by inoculation to communicate the *charbonaceous* disease to guinea pigs. Further experiments confirmed the existence of the germs in the surface of the grave, although in the interval this earth had not been stirred. At points remote from the graves, on the contrary, the soil refused to yield *charbon*.

"Will earth that is such a powerful filter allow the germs of microscopic beings to rise to the surface?"

Having shown that the vitality of bacteria in the buried animal may, from some circumstances, not have been destroyed, as, for instance, in consequence of the blood issuing at the time of the animal's death from its mouth and nostrils, which is a common characteristic of this disease, or the urine to be bloody, and other matters thus mixed with the surrounding aerated earth, they are no longer in the condition of putrefaction, but rather in that of a medium of culture suited to the formation of germs of bacteridia. Mr. Basteur proceeds to show that there still exists a danger.

"There is evidence that if the mellow earth of the surface of the graves of *charbonaceous* animals contains germs of *charbon*, and often in large quantity, these germs come from the little excrementitious cylinders of the worms by rain."

Earth worms bring to the surface of the ground other germs which would be no less offensive to these worms than those of *charbon*, and yet bearers of diseases affecting animals. It is a well established fact that they are constantly filled, and with all kinds, and those of *charbon* are always associated with germs of putrefaction.

Thus the surface of the soil becomes poisonous, and the fatal anthrax deal out disease and death to the flocks and herds feeding on the bad ground, and the plants growing thereon are poisonous to live stock.

Thus it is with worms as with many rather wisely-designed creatures, they may be productive of evil, though instruments of much good. Their operations in the soil tend to the admission and free circulation of air, moisture and heat, elements essential to vegetable growth.

English Letter No. 33.

[FROM OUR OWN CORRESPONDENT.]

Liverpool, Dec. 5.

The past month has again been devoid of general matters of interest. Our weather has been exceptionally mild; but, according to the averages of an English winter, the mildness of November and December will be fully discounted by the lateness and severity of the spring. At present it is nothing unusual to find a household dispensing with fires in their sitting rooms. We have not even had a single November fog.

The shows of fat cattle, preliminary to Christmas markets, have already commenced, and the Birmingham show is a thing of the past, having achieved the distinction of being, in point of numbers, the most successful since the show was established, thirty-three years ago. Herefords won the distinction of producing the champion beast of the show. Class I.—Hereford Oxen, contained six entries. None of them were so huge as have been seen, yet they were all good specimens. It is an indisputable fact, that, as a rule, the judges now pay more attention to lean meat, and a beast which would formerly have taken a prize on account of its extraordinary fatness, would now be relegated to a second or third-rate position.

The Hon. J. H. Pope, your esteemed Minister of Agriculture, is setting a worthy example to the interests he specially represents. On many occasions I have had to report instances of his enterprise in importing choice stock into the Dominion, but I may safely say I have never had

the pleasure of recording a better or more valuable selection of Polled Aberdeens than that just despatched by Mr. Geo. Wilken, Waverside Forbes, N. B., on Mr. Pope's behalf. First, at a very low price, is the wonderful two-year-old Polled bull "Proud Viscount," son of the stock bull at Ballindalloch, "Young Viscount," which was the highest priced young bull of Ballindalloch yet sold at public auction. Mr. Pope's bull, which has proved himself a first-rate stock getter, is out of "Lilius," of Tillyfour, one of the best cows and most fashionable tribes bred by the late Mr. McCombie, and is probably the best two-year-old bull of this breed in the world. In addition to this magnificent animal, Mr. Wilken has purchased for Mr. Pope, "Tillyfour Priacess," and her bull calf, the figure paid for the two reaching four figures in dollars; Damin Sweetheart cow, which will cost \$1000 by the time she reaches her destination; "Ballindalloch Nosegay," the warehouse prize heifer, and a three-year-old cow from Mr. Hannah's herd, are also included in the consignment. A leading man in the cattle trade here, who saw them before they were shipped, informed me that they would be hard to beat by any breed in any country. An interesting commentary on the different herds and their meat producing value, was supplied at the Birmingham show—already referred to—on the publication of a table of the weights of cattle exhibited at the show, showing the average age in days, the gross live weight in pounds, and the average daily gain in pounds. In the steers not exceeding 2½ years, Crosses head the list, with 2.08 lbs. per diem, gain; Shorthorns coming next, with 2.02 lbs., and Herefords with 1.80 lbs.; no other herd being exhibited in the class. In steers not exceeding 3½ years, Shorthorns headed the list, with 1.92 lbs.; Crosses being next, with 1.82; Herefords, 1.72, and Devons, 1.46. In the important class of Oxen, not exceeding 4 years old, Scotch Polled headed the list, with 1.80 lbs.; Crosses being next, with 1.75; Shorthorns, 1.63; Herefords, 1.59; Devons, 1.24, and Highland, 1.07. In the class of heifers, not exceeding four years old, Crosses took the first place, with 1.62; Herefords next, 1.56; Shorthorns, 1.45; Scotch Polled, 1.28, and Devons, 1.08.

The shipments which have recently arrived, of live cattle, have resulted in enormous loss, in consequence, mainly, of the terrific weather experienced on the Atlantic. Canadian sheep, however, have arrived in good order, and have made very fair prices. I must again direct the attention of your readers to the importance of cultivating this branch of their trade. The close and unseasonable weather we have lately experienced has also had a most depressing effect on the markets here; but it is asserted that the home stocks have been somewhat relieved, and that better prices may be looked for; and for first-class cattle and sheep, from what I can glean, there will be better prices paid next year than for a long time past, even if they do not surpass anything since the initiation of the trade.

A consignment of apples, marked and named, and sent forward from your district, by Mr. Smythe, of London, has been exhibited here by Mr. Dyke, and, though the exhibits were hardly so good as last year, they created great interest in the trade; and it is to be hoped that they will lead to an extension of the Canadian share of this rapidly increasing trade in fruits. The shipments to this country, from the States and Canada, have been about 50 per cent. less, up to date, than last year, and I anticipate very good markets for the few Canadian importers who take care to pack only sound fruit, and to transact their business themselves. A consignment of fruit has also

been sent to the German delegates who visited your country, and specimens have been on exhibition at several places in southern Germany, and have created quite a sensation. It is gratifying to learn that those gentlemen were very much pleased with their visit, and spoke very high of the prosperity and comfort that they witnessed in the German settlements in your province.

Mr. Caird and Mr. Alexander have been urging the importance of dairymen improving the quality of cheeses. I notice that prime lots of Cheshire cheese are fetching 75 shillings per 112 lbs., with the prospect of increasing to, at least, 82 shillings. All these facts tend to show the necessity for your farmers keeping up with the times and producing better cheese, as well as better beef, mutton, apples and, indeed, everything else that they export. They may rely upon it that the only exporter who is likely to succeed, is the one who produces the very best article.

As regards emigration, I notice that the Texan agents are working very hard to counteract the agitation in favour of the Dominion, which has been created by the reports of the tour of the Marquis of Lorne, and by the efforts of the Canadian Government to promote education. I understand that they are taxing every line of railroad at the rate of \$25 per mile per annum, to further emigration from Great Britain and Europe. They are now granting assisted passages at £5 per adult to any portion of Texas, children under 5 years of age to be carried free, so that your Canada is not to be allowed to have it all her own way.

Selection of Judges at Fairs.

(FROM OUR CHICAGO CORRESPONDENT.)

Of course no thinking person will, for a moment, imagine that among the possibilities is included the selection of judges at fairs or cattle shows who will succeed in pleasing all interested parties. Such is not human nature, but this is a question of greater importance than the management of such affairs usually seem to give to it.

The man who takes unusual care in preparing whatever he may wish to exhibit, and yet fails to secure any honors, while he honestly feels that the excellence of his stock, for instance, should entitle him to second or perhaps first consideration, cannot have very much faith in the judgment of the judges, because he is either compelled to think their decisions unfair or else his judgment at fault, and there are few of us self-sacrificing enough to adopt the latter principle.

Perhaps the greatest and likewise most common cause of trouble in the selection of judges is the naming of men who are pecuniarily or otherwise interested in some one of the breeds, for instance, that are competing for the prizes and honors. Very true, a man to be an able judge must have had practical experience; and in gaining it, it is very natural and quite probable that he will form a liking for some particular kind, most likely that in which he is himself interested, and a prejudice against others that will greatly stand in the way of justice when the awards come to be made. The securing of strictly conscientious men to act in such offices is therefore highly essential, because the man who can utterly ignore anything approaching prejudice on his part and render fair and square judgment based wholly upon the merits of the stock without allowing his likes or dislikes for the exhibitor to cut any figure in the matter, is not the rule, but decidedly the exception.

Judgment, to be fair, must of course be consistent, and anything that smacks in the least of inconsistency is to be avoided. It not unrequently happens that the most apparent incon-

bridged over by the judges in order to soothe the wounded feelings of so highly expectant and possibly influential exhibitor who may have expressed himself as highly disappointed at some of the decisions in which he was interested. An example of this "policy" method of bestowing awards was witnessed at the recent fat stock show held at Chicago, in one or two cases, but the most noteworthy was in the three-year-old and grand sweepstake rings for cattle, where the two great rival breeds, Shorthorns and Herefords, were the principal and in fact the only very sharp contestants. In the three-year-old class the grade Hereford steer, Conqueror, whose age in days amounted to 1,190; average weight 2,145 lbs., and average gain per day since birth 1.30 lbs., was the first prize winner, his sharpest contestant being the grade Shorthorn, McMullen, whose record was, age 1,237 days, average weight 2,095 lbs., and average gain per day since birth 1.61 lbs. Very well, when the entries for the grand sweepstakes were led out, these same two steers were again face to face as principals in the struggle, and the result was that the Shorthorn which was virtually acknowledged to be inferior to the other in the first ring, was decided to be his superior in the second case, by receiving the first premium. The queries naturally arise: Was it the exhibit or the exhibitor that received it? And did the judges make a mistake in the first or the second case? Unquestionably, both decisions could not have been right. The "policy" judgment in such a case as that is too apparent to fail to attract attention, and it is that spirit which should be left out entirely, in such matters. If the Shorthorn was the best in one ring, why not in another? And if he was entitled to the two great honors in the live stock display, why did he not receive them, and of course the same applies with equal force to the Hereford. Evidently the motive was to please both interests, and, as usual in such cases where a person tries to sit on two stools at once, neither were pleased.

Many breeders and dealers are in favor of having different judges for different rings, claiming that there would be less room for unfairness and discrimination, but why would not the same course that is adopted in impanelling a jury, work well in such cases. If the judges knew nothing whatever of the owner of the stock to be judged, and had simply the bare record of age, weight, average gain, etc., and the animals to go by, there would be less cause for complaint at the decisions rendered by the men elected to settle upon the animal's embodying the most desirable results.

Bone Dust for Fertilizing.

The more this substance is used for fertilizing purposes, the greater the value is appreciated. It is well known that in England it is valued higher than any other substance. There the farmers not only use up all the bone of their own country, but the importation of bones from other countries has assumed gigantic proportions. All the old battle fields have been ransacked, and unless reports do an injustice, many an old fellow whose bones were supposed to rest in peace in some grassy, daisy-dowered churchyard, would have to hunt some modern turnip field to find all that remains of them. Foreign countries have not only to pay tribute to England of their wealth during life, but even their bones have to follow, in order to enrich British soil, as while living they worked to fill British pockets. Australia sends an enormous quantity of bones to England. It has become such a heavy trade that the article itself was found too light for profit. Science has been called in to enable the ship owner to take the same weight in less bulk. The bones are first ground, then the dust mixed with some substance to make the particles stick together. Then the material is put under heavy pressure in molds about six inches square, so that it can be packed in the hold without any loss of space. One ton of this bone-cake measures only twenty-six cubic feet. Of course these are all of wild or domestic animals, but still "silence is golden."—*Germantown Telegraph.*

Our Contributors.

In our December issue we omitted to return our thanks to the numerous contributors who have aided us in making this journal so popular by their able and useful articles and valuable hints. We now return our thanks to you, and trust that we shall be favored with your continued patronage, and that the opinions of those who have already contributed may stimulate a larger number of our farmers to contribute. It is from these open and free discussions that correct opinions can be arrived at and improvements made where errors exist or improper management prevails, or erroneous plans are adopted. The sooner and the more fully such are brought to light, the sooner improvements are apt to follow. Each intelligent farmer from his own practical experience can impart some knowledge that would be of benefit to his fellow men. Each observant mind can notice some omission or commission in his journal that more light might be thrown on. He may see and know, and yet, through diffidence or perhaps bashfulness, allow the present opportunity for doing good to pass. Those who have the interest of the agriculturist at heart, and withhold their opinions from the public, we hardly think are doing as much good as they ought.

As this journal is devoted to the interests of agriculture, we have been under the necessity of rejecting some articles that have been forwarded to us, such articles having been intended to sway the mind for sectional or party purposes, or intended for private advertisements. Lest any one should be offended, we wish you all to consider that those who really wish to do good to agriculturists to the largest extent should take agriculture as the highest and main interest. When it is placed second to other interests, it is sure sooner or later to result in downfall. This may be seen by reading the histories of Palestine, Egypt, Rome or all parts of the world where the farmers have eventually been made slaves or serfs. Therefore let your articles always be on agricultural subjects. This journal, you all know, is the only one in this Dominion that is published for the farmer's interest.

We believe we have the best agricultural writers contributing to our columns. You must have read with pleasure and profit the able and highly valuable contributions from our English, Scotch and American correspondents, and the numerous able Canadian writers every month furnish you with useful information. Though these have been the best we could procure, there undoubtedly are other good writers; but perhaps these may have objects foreign to the interest of the farmer foremost in view, and therefore they prefer to use party publications, but you may depend that the more party interests are allowed to conflict with agricultural interests, the more the latter must suffer, the more the farmers will have to pay, and the least good will they receive for what they pay.

We do not reject correspondence because the articles may not coincide with our views. Sometimes we let them pass without even a remark, but in this issue there appears an article from one of our highly appreciated correspondents—one who has furnished us with much very valuable information, and we trust he may furnish us with much more, despite our present dissension from his views. We refer to our Washington correspondent, page 5, in regard to his remarks about Germany, etc., and we deem it but proper to state that we think some Americans have exceeded the line of propriety in attempting to show that the U. S. has not been as badly affected by contagious diseases as it really has. It is of no use to attempt to shield the fact that millions have been lost to the U. S. from Pleuro-pneumonia, Foot and Mouth

Disease, Scab, Hog Cholera and Trichinosis, all of which do exist in that country; and further, we have no hesitation in saying that some of the above diseases have been introduced into Canada from the States, and that we have personally seen Canadian stock on Canadian farms suffering badly with some of the diseases taken from imported stock from that country. We also believe that many Canadians of prominence have been fully aware of this fact, but have, to the injury of the Canadian farmer, evaded or suppressed the truth, and that the sooner the whole truth is made known the better it will be for the farmers of this Dominion. Canada has nothing to fear if the truth be spread, but the suppression of the real facts will assuredly tend to a permanent stigma and dishonor to our legislature and loss to Canadian farmers and to the British nation.

What I Know about Butter-Making—Here it is.

(FROM OUR ARKANSAS CORRESPONDENT.)

First.—There are only two conditions under which milk or cream cannot be churned or butter successfully made; that is, when the milk or cream has been kept so long that the acid has eaten up all the fatty matter or butter that it contained, or, when the cow that the milk is produced from is very near the time to have a calf. Nature puts a stop to the churning process. The time for this change to take place will vary with different cows, and the milk from one cow, in the above named condition, will spoil the milk of a hundred others, if mixed with it. Milk from twelve to twenty four hours old will churn easier, and produce more butter, than from cream. First, because there is no waste in skimming when you churn the milk. Second, the thinner the fluid the easier you can work the dasher, and the greater the agitation the quicker the butter will come, and, if churned when sweet, the butter will be of a much finer or better quality than can be made from sour milk or cream. There is no standard temperature for churning, and, yet, the production of butter depends upon the temperature and chemical growth of the milk. I have churned butter from milk that had only been taken from the cow twenty minutes, or long enough to reduce the temperature to a churning point, and completed the churning or produced butter in forty-seven minutes. The milk was then set away for twelve hours and then re-churned, and about a like quantity and time produced as before, showing that a certain chemical change or ripening is necessary. Milk from the same cow at twenty-four hours old, sweet, and older and sour, would not make any more.

About temperature, as I said before, there is no standard; each cow will differ, according to condition and circumstances, from sixty to ninety degrees Fahrenheit. Food dry or fresh, new milch farrow, or a long time since she had a calf, all make a difference in the temperature necessary to produce the same quality of butter. Where the milk from several cows is mixed, you can arrive at an average temperature that will produce the best quality and make the best possible time; but if those cows were churned from separately, you would produce more butter, but you would find the temperature required for each would differ. The temperature necessary, as I have found it by an average churning of about twelve times a day, summer and winter, for three years, is as follows: We will start in the spring, with fresh cows and on fresh grass, will run from about 65 to 75 degrees Fah.; as the season advances you will have to reduce the temperature, from time to time, till you get down to 60. You cannot produce butter

below 60 degrees; along about October, say you have been churning at from 62 to about 65, some day you will discover that there is something wrong; the butter does not come in the usual time, and yet the conditions are all apparently the same; try a little more heat, I have found it jump to 70 and 75 degrees. There are two reasons to be assigned for this; one is, the condition of the food at that time of year and later on in the season, and the other is the tolerably advanced state of pregnancy of the cow. In mid-winter I have found some cows that required as high a temperature as 80, and produce as good a quality of butter as any other cow would at any required temperature.

I once found a cow in Pine Bluff, Ark., in the month of May, when the average cow required about 65 degrees. The cow that I speak of required 90 degrees, and her butter was hard and well granulated; but to churn the milk from almost any other cow at that temperature would have produced nothing but a kind of mucous or something like a slippery elm poultice. All butter should be churned in from one to five minutes. If you churn a long time the grain of the butter is destroyed, and it is beaten into a kind of salve or ointment. Now, a word about churns. If care is observed about temperature, you can make an average time of churning with the old dash churn of from five to ten minutes, and the old dasher principle has never been beat; but the churn can be improved. A churn with parallel sides, with a tolerable tight fitting dasher, is the best. A dasher that will fill the churn top and bottom alike within from one-half to one inch is the best, and you will find in the market several patterns and patents of conical-shaped dashers, which will carry a volume of air down into the milk or cream at stroke, and will add much to the motion of the fluid. I would recommend any or all of the above described dashers.

I might have said a great deal more on the subject, but I have endeavored to make it as brief as possible. If any one wants my opinion on any point that I have not touched upon, or any question, I will answer it cheerfully through you.

[NOTE.—We think there must be an error in the time stated for churning, to wit, five to ten minutes, or the difference of temperature of Arkansas from that of Canada must have a great influence on the time. We insert this letter, as it will be of interest to many who are interested in butter-making.]

Why Does Timothy Run Out?

Mr. T. S. Gold writes as follows in "The N. E. Homestead" of the running out of timothy, and of his purpose to try a plan that has proved successful in the case of clover:

The disappearance of timothy from our natural mowings is variously accounted for. First, it is charged to the mowing machine as cutting too closely. We usually run our machine at medium height, rarely using the closest cut, but would prefer the medium or highest. Here we encountered a difficulty from the fingers clogging with fine grass, so that we could not use the highest cut, and the machine would run over much of the lodged grass. Second, it is charged to too early mowing, as we mow some two weeks or a month earlier than formerly. Timothy runs out mostly upon seedings of the early cut meadows. Third, we agree with those who attribute it to the peculiar character of our seasons rather than to either of the above. Some period of each year for the last ten years has been remarkably dry, and the timothy has never recovered from the effects. As timothy is cut earlier there is less natural reseeding than formerly; also less is foddered out on the fields scattering the seeds. I shall try reseeding with timothy, with top dressing, thirty cart loads per acre, and four quarts of clover seed harrowed in. Two applications will surely prove effectual on any reasonably good land."

From the United States.

WASHINGTON, D. C., }
Dec. 19th, 1881. }

The new Commissioner of Agriculture thinks that the poverty of the soil in South Carolina and Georgia, where the Government experimental tea plantation was located, will prevent the realization of that success in the cultivation of the plant heretofore promised. He has, accordingly, put a stop to the extension of the work, and, for a while yet, at least, the U. S. and Canada must look to China and India for their supply of tea. Speaking of China reminds me that the Celestial Empire is becoming progressive. Information has been received here, through official sources, that an extensive stock farm has been established in China, stocked with the best cattle, sheep, &c., and conducted on the most approved American plan. A number of small shoots of the Laurus tree have been brought from China to this country. They grow very rapidly, and attain a height of one hundred feet. The wood is very valuable for its durability, and is used for building bridges, &c. It is said, in illustration of its great durability and freedom from decay, that the pillars of the Tamler of the Mingos, made of this wood, are 300 years old, and are perfectly sound.

The Commissioner of Agriculture, in his report just made to the President, says in reference to the experimental culture and propagation of seeds, plants, &c.:—"The facts, as well as the principles involved in the systematic rotation of crops, rest in comparative obscurity; but little is known about it, except that it is a practice absolutely essential to profitable culture. The same remarks apply to the value of *changing seeds from one soil and climate to another soil and climate*. It is well known that results follow such change, sometimes favorably and sometimes unfavorably; but how far these are influenced by soil alone, by climate alone, or their combination, has not reached a decision of practical applicability."

"All of our cultivated plants have run into numerous varieties, many of them comparatively worthless, and many others of *local value* only, or of limited special utility." He proposes comparative tests in different latitudes, the result of which tests will also indicate the line of operation to be pursued in improving the plants or crops by crossing or by hybridizing varieties combining special values.

The botanist, in his report upon *blue-joint grass*, says: "It is a stout, erect, tall perennial, growing chiefly in wet ground or low meadows. Its favorite situation is in cool, elevated regions. It prevails in all western portions of the U. S. and British America. Farmers report that they consider it one of the best grasses of the meadow." He reports on eight or ten other varieties, none of which are suited to the climate of Canada.

This Government is still manifesting great interest in the investigation of contagious and other diseases of domestic animals. Two good sized volumes have been issued on the subject within the past year.

Dr. H. J. Detmey, V. S., Department of Agriculture, has been instructed to continue his experiments with the disease known as swine plague, with special reference to ascertaining what agents seem to offer the best results when used as prophylactics. He was advised to put to a practical test, on a large scale, the subjects selected for experiment. By studying the disease in large herds, and watching closely the effects of the agents used, it is thought that a cheap, simple and efficient preventive of this destructive disease might be discovered, and a lasting benefit thus conferred on the farming community. A full report of his experiments will be given in a short time.

Dr. Lyman, a veterinary surgeon, who has been employed by this Government to investigate the alleged existence of contagious diseases among domesticated animals, landed in England from the U. S., reports, in reference to American cattle effected with the foot and mouth disease, that "careful investigation shows that the disease, if it existed, was caused by infection communicated to the cattle *after they were shipped from American ports*, and is to be attributed to exposure to the virus imported into England from France, and spread abroad from Deptford market, where it was first discovered. It is considered possible that the disease may be imported to American cattle (including Canadian) by the use of the head-ropes, which are often taken from diseased European animals and used on board American vessels employed in the cattle trade, and also by taking on board these vessels articles for shipment from wharves where diseased animals have been landed." Dr. Lyman also reports that during his stay in Great Britain, no diseased hogs were landed from the U. S.; that the report of the Veterinary Department of the Privy Council for 1879, shows, that out of 279 portions of swine flesh taken from American hogs that have been condemned and slaughtered on account of swine fever, only three were found to contain living trichinae. The report of the Privy Council in giving its reasons for not prohibiting the importation of American pork, says: "Such a measure would have damaged the trade without producing any satisfactory results." * * * Besides, trichinosis among swine is known to exist in Germany, and it probably exists in other exporting countries, so that nothing short of prohibition of swine flesh in all forms from all foreign sources would be effectual."

The Agricultural Department has been engaged within the last year in an examination and measurement of the fineness of wools and animal fibers. They have measured, in all, about 600 samples of wool of different qualities, making, in all, 2,100, and among them wools from Germany, graded by one of high authority on the German system of classification. From these examinations it is found that it is possible to produce in the U. S. and Canada as fine wool as can be produced in any other part of the world, and that the fineness of the products of the Saxony and Spanish merinos have not deteriorated since their introduction into this country, wherever the maintenance of this quality has been kept in view of the breeders.

[See editorial on correspondence.]

I like your paper very much, and think it among the best publications of its class; indeed I am giving it the preference. May success attend you in your laudable efforts to spread information upon the subject of Agriculture.—A. LONGLEY, M.P.P., Paradise, N. S.

At a late meeting of the Ma kham, Ontario, Farmers' Club, CANADA THISTLES was the main subject of discussion. Members generally agreed that deep ploughing only makes them thrive, but ploughing shallow, or any means of cutting them off just below the surface, soon subdues them. A good cultivator, and especially the heavy English scufflers, six or seven feet wide, do it effectually and rapidly, killing quack grass as well as thistles with the aid of our hot, dry summer weather. Shallow ploughing and scuffling, or scarifying, were approved as preparation for crops, the subsoil being loosened but not turned up on the surface. On the same occasion Mr. Gibson said that millions of dollars are lost by TEAMING GRAIN TO MARKET IN THE FALL, with dear labor, instead of working at the right season to prepare the land for clean and good crops. He is quite sure he could afford to take 10 cents a bushel less for his wheat in winter rather than haul it in during the fine weather, when there is so much necessary and profitable work to be done.

The Dairy.

Make-rooms in Cheese Factories.

BY L. B. ARVOLD.

President American Dairymen's Association.

Now that cheese factories are not in operation it is a good time to overhaul them generally, and make repairs, if there is any occasion. There are few factories which do not get out of order, more or less, in the course of a season's use. The make-rooms, in particular, generally keep in order but a short time. The constant wetting and drying of the floors soon rots them away and also the timbers that support them. The alternate shrinking and swelling of the flooring opens cracks and crevices into which whey enters and remains till it sours and decays, and fills the room with its vitiated odors. In most factories this becomes a source of constant contamination to the air of the factory. There are but few factories in which a person accustomed to breathe the pure out-of-door air, will not, upon entering the make-room, at once detect the peculiar smell of sour and decaying whey, but which the maker, from being daily in it, fails to appreciate till it becomes extreme.

The development of such odors in a factory are objectionable first, on the score of health, and second, because more or less of them are taken into the cheese to its injury. Milk, before it is made into cheese, is a powerful absorbent of every odor which comes in contact with it, and moist and warm curd is but little inferior to milk in the readiness with which it takes in and retains any offensive or foreign smell.

The cheese, after it has been pressed, and banded and greased, is less receptive of odors, so much so that many have denied that cheese, after pressing, takes in any odors at all. But this is a mistake. Cheese only differs from milk and curd in the degree of its absorption power. I saw a good demonstration of this in Crawford county, Pennsylvania, in the summer of 1879. A factory was built some forty or fifty rods from the site of an old tannery, from the scent of which the factory was protected by a ridge of high ground and the intervention of adjacent buildings. In hot weather, cheese was cured in the second story with the windows open. In one corner of the room the cheese became affected with a peculiar taste and smell which grew more intense till they were cured and sent off. When they were off the way others were put in their places, which became affected in the same way as often as a change was made. The fact became a source of annoyance for which neither the maker nor proprietor of the factory could account. When examined by an expert the smell peculiar to the decomposing animal matter about the old tannery was detected in the cheese, and an inspection of the situation showed that one corner of the curing room—the one in which the affected cheese lay—projected enough beyond the other buildings to allow the wind, when in the right direction, to blow obliquely into the extreme window upon one side, and pass out at the nearest window in the adjacent end. By passing over the cheese in that corner of the room, they had absorbed the foul odors it was sweeping away from the putrifying debris in the tan-yard. Closing the windows abated the annoyance.

Upon closing my factory one fall, I put some cheese into a room in a cellar to finish curing, and left them in boxes with the covers off. The room was done off for a milk room, but at that season was used for other purposes, and the door was frequently opened. It was not long before the cheese, though nearly cured, tasted distinctly of the cabbage and turnips stored in the other part of the cellar. I have, upon several occasions, found cheese, after being placed in the curing room, to

become sensibly affected by the too near proximity of a hog-yard, or a cesspool, or other cause of stench, so that I know, positively, that odors of a foul atmosphere are quite readily taken up by cheese even when well matured.

No cheese maker need fancy his cheese secure from the effects of foul air in a make-room, though he himself, from being constantly in it, may not be annoyed by its presence. It will, most assuredly, be taken up by the milk while it stands in the room, and by the curd while it is maturing, and afterward by the cheese if it is within reach. When once taken into a cheese it is there to stay. Time and exposure to pure air will, it is true, gradually reduce the intensity of the effect, but it is never wholly obliterated.

Evidence of the tenacity with which foreign odors hang to cheese when once imbibed, was well developed at Philadelphia, during the Centennial. While examining cheese upon that occasion, we found several exhibits which had brought with them foreign odors taken in during manufacture and curing, so strong as to injure them materially, and they were marked down several degrees in consequence. In an otherwise very fine exhibit from New York—one of the very best from that state—honors were lost which might have been carried off, but for a strong and offensive smell of sour and putrifying whey which it had taken in and brought along with it from a nasty make-room. In every such case, whether the odor came from a near-by pig-pen, or from a carrion, or from an unusually sour and filthy factory, the decision of the judges was verified by the personal knowledge of the superintendents who had charge of the respective exhibits.

Thus it is clear that cheese is materially modified by the condition of the atmosphere of the factory in which it is made, and hence it behooves those who would secure fine and clear flavored cheese to see to it that the air of their factories is pure and sweet.

There is no source of atmospheric contamination so common as defective floors in the make-rooms. Portions of them rot away quickly, or become so soft and spongy as to soak full of whey which soon decomposes and befouls the air. Often they are, in the first place, made of wood so porous and opened grained as to become whey-soaked while they are sound. The floors of make-rooms should be made of hard or close-grained wood. Maple makes one of the best floors. Spruce and the heart of pine are also good. But whatever the wood, it should be straight-grained, so that there shall be no cross-grained spots to rough up by scrubbing and become receptacles for holding whey.

The trouble with the floors of make-rooms is often aggravated by their being laid on a dead level. They ought to be inclined from two opposite sides toward a line near the end of the vats at which the whey is drawn off, so that whatever liquid falls upon the floor will centre toward that line. Under this line of lowest depression, and beneath the floor, should be a tight gutter to receive the waste through holes in the floor along the line. The part of the floor covering the gutter should be movable, so as to be easily taken up to make the gutter accessible for scrubbing and scalding. Otherwise it will be liable to become foul and offensive. With a floor thus arranged and made of good material, and perfectly tight and well set up from the ground, so that air can circulate freely under it to keep everything about it dry and sweet, the whey being conducted to a receptacle at a safe distance—30 or 40 rods—from the factory, there need be no difficulty in keeping the make-room in a good and wholesome condition. If this could be accomplished in every factory, it

would wipe out some of the most serious obstacles in the way of improving factory cheese. It was long ago written that cleanliness is next to godliness. It is now becoming very apparent that pure air is an essential element in the means of preservation for cheese makers.

How Oleo-Margarine Affected Prices.

There has been much discussion of late in dairy circles regarding the effect of oleo-margarine upon the prices of butter, and we have had the curiosity to look up the New York wholesale prices for best butter in January and July, for five years prior to the war and for the five years last past. They compare as follows:

	1857.	1858.	1859.	1860.	1861.
January	25	21	25	20	21
July	22	19	18	18	15
Average	23½	20	21½	19	18
Average for 5 years,	20 2-5 cents.				

	1877.	1878.	1879.	1880.	1881.
January	31	30	20	30	28
July	20	17	14	22	24
Average	25½	23½	17	26	

Average for 5 years, 23 3-5 cents, or about 16 per cent. higher during the five years in which oleo-margarine has been known.

These figures would seem to indicate that the alarm manifested by some dairymen at the growth of the oleo-margarine industry is not well founded, and while it may interfere somewhat with the sale of poor butter, it is probable that this, in the end, will benefit dairy interests by inducing dairymen to give more attention to the cleanliness and quality of their produce.

That there is need of this is shown by the large proportion of poor butter that is still made, most of which, by the way, is now thought by the consumer to be oleo-margarine. There never has been, and, in our opinion, never will be, too much good butter made, because the consumption per capita will rapidly increase when the average consumer can have a good instead of a bad article placed before him.

The experience of our dairymen will probably be about the same as those of Europe, who, when the new produce made its appearance, were alarmed lest it should prove a formidable competitor, but in the light of experience it has not proven to be so. There, as here, it is sold for what it is at wholesale, but in the hands of the retail trade much of it is marketed as butter, and this seems a difficult problem to deal with on account of its chemical and other similarity to genuine butter.

We hope to see the day when all articles will be sold for what they really are, but at present Germans imitate American tools, the Americans manufacture silks and sell them under French labels, Maracaibo coffee goes into consumption as Java, and lots of slop fed pork is represented as real corned. These wrongs ought to be righted as well as the selling of oleo-margarine for butter, and we hope all good citizens will keep on trying to do so, but in the meantime dairymen should remember that oleo-margarine is better than bad butter and that good butter is better than oleo-margarine. The surest way to meet competition is therefore to improve the quality of their product, and if American dairymen do this they will probably solve this problem as their European brethren have done.

Canadian Butter and the English Market.

The far-seeing economists of the United States are looking forward to the eventuality of the demand in English markets for foreign dairy products being wholly sent by her colonies, especially by Canada. Even now the Dominion is no mean competitor with the U. S. in supplying to foreign markets her superfluous agricultural wealth. Hon. X. A. Willard, whose name is familiar to our readers, writes as follows in a well considered article on "American Cheese and its export."

"But there is another feature in the trade, which, it is feared by some, may be inaugurated. It is a discrimination between the goods coming from the United States and those from Canada

and other colonies. Canada has become a formidable competitor with us in the export of dairy produce. Canada now makes goods of the finest quality, and cheese dairying are rapidly developing in the Dominion. At the present rate of increase she will be able, at no late date, to supply England with all the cheese needed, provided the dairy industry of Great Britain is kept up. Australia and New Zealand are also entering largely upon the business, and it has been suggested that some arrangement is likely to be made by England imposing duties upon cheese from the United States, and allowing it to come in free from Canada and the Colonies. The protective policy of our government toward Canada and England it is said strongly favors this movement."

English dairymen are making efforts to secure by greater attention to dairy industry and to retain their former ascendancy in their markets. The Secretary of the Royal Agricultural Society, Professor Sheldon, and other dairy writers in England, are urging upon British dairymen the necessity of introducing the manufacture of various kinds of cheese made on the continent of Europe. Let our Canadian dairy farmers not merely rest contented with the victories gained, but press forward. There is yet much to be done in improvement of our produce.

How Condensed Milk is Made.

A subscriber enquires how condensed milk is made. In reply we publish the article beneath from the Scientific Farmer. The condensing of milk is no doubt an industry of great interest to the dairyman and farmer, as well as to the consumer. By it milk—which is a perishable article—can be preserved for lengthened periods, retaining its freshness, and the cost of transport is reduced to a minimum.

"When the milk is brought into the factory it is carefully strained, placed in cans or pails, which are put into a tank of water kept hot by steam coils. When hot it is transferred to larger steam-heated open vessels, and quickly brought to a boil. This preliminary heating and boiling has for its objects the expulsion of the gasses of milk, which would cause it to foam in the vacuum pan, and, also, to add to the keeping quality of milk by destroying the mould germs. A second straining follows, after which the milk is transferred to a vacuum pan; where at a temperature below 160 degrees Fahr., it boils and is rapidly concentrated to any degree desired. The vacuum pan employed is a close vessel of copper, egg-shaped, about six feet in diameter. It is heated by steam coils within and by a steam jacket without, enclosing the lower portion. In one side of the dome is a small window through which the gas illuminates the interior, while on the opposite side is an eye-glass, through which the condition of the contents are observed. The pan is also provided with a vacuum gauge and test sticks.

"Much of the milk used in cities is simply concentrated, without any addition of sugar. The process of concentration is continued in the vacuum pan, until one gallon of the milk has been reduced to a little less than a quart—one volume of condensed milk corresponding to about four and three-tenths volumes of milk. Condensed milk intended to be preserved for any length of time, has an addition of pure cane sugar made to it during the boiling and is usually put up in sealed cans. This sugared or 'preserved' milk, when properly prepared, will keep for many years."

In the report of the Agricultural University of the State of New York occurs the following: "The following are some of the conclusions arrived at, viz: that gypsum is of little value to corn or grass in wet seasons, but of great value in dry; that superphosphates are of very unequal values, those of the best reputation proving of but little value on the soil of this farm when applied to moderately fertile and well-cultivated land; that failures in farming result not so much from poor soil, as from poor culture, imperfect preparation of the soil, and stagnant water in the subsoil; that clover and cattle are the cheapest renovators of worn out fields; that early sown crops require the least quantity of seed, and promise the best results; that heavy land should be plowed moderately deep in the fall, covered with manure in the winter, and re-plowed to half the depth in the spring."

Stock.

Selection and Care of a Bull.

The dairyman may make it a part of his business creed to believe that dairy cows must be bred and reared especially for the dairy. He cannot afford to pay a breeder to do this work for him. The mere milk-producer may do passably well by buying cows in the market and using them as long as they are milking freely, and then fattening and disposing of them to the butcher and replacing them with fresh cows. To do this with profit, however, requires a concurrence of favorable circumstances, good judgment in buying and selling, and a market for the fat cows in which they can be disposed of without loss. It is even a question for the milk dairyman to consider if the expense of feeding a good cow during the period when she is falling off in her milk and approaching parturition again, may not really be less than the inevitable losses arising from the frequent sales of dry cows and the enforced purchase of fresh ones. In general, and without exceptional facilities, with the advantage of considerable capital, and sometimes the profit to be derived from supplying neighboring dairymen with cows purchased and brought in with his own, the dairyman will find that he can breed and raise his own cows and keep them over their dry period at far less cost than he can buy fresh cows and sell the dry ones. And this will be found true even without taking into account the important advantage accruing from the possession of a herd of extra good cows, which milk well in their flush and continue without unnecessary failure in quantity for a long period.

With the butter maker no question of this sort arises. He must breed and rear his cows, for they are not to be purchased at such a price as he can afford to pay, and it is a palpable fact that it costs no more to rear a good cow than a poor one.

This being the case the selection and care of a bull for dairy purposes becomes an important part of the dairyman's business. This influences the character of the progeny, and to some extent the sex of it; and it goes without saying that it is the dairyman's interest to have as many heifer calves as possible. To secure the first effect, the bull should be taken from a herd of known good character, consideration being given not so much to the fact that the bull's dam was a good milker, or a large producer of butter, as to the certainty that the line from which the bull comes was good. A phenomenon in the dairy is apt to disappoint expectations. The descendants of some of the most noted cows have been very ordinary animals and some have been very poor ones; but if the habits of the family dam and grandam, sisters, nieces, and aunts, have been good, without any one possessing extraordinary capability, the result will be more satisfactory.

To secure a preponderance of heifer calves it is advisable to use a young bull—one not older than five years. For a small herd an animal 18 months old may be used to begin with, and if he is kept until he is five years old he may make two crosses on his own heifers, and be the sire of his own granddaughters, which will be far enough to go in line breeding, even with the most satisfactory materials. The effect of using a young bull on aged females has been conspicuously noted in sheep breeding. An instance out of many may be given as follows: A flock of ewes served by rams under 18 months old, produced from two-year old ewes 14 male and 26 female lambs; from three-year-olds, 16 males and 29 females; from four-year-olds, 5 males and 21 females. There were several twin births. Another flock, served by rams over four years old, produced from two-year-old ewes 7 males and 3 females; from three-year-olds 15 males and 14 females; and from four-year olds, 32 males and 14 females. There were no twin births in the flock. In the former flock there were in all 35 males and 76 female lambs, and in the latter 55 males and 31 females. This remarkable result has been verified by other instances, and although it may not serve as a basis for a special rule, yet it points very strongly towards the existence of a physiological law of which we have evidence in the highest race of animals, as well as among the lower ones.

It is advisable to keep the bull in active work and only moderately well fed. A luxurious, idle

life is highly objectionable. Work may always be found for a bull on a dairy farm. He may be trained to work in a horse power and do the churning and the fodder cutting. He may be harnessed to a cart and haul feed from the fields, or do considerable light work in many ways. This will keep him docile and add much to the sureness of his services. The bull should be provided with a ring in the nose. This should never be neglected, even with the most docile and well trained animal. Perfect safety is thus cheaply purchased. The ring should be of copper, and is to be inserted in the cartilage between the nostrils. It is easily inserted when the animal is young by means of an instrument known as a trochar and canula. The trochar is provided with a sharp, three-edged point which pierces the cartilage, and the canula, which is a tube fitting over the trochar, passes with it through the hole made by it. As the trochar is drawn out the canula is left in the hole, when one end of the open-jointed ring is inserted, and this is drawn through with the end of the canula. The ring is then closed and fastened with a screw riveted at the end, to prevent it from coming out. A strong staff made of tough hickory, furnished with a spring hook at the end, is used in handling the bull, and the constant use of this keeps the bull perfectly docile and quiet. The animal should never be led out without it. It is also advisable to provide a separate pen and yard adjoining the cow yard, for the bull. A high and tight board fence, nailed on the inside of the posts, should be built around the yard, and a convenient door made in it. The pen furnished with a feed trough, supplied from a passage in front, and a strong ring-bolt is fixed near the feed trough for tying the bull when required. But it is never found necessary, as he is always quiet, secure and easily managed in this safe confinement.—[H. Stewart.

Hogs for Every Month in the Year.

Since the summer packing season for hogs has become firmly established as a regular formidable branch of business in the trade of the country, it has opened up a new inducement for farmers to adopt not only the best known methods in the matter of raising hogs for market in the different months of the year, but there is also a strong inducement offered for experiments within safe limits in the matter of feeding and treating hogs, so that actual experiment may be made to lay down and fix the best rules that can possibly be made to govern hog raising as a regular business. There is no doubt but that hogs of a given age require very different treatment in the winter season from what would be required in the summer time. We have lately seen a good deal of discussion in some of the leading agricultural papers of the country as to the advantage of using grass freely in the raising of hogs, especially while they are young. Of course, this kind of feed can only be used about seven or eight months in the year, but during the grazing season good clover can be used and made to promote the growth and thrift of young hogs to the best kind of advantage, where all the other conditions are kept right. Hogs in this kind of keeping should have an abundance of pure spring water with plenty of shade to resort to, and they should also have bran and meal slop once each day. Young pigs started in this way about the first of April and intended for market during the following winter can always be got into the best possible condition as stock hogs for feeding with corn during the months of October and November, or later. The writer saw this system followed in a general way among all the farmers in Southern Ohio more than a half century ago; we feel sure there never has been a better way devised for raising hogs for market during the winter season than this old plan. It is true corn has often been so cheap and abundant that it has caused a great many farmers to feel as though nothing could be better for hog feed. But thoroughly well-experienced men seem to have settled down in the belief that a fair mixture of good grass with corn, at all times where grass can be fed, is far preferable to feed corn alone, no matter how cheap and abundant the corn may be. The hogs while growing want free range, so as to promote muscular growth and solid health. Hogs that are being raised through the winter season for the spring market, of course, have to be treated differently.—[Drovers' Journal.

A Mixed Diet.

To illustrate the action of nitrogenous and non-nitrogenous food upon the digestibility of hay, Prof. Atwater cites experiments made in Germany. Sheep were taken and for a time were fed on the clover hay alone. For a second period they were fed on the clover hay and 2 lbs. of potatoes. A decrease in the amount of food digested was apparent. For a third period 4 lbs. of potatoes were added, and for a fourth period 6 lbs. of potatoes were used, and the amount digested was in the inverse ratio to the amount of potatoes fed.

It is a matter of common experience that stock are healthier and cows give more milk with potatoes or roots and hay than with dry hay alone. But at the same time, there is apt to be a real loss of hay, unless some nitrogenous food, like oil-cake, malt sprouts, beans, peas, or bran are mixed with the potatoes or roots. There is loss of hay because less of it is digested and utilized as food. The rest that would be digested in right feeding is passed off as excrement, and is useful only for manure.

If the mixed food contains too little nitrogen, and too much starch, sugar, or other carbohydrates, the animals cannot digest it completely. Only the best qualities of hay furnish as much nitrogen as is needed by working cattle or milch cows. Potatoes contain very little nitrogen and a great deal of starch. So sugar beets are poor in albuminoids and rich in sugar, and sugar, like starch, is entirely a carbohydrate. Mix considerable of these with hay, straw, cornstalks or even clover, and the ration will still lack nitrogen, and there will be loss of valuable food material. But if nitrogenous food be added, at the same time, so that the whole ration may contain the proper proportions of albuminoids and carbohydrates the animal will digest all its digestible material and there will be no loss. Some years ago, a German chemist fed oxen for a time upon straw, giving them what he styled a hunger ration, though in fact it might almost be called a starvation ration, for there was just enough of the straw to keep the animals from starving. He then added in successive trials quite small quantities of sugar, starch and other non-nitrogenous materials, determining in each case just how much was digested. And though with starch or sugar and straw together, the oxen had little more than enough to sustain life, yet they digested less from the straw than when anything was added to it.

Management of Horses.

Horses can be educated to the extent of their understanding like children, and can be easily damaged or ruined by bad management. We believe that the difference found in horses as to vicious habits and reliability comes much more from the different management of men than from the variance of natural disposition in animals. Horses with high mettle are more easily educated than those of less or dull spirits, and are more susceptible to ill training, and consequently may be made good or bad according to the education they receive. Horses with dull spirits are not by any means proof against bad management, for in them may be found the most provoking obstinacy, vicious habits of different characters that render them almost entirely worthless. Could the coming generations of horses in this country be kept from their days of colthood to the age of five years in the hands of good, careful managers, there would be seen a vast difference in the general character of these noble animals. If a colt is never allowed to get an advantage it will never know that it possesses a power that man cannot control, and if made familiar with strange objects it will not be skittish and nervous. If a horse is made accustomed from his early days to have objects hit him on the heel, back or hip, he will pay no attention to the giving way of a harness or a wagon running against him at an unexpected moment. We once saw an aged lady driving a high-spirited horse attached to a carriage down a steep hill with no hold back straps upon the harness, and she assured us that there was no danger, for her son accustomed his horse to all kinds of usage and sights that commonly drive the animal into a frenzy of fear and excitement. A gun can be fired from the back of a horse, an umbrella held over the head, a buffalo robe thrown upon his neck, a railroad engine pass close by, his heels bumped with sticks, and the animal take it all as a natural condition of things, if only taught by careful management that it will not be injured thereby. There is great need of improvement in this noble animal. Less beating wanted and more education.—[The Horse Shoer,

Shropshire Sheep.

THE PROPERTY OF MR. H. H. SPENCER, OF
BROOKLIN, ONT.

The accompanying drawing was made by our artist, Mr. P. Hunt, of this city, and engraved by Messrs. Beal & Bridgen, of the Toronto Engraving Co. The drawing was made from sheep exhibited at the recent Provincial Exhibition held in the city of London; the background was added as relief by the artist.

Mr. Spencer is the most extensive breeder and importer of this class of sheep in our Dominion. He is not only a careful breeder and importer, but a deserving prize-winner, as the list of honors gained by him will indicate. He actually bred and sold stock that beat his own in the show ring. This is what breeders will seldom do, but he has such a good reputation that he aims to raise the best, and considers the laurels won by sheep from

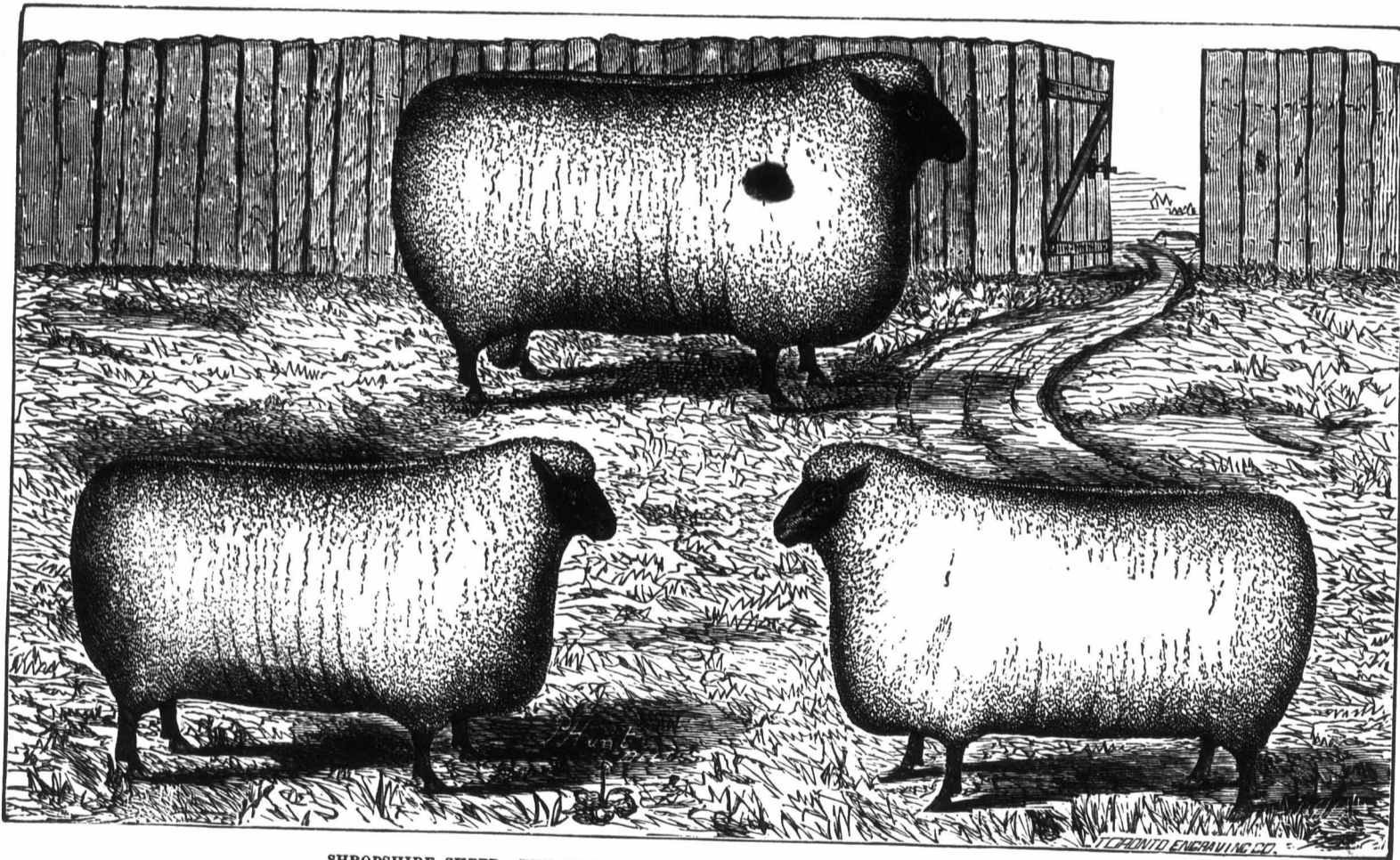
yet procurable is so small in comparison to the large supply of Merino, Leicester and Cotswold, that very few Americans have ever had a chance to test a prime piece of mutton in their lives. As soon as they do, and a supply can be had, you may expect to see or hear of prices being paid for legs of mutton such as you never dreamt of; for Americans, as soon as they really know what is the best, will not spare money to have it on their tables. We are now having a turkey mania, but roast beef and roast mutton will in the future, as in the past, stand pre-eminent on the festive board; that will be as soon as Americans know how to raise the best and to cook it properly after it is raised.

Another great reason why this class of sheep is likely to become popular is the fact that they are more hardy and more prolific than the long-wooled sheep. Shropshires have a thick, close, compact

sheep will increase faster with moderate care.

This class of sheep is becoming more in vogue in England than they have been. One of our exchanges reports a ram of this class as having the past autumn sold for upwards of two thousand dollars.

There are several other breeders and importers of this class of sheep in Canada. In due time we hope to call attention to their flocks, as we feel an interest in the introduction and spread of the different classes of stock that we think of most benefit to our readers. Had we time and means to spare, we know of no class of farm stock that we should more prefer to spend our time among than a good flock of sheep. When a child we used to have our numerous pet lambs, but the labor of attending to this journal prevents us from living so much among the pet animals of the farm as we would wish. We have tried and tried again to



SHROPSHIRE SHEEP—THE PROPERTY OF MR. H. H. SPENCER, OF BROOKLIN, ONT.

his raising add as much honor to him as when exhibited in his own name.

The Shropshires are looked on as the coming sheep for Canada. The demand for the long combing wool is not at all equal to what it was a few years ago, and the demand for wool of a finer quality is now rapidly increasing, and it commands much higher prices. Not only is the increasing demand for finer wool the only reason why this class of sheep deserve more attention, but the quality of mutton of all the Down sheep is superior to that of the Leicesters, Lincolns or Cotswolds; and the real judges of good mutton will and do pay higher prices for this class of mutton than for the large, heavy, tallowy mutton. One or two cents per lb. used to be the difference in price when we resided in England. English people have not become less fastidious, and this demand for the best will assuredly spring up in every city on this continent as soon as we have enough of such to give Americans a taste of really good mutton. The quantity of Down mutton as

fleece on their backs, and if you turn one up you will always find a good warm covering under them. They do not get bare-bellied, as many of the long-wooled sheep do. They keep a good coat all over them. This keeps them warm and hardy, and fits them to stand more exposure than many other sheep. They are rather larger than the Southdowns, and rather more open in the wool. They appear to be the medium class of sheep that offer to be most suitable to our present requirements. They are not destined to drive all other classes of sheep out of use, but they are destined to receive much more attention in the future than they have received in the past. We do not pretend to say that as a class they are as symmetrical as many other breeds of sheep. They have not, as a general thing, as pretty a head or level a back as the Southdowns, neither have they the lordly appearance of the Cotswolds, but they have a decidedly sheepish appearance, and we want a sheep to be a sheep. They are excellent mothers, so hardy and so careful that we doubt if any class of

secure a good, efficient agricultural editor to aid us, but the lack of health has recently deprived us of one whom we had hoped to have been able to take control. Inefficiency and the desire to run into party or personal influences has caused us to discharge others. A really unbiased agricultural editor is a most difficult person to find. In fact, agricultural editors are the most difficult to obtain of any class of editors, while political writers are to be found in every village; and we regret to say that some writers who contribute to this journal occasionally draw so much party into their writings that they often have to be rejected.

The FARMER'S ADVOCATE is the best value for the money of any agricultural journal I have ever seen.
JOHN MORTON, Thorold P. O., Ont.

Our subscribers when sending in their renewals will be sure to send in a new name or two and win some of our attractive prizes mentioned in another part of this issue.

A Warning to Breeders.

Breeders of thoroughbred stock and dairymen generally are pursuing an unwise and difficult, as well as dangerous practice, in forcing their cows to their utmost capacity in the production of milk or butter, at the same time attempting the breeding of calves which shall be superior to their dams. Many a dairyman who has a superior cow strives first to crowd her milk and butter production up to a high mark, for the purpose of securing a wonderful record, and while accomplishing the most gratifying result in this direction, also turns his attention to the production of a calf from the same superior cow from the sale of whose progeny he expects to realize a fancy price, coming, as it does, from so noted a dam.

Looking at this subject either from a practical or scientific standpoint, has the injudicious dairyman or breeder any right to expect, under such adverse circumstances, that he will secure a calf equal to the dam? The severe draught made upon the cow's system in the increased and unnatural yield of milk furnished, the feverish and excited condition of her blood, the ill effects of the stimulating food with which she has been supplied, renders her entirely unfit to sustain the additional burden of producing a calf, and the result must lead to loss and disappointment.

Aside from all theory in this matter, the facts sustain our allegations. We seldom see the progeny from any one of the marked and superior cows, whose wonderful milk and butter records astound the agricultural world, equal in superior qualities to those possessed by the dams. The average calf from such a mother, whose record is the result of a high-pressure system of feeding, is far below the standard of the dam, after proving a disappointment in dairying purposes. In some cases even the family has ended with the unwise breeding from a dam over-worked and over-stimulated. Many intelligent breeders are becoming alarmed at the situation, and are determined to reform a questionable practice, fraught with such unfortunate consequences.

The tendency of the age is to increased speed, to quick results, to over-stimulated efforts, and even in dairying we find similar conditions, forcing the breeder to unnatural efforts to secure from his cows the last drop of milk or the last ounce of butter, regardless of the after effect upon the animal's progeny. The cow is sacrificed to the desire, first, to secure an astonishing record, and, second, to obtain a calf that shall sell for a fabulous price; agricultural progress is checked, and disappointments inevitably follow. Greater care and consideration must be given to this subject of breeding fine dairy animals in a more natural and common sense manner, or this branch of farm economy will fall into merited disrepute.

It is not so difficult to develop the beef producing qualities of those animals not intended for the dairy. The Northhorns, Herefords, the Angus cattle and the Galloways can be forced, because it is not expected that the dams of these breeds should produce a greater quantity of milk than will suffice for suckling their offspring. In many cases, in the breeding of thoroughbreds, native cows are employed as wet nurses, larger quantities of milk being deemed desirable than the dam can produce. In such cattle as are only intended for the production of beef, there are no conflicting elements, as in the case of dairy cows; in the former the efforts are all in one direction; early maturity is the point desired; the largest amount of beef in the two-year-old animal is the breeder's desire. Even in this direction barrenness and disease are often the result of over-feeding. The art of successfully breeding cattle involves the highest principles of science, and demands the highest state of health and the most vigorous constitutions in both the parents. The most dangerous tendency of the hour among our breeders, and one to which we would call their earnest attention, is the high-pressure system practised with some of the finest dairy herds the world ever saw.

I have tried our other Canadian journals on agriculture, and also some of the American, and have settled down on the *ADVOCATE*. To say the least, it is the right paper for Ontario farmers. I wish, sir, future success to the *ADVOCATE* and yourself the best compliments of the season.

J. K., Iona Station, Ont.

Poultry.

Technicalities in Poultry Breeding.

BY R. A. BROWN.

There are terms used in the rearing of poultry by professionals that the average farmer and the amateur breeder do not readily understand; and a

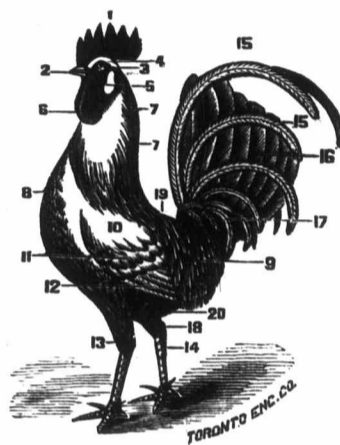


FIG. 1.

few hints on the subject I have no doubt will be readily appreciated, as they were by myself at first.

Breed—Any class of fowls that have distinct merits of their own.

Carunculated—The fleshy protuberance on the head of turkeys.

Cockerel—A young male bird not yet a year old.

Crest—A tuft of feathers on the head described as "top knots."

Cushion—A mass of feathers on the rump of hen.

Dubbing—Cutting off the comb, wattles and ear lobes, making the head smooth and clean, in the



FIG. 2.

manner that game cocks are treated when going to battle or in the pit.

Ear lobes—The bare skin below the ears, called by some "deaf ears."

Face—The bare skin around the eyes.

Fluff—Downy feathers about the thighs.

Furnished—When a bird has a full developed comb, wattles, hackle and tail, he is said to be furnished.

Hackles—Long slender feathers on the neck of the male bird.

Hock—The joint between the thigh and shank.



FIG. 3.

Mossy—Indistinct or confused marking of plumage.

Pea-comb—Three small combs compressed in one, the centre being the highest.

Poult—A young turkey.

Pullet—A young hen.

Primaries—The flight feathers of the wings, not visible when the wing is closed; great importance is attached to their color by breeders.

Secondaries—Are the quills of the wings which are seen when the wings are folded.

Shaft—The stem or hard part of a feather.

Sickles—The long curved feathers on a cock's tail.

Stag—Name used by game fanciers for cockerel.

Strain—The distinct breed of fowls as bred by one man or his successors for a number of years.

Symmetry—Well proportioned in build or frame, while "Carriage" denotes the movement or action, by some termed "style."

Tail-coverts—Soft, glossy, curved feathers at the sides of the tail.

Tail-feathers—The stiff, hard feathers only; are usually straight.

Trio—Male and two females.

Under-color—The down as seen about the roots of feathers.

Vulture-hocks—Stiff, projecting feathers on the hock joint, having the appearance of a little wing.

Wattles—The red, depending structures at each side of the beak.

Wing-bars—Any line of dark color across the middle of the wings.

Wing-bows—The upper or shoulder part of the wings.

Wing-points or wing-butts—The ends of the primaries.

Wing-coverts—The brood feathers covering the roots of the secondary quills.

Moult—Shedding feathers or annually casting off the feathers.

Fledging or Fledged—Getting on or having on already a full suit of feathers.

Figures 2 and 3 represent striped, laced, spangled and pencilled feathers.

Figure 1 shows where to find the different points named: 1, comb; 2, beak; 3, eye; 4, face; 5, ear-lobe; 6, wattles; 7, neck-hackle; 8, breast; 9, saddle-hackle; 10, wing-bow; 11, wing-coverts; 12, secondaries; 13, thighs; 14, shanks; 15, sickles; 16, main-tail; 17, tail-coverts; 18, hocks; 19, saddle; 20, fluff.

The American Turkey.

Of all the native gallinaceous birds of North America, the turkey alone was found in a domesticated state when first visited by the Spaniards, and that only in Mexico. No game bird of this Continent has a wider range. From the Atlantic to the Rocky mountains, and from Canada to Central America, they are found still enjoying the native freedom of the primeval forests in spite of the march of civilization.

"The grand size and beauty of this fowl" says Aucubon, "and its value as a delicate and justly prized article of food, render this the most interesting of the birds of America. The flesh is more delicate than that of the domestic turkey and the Western Indians so value it that they call it the "white man's dish."

There are three species of the wild turkey, the North American, the Mexican and the Honduras or South American. There is but little difference between the North American and the Mexican species, and that is in the permanent color of the tips of the tail feathers and of the feathers overlying the base of the tail. In the North American, these are of the chestnut brown color, while on the Mexican, they are creamy or yellowish white.

The ocellated Turkeys of Central and South America are taller and more erect in carriage than the common turkeys, with a much more brilliant plumage marked with the iridescent "showy eyes" of the peacock, legs and beak pinkish, and the head of a peculiar soft, clear gray blue, crested with bright orange warts.

Domestication has produced six well defined varieties. The white was probably the first, at least it was known in France as early as 1630. Belgium and Holland followed France in popularizing this variety on account of plumage and delicacy of flesh. The gray is another variety that was bred at an early day in France, also a parti-colored and red variety. The black, buff and slaty blue are of a more recent date.

In this country the Mammoth Bronze heads the list of varieties, next the Narragansett. On farms, turkeys may be seen of various shades and colors. But of late years, the most sensible turkey raisers favor the Bronze variety.

Garden and Orchard.

Report of Seedling and New Fruits for 1881.

BY B. GOTT.

In some of the departments of fruit culture this season the supply has been most abundant, more so, I believe, in this section than in some of the other sections of our province. I am most happy to be able to report a most magnificent crop of fine apples and grapes here. Without further preliminaries, I shall notice the staple fruits as they occur in their order of importance, commencing with

APPLES.

In these the old standard varieties, as R. I. Greenings, Baldwins, N. Spies, and Russets, are as popular as ever, and lose nothing of their real value and importance as domestic and marketable fruits. As I have previously intimated, our crop of this fine, popular, standard fruit for this season was not only abundant but handsomely developed and much to the pecuniary profit of our growers. The demand for our apples this year was better than ever before, and growers sold the whole of their autumn and winter fruit to dealers who came to the orchards and supplied the packing for the whole. The price paid was from 80c to \$1 per bbl. for autumn, and \$1 to \$1.50 for winter. It was astonishing to see the quantities shipped at our ports. The consequence is that our people are very much encouraged in their efforts at apple growing, and are already planning for the extensive planting of new and much improved orchards, as they now see in the light of a keen market where they have previously erred, and are determined to rectify these matters. We have no indigenous apples of any importance whatever, as our natural specimens are too small and repulsive in flavor and texture in the light of other sorts. We have, however, seen some new sorts lately introduced that are likely to be of much value in our future stock of winter apples, and three of the best of these are Man Apple, Grime's Golden and Smith's Cider. The first is large, fine, and a good keeper; and the second and third are beautiful in color and relishable in texture and flavor. They are doubtless great acquisitions to our present enviable stock. We had Early Harvest apples this year ripe and in good condition August 6th, and the beautiful new Russian apple, Tetofsky, August 8th. We are now growing a few western varieties that may ultimately be of great service to us—Walbridge, Haas, Perry Russett, Utter's Red, and Wealthy—mostly from Minnesota, and they are making splendid progress. In a few more years, therefore, we hope to have something even better in the apple line to report.

PEARS.

This season was unfortunately an off year in our pear orchards, if the few scattering trees generally planted in this country can properly be so designated. For growing this fruit, we have a country well adapted both in soil and climate, and yet there are lamentably few and poor specimens grown that are compared with our capabilities. Why this is so is a mystery, but must be accounted for on the principle of the most reckless indifference. For those produced the demand is good and the price rules high. Good samples readily bring from \$2 to \$3 per bushel according to quality. We are mostly satisfied with the old standard varieties, as Bartlett, Flemish Beauty and Bon de Jersey, as we can hear of nothing better, and it may be some time before anything better is produced. Clap's Favorite, largely disseminated by our society some few years ago, is now beginning to come into fruitfulness, and thus upsetting the popular objection against pear planting—that you must wait a lifetime before they come into bearing. This fallacy is now being exploded. Well, the fruit of this pear is fine, large, handsome and good, but very soft at maturity. The destructive blight of the pear tree, so bad in some sections, is scarcely known here, even in those orchards that have been some time planted. With suitable soil and careful preparation and drainage, good culture will largely overcome this difficulty in the culture of a fine popular fruit.

PLUMS.

As far as soil and climate are concerned, this whole region is well adapted to the culture of fine plums, but it is very rarely that such is seen of late years. What is the matter? you ask. Oh, the same old disheartening story—"The curculio takes them all." And really this is a fact, scarcely

a sample being left to show us what they would be like. Years ago we used to find a large, handsome and relishable plum on our rich creek banks in the woods, but like many other good things of olden times they have fled with the Indians and now their places know them no more for ever. What native varieties are left are few and far between, and are small and astringent. This season a large nursery firm—Parsons & Co., New York,—sent to us for a large quantity of native plums to be used solely for their seed, supposing we had any quantity here; but we had to report in answer, "No plums to be had." The sorts we attempt mostly are Blue Orleans and another blue plum much smaller, and in some favored sections the Lombard; but, in the main, plum growing is at a discount among us. I may say in passing that Black Knot is very commonly seen on the fruitless plum trees in fence corners and other places.

CHERRIES.

I am very sorry to report that we are not by any means so successful in growing cherries as we are in growing some other fruits. As a matter of consequence, a country that is famed for fine apples, pears and plums cannot be equally noted for fine and beautiful cherries. The fruits in their very nature require different conditions of soil and climate. In our forests are some of the finest examples of cherry trees that eyes ever looked upon, and yet their fruit is not the beautiful, luscious European cherry, but a small, jet-black fruit, strong on their stem like a cluster of red currants. We have frequently planted the trees and tried to grow these beautiful foreign sorts, but in most cases we have sadly failed. Last winter made sad havoc among our fine trees, 15 to 20 feet high and six or eight years' growth, that we were fondly placing our expectations upon; now they are lifeless spectres that we can only uproot as so many cumberers of the ground. The sorts mostly attempted are Black Eagle, Black Tartarian for this color, and for red, May Duke and Early Richmond. A common sour cherry, as it is called, is largely grown and easily propagated, and gives on the whole good satisfaction, as it grows readily in almost all sorts of soils and bears neglect and hardships very patiently. A good, hardy, serviceable cherry is much needed for our common every-day wants.

QUINCES

are not to any appreciable extent grown among us, as our people do not feel the need of them, not knowing anything either of their nature or qualities. It is, however, very doubtful whether our country (in climate, especially,) would in any degree suit them.

PEACHES.

The growing of this fruit in this section is getting to be quite an important industry, and thousands of trees are annually being planted for their fruit. The reason of this is the very general satisfaction this crop is giving the cultivators for the last few seasons past in its quantity and quality. Our soil and climate seems not unadapted to the successful production of very fine peaches. This last season, however, was an unusual exception to our generally large and fine show of peaches. The reason of this was undoubtedly the unusual severity of the preceding winter, the high winds and severe freezing having killed the fruit buds, and, in some localities, even the wood was positively frozen to death. This may not likely occur again for some time, but it should be a valuable lesson to our peach growers, and, indeed, to our fruit growers generally, to provide screens or wind-breaks for their fruit plantations, for in every case the crop is benefited by it. Our crop from about 150 trees did not amount to more than 20 bushels, which sold readily for a high price. I need not say that the peach is not indigenous to our country, but we have any quantity of seedlings produced annually—some good, and some good for nothing. Mr. George Ott, of Arkosa, has a very fine yellow-fleshed seedling, called Ott's Beauty, that is really very valuable, as it is very fine in flavor and good size, ships well, and comes true from its own seed, not needing to be budded. These, you know, are good points, and our people know how to prize them, and the peach will likely be planted largely, Mr. Ott having an orchard of about 200 trees. The sorts mostly grown here are Early York, Stump the World, Crawford's Early, and some of the very early varieties lately introduced; Crawford's is the best and the largest planted. There was quite a stir made by the tree agents about Early Canada, and some of them effected large sales at good prices for the trees, but the fruit is not coming up

to the expectations raised by the itinerants. It is true it is early (maturing with us Aug. 5), but it is nothing better than Amsden's June, being small and so intensely cling that it can scarcely be used. Mr. River's Early Louise is good, early and fine; it should be largely planted as it is as hardy as our seedling.

GRAPES

are a very popular fruit and fast becoming increasingly interesting. Our country seems well adapted to their successful culture, and the probabilities are that many large vineyards will be planted all over where favorable localities can be secured. The crop the last season was immense and all found a ready market at the time of maturity. Our people, however, are very slow in planting out their vines, as they are much afraid there is some secret in the management and they could not possibly do it; but still many are experimenting in small quantities. Black sorts are most popular, as our people are somewhat careless or suspicious of red or white varieties. The sorts most grown are old, well-tried varieties, as Isabella, Clinton, and Concord, which is by far the best of them all. On our creek and river bottoms there is a small, black frost grape that grows very luxuriantly over the trees, but the fruit is valueless except for wine purposes. For a fancy grape, with us the Delaware is the most popular, and the people treat it with becoming respect. It succeeds remarkably well. The new varieties that are being introduced are Pocklington, Brighton and Burnett. Of these, Brighton is likely to become a popular and general favorite, and its introduction last season by the F. G. A. will largely hasten this result, as the stock was before held as scarce and dear. Burnett, introduced by the F. G. A. two years before, is also likely to become quite an acquisition, as it is a remarkable fine grower, and what fruit we have yet seen is very good indeed. Of the whites, we have had this season a remarkable fine crop of Martha's. This is really a very fine vineyard variety, and for our climate, as good, all things considered, as we need wish. The vine is very hardy and a good grower, the bunch is large and compact, and the berry is large and of very fine flavor and hangs well on the bunches. The fruit sells well and at good prices. Champion was ripe this season Aug. 28th; Hartford Prolific, Sept. 4th; and Concord, Sept. 9th; but, on account of the prolonged summer drought, fruits ripened a few days earlier than usual.

OUR GRAPE CROP.

It may not be uninteresting or out of place here to give a synopsis of our beautiful crop of grapes this season as they appeared on our grounds. It was certainly the finest sight of the kind I had ever seen, and it was difficult to realize that such a crop could be produced. Many came to witness it and testified to its excellence. The plantation consists of 250 vines and their net product was 5,000 lbs. of first-class fruit that sold for \$400. The average product per vine was 20 lbs. At the same rate of planting, an acre of ground would contain 544 vines, and their united product would be 5½ tons, or, in value, \$870—an excellent showing doubtless for grape growing in this country with all its disappointments and rigidity. At the present time wine making is not attempted among us, the market readily absorbing the whole crop of grapes as soon as it is matured. According to the late report issued by the Commission of Agriculture at Washington, U. S., 1880, on "Grape Growing and Wine Making" for that country, the highest yield per acre for any county in the State of Michigan was 10,000 lbs. (in Kent), and the average for the counties of the State was 4,523 lbs. per acre.

SUGGESTIONS.

As the American people at the present time are deeply concerned about their grape culture and wine making as a national industry, and are earnestly collecting official statistics relating to them, would it not likewise be well for us also to more earnestly encourage and assist grape growing among us?

2nd—Would it not be a most successful means of modifying the excessive use of ardent stimulants amongst us, and prove a great national blessing to so encourage a supply of home-made wine (the pure juice of the grape) for general and domestic purposes?

3rd—Can any good, substantial reason be successfully urged why this should not be done?

4th—I would most respectfully suggest and advise that this subject be taken up and thoroughly discussed in public assembly at the next winter meeting of our association.

Select Fuchsias.

Fuchsias are among the prettiest of our soft-wooded, free-blooming plants. They are of the easiest culture, requiring during the summer a partially shaded position, with moderately enriched soil and plenty of water during their season of growth. Some of the varieties are also well adapted for bedding purposes. Such varieties as possess good habit and good vigorous growth, and also free blooming qualities, are the most suitable for this purpose. I give below the best of a large collection, including all the newer kinds recently introduced:

Avalanche (Smith's)—Of a straggling growth, the flowers are of the largest size, double, corolla white.
Avalanche (Henderson's)—The habit of this variety is neat and compact, although a strong grower; the foliage is of light yellow, the flowers very large, the sepals crimson, corolla purple. In the western cities this kind is grown more extensively for retailing than is any other. Its habit of blooming when quite small makes it suitable for this purpose. It is without doubt the best dark double fuchsia, all qualities considered, in cultivation.

Black Prince—A distinct variety; tubes and sepals a waxy carmine; pale pink corolla, margined with rose.

Elm City—An old double fuchsia of good habit; tube and sepals bright scarlet; corolla crimson.

Queen of Whites—Tube and sepals bright red; pure white single corolla; good habit.

Lord Byron—One of the finest dark single fuchsias of recent introduction, having a fine branching habit, blooming when quite small; tube and sepals bright crimson; corolla large, open; of the darkest purple, almost black.

Mrs. H. Cannel—Considerable excitement has been manifested among horticulturists on both sides of the Atlantic regarding the merits of this fuchsia. It is undoubtedly one of the finest double white varieties yet introduced. The flowers are of large size, and are produced in great abundance on well-shaped plants.

Sunray—Some plants of this fuchsia in our greenhouse just now have leaves of the finest markings, and of the richest colors, equalling the finest tricolor geraniums, and not much inferior to the fine-leaved caladiums. The flowers have scarlet sepals with purple corollas.

Warrior Queen—A good single, crimson sepals, corolla violet.

The following are the best winter-blooming kinds:

Speciosa—Sepals flesh-colored, corolla scarlet.

Mrs. Marshall—Pure white tube and sepals; rosy-pink corolla.

Bianca Marginata—The sepals of this one are white, corolla crimson.

Earl of Beaconsfield—Of recent introduction, but an excellent one for winter blooming. The blooms are often over three inches long, the tube and sepals a light rosy carmine, corolla a deeper carmine. A splendid flower for keeping a long time after being cut, being of fine substance. The double-flowering kinds are not very suitable for winter blooming, but can be had to bloom early in the spring by propagating early in the fall, and growing on slowly during winter.

Ornamental Trees.

"I invariably commence with a stereotyped phrase, 'Don't plant large trees in small yards.' One of the greatest of all errors, and one that is indulged in by so many of our planters in their horticultural infancy, is that of setting out a first-class tree in a second-class yard. Scarcely a town lot or cemetery enclosure is laid out but this mistake is made, although ignorance in nearly every instance is the excuse, and justly so, too. Taking, for instance, the laborer's cottage, with its few square feet of grass in front,—and, by the way, what is more attractive than a well kept sod?—in the place of a Norway spruce or Austrian pine, I would suggest what is termed a dwarf evergreen—one of the smaller forms of *arbor vite*, now becoming so popular, or a juniper, with its variety of outline. If the front should have a northern aspect, the best plant for that purpose is either some handsomely variegated variety of *Aucuba* or *Euonymus Japonica*. The newer introductions of these are exceedingly attractive, and a group composed of distinct kinds forms an agreeable feature. To those whose taste for flowers is predominant, I would recommend a circular bed of roses, not planted promiscuously, but in lines or ribbons,

each circle a distinct color, all trimmed low, and consequently well branched. If the entire bed should be of one variety, the effect will also be very fine.

"Another pretty groupe of small-sized trees may be composed of the Silver Bell, Golden Chain, and the Red Bud or Judas tree. Still another group of the same size can be formed of the European Bird Cherry, Purple Mist, White Wood.

"In a corner of the grounds a closely massed group of the different colored double flowering peaches will be very pleasing when in bloom, and where they will succeed, nothing can excel the numerous varieties of thorns. In the centre of the peaches I would insert a tree of Reid's weeping variety, a graceful drooping tree, and among the thorns plant the weeping variety of it. These have a tendency to remove a certain uniformity of outline prevalent in all such masses.

"As we leave the small class of trees and advance to those of larger growth, I unhesitatingly place in the front rank, if not at the very head, the Norway Maple. Seldom do we find its equal in all that pertains to a specimen tree. With ample foliage of the richest shade of green, globular in form, perfectly hardy and healthy in almost every situation, it appears peculiarly adapted to stand alone upon a beautiful lawn. Another, although of a widely different character, is the White Birch, and its delicate cut-leaved variety. The silver-leaved Linden succeeds well everywhere, and is undeniably a beautiful specimen tree, as well as the English cork-barked maple, when branched to the ground. Although of large size, the Sweet Gum (Liquid amber) forms one of the most available ornamental trees. Beautiful at all seasons, with its curious corky bark, rich, glossy star-shaped leaves and picturesque form, it is well adapted for creating marked effects; and then in the autumn its brilliant crimson hue is remarkably attractive. Either for grouping or as single specimens, the genus *Fagus* or Beech supplies us with a charming set of trees. Among the most striking in character I would place the fern-leaved and purple-leaved as especially fine.

"There are very many other trees of beautiful form that are unfortunately not adapted for general planting. In the neighborhood of Philadelphia they cannot use the elms, because the leaves are often perforated by insects; nor the ash, on account of the borers; the mountain ash meets with the same fate, and the thorns are destroyed by a fungus; the horse chestnuts become disfigured by midsummer, and so we have to rely on other trees. But where the list will succeed as they evidently do in central New York, my advice is to use them all freely. There are four genera in the great natural order, *Conifera* (cone-bearing), that are furnished with deciduous leaves and tall spiral tops, all well adapted for the centre or background of groups—the Larch family, of which the European species is preferable; the *Deciduous Cypress*, with light feathery leaves; and the Weeping Cypress, having unusually graceful foliage and pendant branchlets. Every place should have at least one drooping tree, as much for its intrinsic beauty as for the effect it produces when grown near other forms. For this purpose the Weeping Beech possesses an individuality peculiarly its own. Not so pretentious perhaps as the preceding, but with a graceful drooping of the more slender branches; the Weeping Linden stands next in the list. Where they will flourish, the Weeping Elms and the Weeping Mountain Ash are very handsome; and the old fashioned Weeping Willow, especially when in the vicinity of water, is often a valuable assistant for creating a beautiful picture.

"For small-sized weepers I would suggest the following, all of which are useful, and in fact indispensable to the landscape gardener: The thorn, grandidentata poplar, Kilmarnock willow, dwarf cherry, sophora and beech. The drooping varieties of the common ash are stiff and formal in outline, yet often attractive from their very oddity. A feature very often overlooked in American gardens is the massing of trees that are beautiful in the autumn. Most places can be improved by a little group of these brightly-tinted species, and for this purpose I would name for the background the scarlet oak, dazzling in its scarlet dress; the sour gum, with the deepest shade of crimson; the red maple, gay with yellow, red, and orange; and a sassafras, with golden yellow leaves. To the front I would place a white flowering dogwood, with its vivid shade of red; one or two common sumacs, as bright as the petals of a crimson peony, with a few vines of the green brier, of golden hue. It is needless to add that the effect of such a blending of colors

may be overrated. In leaving the deciduous trees, I would merely call your attention to the neglected family of oaks, although beyond the limits of such places as we are discussing to-night. For very large lawns no genus in the flora of the world can exceed their majesty of form, their picturesqueness of outline, nor their value for every purpose appertaining to the landscape art.

We now arrive at the Evergreens. I will hurriedly particularize a few of the most valuable for the majority of our country places, all of which will undoubtedly succeed in this vicinity. In the spruce family, as not only the first in the genus, but among all cone-bearing trees, the Norway Spruce is fully entitled to consideration before any other. You all know it well, and knowing it, have nothing to say against it. It is a tree at once appropriate in all situations and for every purpose; hardy everywhere, and exceptionally beautiful.

More formal in outline, but remarkably pleasing in color, the white spruce stands next, and the hemlock, with its charming drooping branches, curving in even circles to the ground, must never be neglected. The silver fir is without doubt the best hardy species known to us at present—always beautiful and healthy, we cannot well dispense with its presence. Common balsam fir and European silver fir are unexceptionable in any grounds. The pines must be used sparingly, as they are rather coarse for close proximity to the dwelling. Among well-tested kinds, the Austrian, Cembrian, White, Lambert's, and Scotch are all hardy and deservedly admired. The Cedar of Lebanon must not be forgotten, not alone for the many reminiscences connected with it by the sacred writers, but for its individual beauty on the lawn. Our *Arbor Vita*, as well as the Siberian variety, are so well known and appreciated that it seems unnecessary to urge their claim to public notice. Low-growing conifers are of such vast importance to the landscape gardener in creating dense evergreen masses, that of later years our arboriculturists have been eagerly gathering from every available source, all which have proven distinct.—[Abridged from remarks of Mr. Hoopes' in Canadian Horticulturist.]

Inducing Regular Bearing.

F. K. Phoenix writes as follows to the *Country Gentleman*:

"How to make apple and other trees bear the 'off years' is a question involving millions of dollars annual revenue now lost to American fruit growers. Last year apples here were so plenty that, aside from what growers, their friends and stock consumed, there was from most orchards no sale and no profit. Not only are the fruit supply, crop and price in these off years involved, but the health, and to a great extent the very life of our bearing trees. Every close observer must have noticed the weakening of fruit trees from overbearing and their increased liability to injury from cold in severe winters, such as somehow, under present arrangements, seem occasionally to follow excessive fruit crops or seasons. For instance, last year's overcrop was followed by one of the longest and severest winters, causing in some sections, as in portions of Ohio, Indiana, and the Northwest, unusual destruction to bearing orchards. Thus the law or succession of nature often is—first, mild winters; second, favorable springs; third, excessive fruit crops; fourth, low prices for fruit; fifth, weakened bearing trees; and sixth, permanent damage to overbearing trees from winter cold.

"Where and how had we best seek to correct this present manifestly unprofitable order of things? Some will argue that apple trees did not, could not bear this year, because the fruit blossom buds formed last summer were weakened (incapacitated) by the severe cold last winter. This sometimes happens, and I took this view of the situation here last spring, until observations the past summer banished it. I do not remember a more favorable spring than the last one was here for fruit bloom and setting—not one late frost or chilling wind storm throughout. What followed? In this section so far as I have noticed, wherever there was bloom, even our most tender annual bearing varieties of apple, Sweet Bough, Rhode Island Greening, etc., with Siberian crab, wild crabs, seedling or natural apple trees, and all grafted varieties that had not exhausted themselves by overbearing in 1880, gave this year more or less fruit. Had only half our orchard trees borne, or not borne so full last year, I believe we should have had plenty of apples this fall. All things

considered, I must think these excessive fruit crops, with little or no fruit in intervening years, unnatural or artificial, and hence to a great extent remediable.

"What can we do to get more fruit in off years? I respectfully suggest, first, to seed out and cultivate more uniform, moderate, annual bearing sorts. What profit is there in these excessive, biennially bearing varieties and crops, with comparative starvation between? If, to secure more regular crops we must grow from the seed steadier annual bearing varieties, the quicker that is taken hold of and accomplished the better, and this off year is the very time to save and sow seed for that purpose. Second, as far as possible secure scions for grafting, also buds for budding, from trees that have borne well this off year. Like begets like is the guide, the unflinching light out of enveloping darkness. Applying this rule, I must always and greatly prefer scions and buds from healthy and fruitful trees. In my experience I find, with a great cloud of unimpeachable witnesses (practical farmer orchardists here in southeastern Wisconsin) to back me, that scions from healthy, fruitful bearing trees not only grow off as well, but of the two grow quicker and better than those cut from the nursery trees, especially where propagated, generation after generation, farther and farther from a bearing condition. If like begets like, trees that bear well this off year will be most likely to bear in other off years. Thirdly, much may be done, even with the present list of sorts, by improved modes of pruning and cultivation. 'Prune in winter for growth, in summer for fruit,' is advised. Why not, then, prune in autumn to lessen or temper excessive fruit crops? July, August, and even early in September, are, I believe the best months for pruning. Another thing we know: the number of fruit buds and blooms is lessened in proportion to the quantity of bearing wood removed in pruning. Suppose, then, we choose off years wherein to prune excessive biennial crops of fruit years and promote bearing in off years? It would seem that it must have been tried already many times, and without any such desirable result. Theoretically I must nevertheless think that there is some season of the year, or some age, older or younger, in the life of orchard trees, when heavy late summer or autumn pruning in an off year would be not only safe in itself, but tend powerfully to promote wood growth the next season, as opposed to excessive fruit production. In these great fruit years fruit is produced at the expense of wood growth. How can we best permanently reverse this, and promote in such fruit years more wood and less fruit growth?

"If the experiment of heavy late pruning is to be tested this fall, I suggest using great care, painting the scars and stubs over and over, against a possible succeeding hard winter. One other thing: hardy, iron clad varieties will endure severe fall pruning and hard winters far better than tender varieties."

Effects of Thaws and Frosts upon Plants.

Some observations were made at Geissen last winter by Herr Hoffman, which throw light on the way in which plants are injured in time of frost. It is well known that plants and trees situated in the bottom of a valley suffer much more from cold and frost than those in a higher situation. This is due to the fact that the valley, if surrounded by hills and high grounds, not only retains its own cold and radiation, but also serves as a reservoir for the cold heavy air which pours down into it from the neighboring heights. It is thus that the higher grounds in Switzerland are warmer than the valleys or gorges, as in these the cold collects as in so many basins. It is also found in this country that plants and shrubs which survive the severity of winter on ground raised above the level of the valley perish when grown in the valley itself.

The great advantage of a hilly position is thus apparent, and has been amply proved by Herr Hoffman's observations at Geissen. Here he found that the plants so situated took little or no harm from the intense cold; while quite near, in the valley, there was extensive injury. The injury, too, decreased in proportion to elevation above the valley.

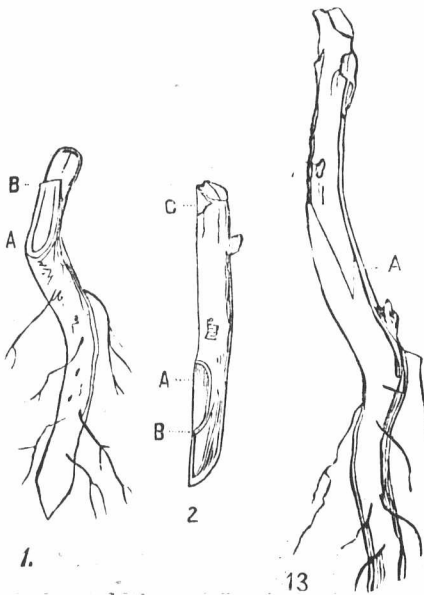
As to the immediate effect of temperature upon plants, the author is of opinion that it is not a particular degree of cold that kills a plant, but the amount of quick thawing. This was illustrated in one case by the curious fact that one and the same bush—species of box—was killed in its foliage on the south side, while on the north the foli-

age remained green. The sudden change of temperature produced by quick thawing was considered to be some degrees less for plants in a high situation and for the shady sides of the half-killed shrubs. The higher situations are in this respect also favorable to plant life; because while the frost is not so severe as in the valley, the effect of thawing wind is found to be the same for both. The plants on the higher ground are therefore subjected to less strain by sudden variation from a low to a high temperature, and the reverse, than their congeners in the valleys.

Another writer says: I have tried dipping in cold water and sprinkling frozen plants, and generally with unfavorable results—perhaps from not managing it right—from the fact that plants out of doors will pass through a pretty severe frost unharmed when clouds or fogs obscure the sun's rays in the morning. I have taken a hint, and several times have saved frozen plants in my greenhouse by building a fire of half rotten wood, damp brush, etc., in an open vessel, so as to fill the house with smoke and steam. I think it is the generally received opinion that it is not so much the freezing as the sudden thawing which destroys them. But I am inclined to think there may be some peculiar action of the sun's rays (perhaps the chemical rays) which do the mischief. I have observed that the very first rays that strike a frosted plant seem to kill it at once, while in some experiments in thawing by smoke and steam, some plants have been thawed quite rapidly by the fire, and came out all right.

Root Grafting.

A subscriber enquires how root grafting is done. The scions to be grafted may be cut in any mild weather late in the autumn, or in the winter. The root from a two-year-old seedling may be dug anytime when the ground is not frozen, in the latter part of the fall or even in winter. The roots are cut into lengths, slanted, 5 inches long. Sometimes one seedling plant will make three or four good roots. These pieces of roots are then cut with a sloping cut, say an inch in length, as shown in figure 1.



The scions are then cut into lengths, each about 3 inches long, with a smooth, sloping cut, downward at the stem end, as shown in figure 2; 1 and 2 are then joined together, as shown in figure 3. The paper is then wound round tightly. If the wax be too dry and hard, heat the paper by the stove or fire. The root and scion should be of the same diameter, as nearly as possible, so that the bark of both will come together as close as they can be fitted on scion and root. It is easy to select for the root the scion that suits. If they do not match on both sides let them, at least, match on one. This is essential to their union and growth.

A mixture of sawdust and sand is a very good material to pack the scions in. In this they may be stored till the time for using them. Keep them so that they will not start to grow from too much heat. They must also be secured from being frozen, and examined occasionally to see that they do not shrivel from extreme drought. If too dry, sprinkle them slightly with soft water. If only a few root grafted trees are wanted it may be better to graft at the top of the root, leaving a root 8 or 10 inches long. By this method apples, pears, plums, peaches and cherries may be safely grafted.

Agricultural.

Forest Tree Culture.

BY HON. H. G. JOLY, QUEBEC, Q.

The European traveller who visits only the settled parts of this Province, is invariably disappointed at the scarcity and meanness of our trees. Of course, if he leaves the beaten tracks of travellers, and goes far enough into the wilderness, up the Ottawa and St. Maurice, he will see fine timber, but in our settlement we can only show him, here and there at long intervals, one solitary elm, a model of grace and beauty, and the traveller will feel as we do, grateful to the man who spared that tree.

If every acre of ground were covered with valuable crops, one would try and get reconciled to the absence of trees, and bow to the iron rule of the age which converts everything into cash. But what a small proportion of all that ground is used profitably! We can find plenty of spare room for growing forest trees; they are not only the most beautiful ornaments to a country and the most useful product of nature, giving fuel, timber, shade, shelter, retaining moisture, and a protection against droughts, &c., &c., but considering the question from a strictly money-making point of view, the culture of forest trees is perhaps the best and safest investment that can be made.

It is rather difficult, I admit, to induce people to plant forest trees in this Province, where, for generations, they have been brought up to look upon the forest tree as their natural enemy, to be got rid of at any cost, hacking down, burnt out of the way (for want of a better mode of disposing of it), and still troubling the settler for years with its everlasting stumps, an obstacle to thorough cultivation. The children and grandchildren of the old settlers remember it too well; they cannot be expected to love the forest tree, but self-interest ought to conquer instinct and prejudice. With us land is not too valuable for forest tree culture. In Europe, where land is scarcer and more valuable than here, they plant, every year, thousands and thousands of acres of forest trees.

In the United States, the Federal as well as the States' governments encourage the culture of forest trees by grants of land and money, and exemption from taxation, and powerful societies are co-operating with energy and liberality. The government of Canada has begun by offering free grants to those who undertake the planting of a certain number of trees on the Western prairies, but I will here observe that it will require more active measures to set the people in motion, and especially the establishment of nurseries, where the people can buy young trees and seed, and the beginning of some large plantations, as an example, to show to the people by practical results, that the culture of forest trees is within the reach of every one.

We see in the papers that the Western railways have started the culture of trees on their own account; the St. Paul, Minneapolis and Manitoba Railway is reported as having appointed a superintendent of tree culture, who has just contracted for three hundred thousand trees, and most of the roads west of the Mississippi and Missouri rivers have also begun to raise trees, in order to insure a supply of ties, and for other purposes.

I do not pretend that the whole of our farms should be planted in forest trees; that would be too absurd. Our farms are generally too large for the number of hands we employ; there are always some odd corners, idle strips, stony or damp patches which it does not pay to cultivate; begin and plant forest trees there, suiting the tree to the nature of the soil—you will find some for every kind of soil. Once planted and fairly started, they will take care of themselves, give no trouble and increase yearly in value, in a wonderful ratio, so well expressed by the Honorable F. B. Hough, chief of Forestry Division of the United States Agricultural Department, in the address lately delivered by him at Columbus, Ohio.

For years past, I have sought the best and cheapest mode of re-wooding our denuded lands, and have made some experiments. I trust not to be charged with egotism if I now give the results of some of these personal experiments, rather than copy and condense what has been written by others, and it will be a great satisfaction if I can induce a few to try for themselves.

In selecting forest trees for planting, the first consideration ought to be the nature of the soil where they are to be planted; if the soil is not favorable to one kind of tree, do not waste your time in planting it there; you will find another

tree that will suit the soil. After paying all due deference to soil and climate, you must be guided in your selection of a peculiar kind of tree: 1st. By the value of the timber. 2nd. The greater or lesser ease and certainty with which the tree can be grown. 3rd. The rate of growth.

I have tried, principally, black walnut, oak, elm, maple, ash, tamarack, Russian pine, and fir and poplar, and will now give some of the results:

BLACK WALNUT.—The value of that wood is so considerable (a dollar a cubic foot at the present time), and it is getting so scarce that it struck me as the most worthy of being introduced and cultivated here. True it did not grow spontaneously anywhere in the Province of Quebec, but this appeared to me no conclusive reason why it should not grow and flourish here. The lilac comes all the way from Persia, and it spreads out its leaves earlier and keeps them unchanged later than our typical tree, the maple. I did not fear our great colds, for in the west, the natural home of the black walnut, the thermometer often ranges as low as here, though for a short period at a time. It was well worth trying.

I procured a bag of black walnuts from the West in the fall of 1874, and sowed them at once; it was late in November; we had to remove the snow and break the frozen ground, but I thought the earth the safest place to winter them. They began to come up about the tenth of June following; not five per cent. failed, and they have never been artificially sheltered in any way. It would not be worth while introducing them here if they could not take care of themselves.

Of those left undisturbed where they were sown, I have not lost one; they have now had six summers' growth. I have just had some of them measured, so as to be certain of their size; the height of the four largest is as follows: fifteen feet and a half, fourteen feet and a half, fourteen feet, and twelve feet, and thick in proportion. Those have not been transplanted; now notice the difference between them and those that have been removed.

In the fall of 1875, when they were only one year old, one lot were transplanted, but the soil was not favorable and they have not done well, so far; however, they are beginning to recover. In the spring of 1876 I transplanted another lot; the best are about eight feet high; and another lot last spring, the tallest of which are about ten or eleven feet. All those trees are of the same age as the fifteen and fourteen feet trees; the difference in size results from the transplanting, wherefore it is much better to sow them at once where they are to remain. Plant them thick, as the wood of the young tree is rather soft, like that of our native butternut.

It is contrary to all preconceived ideas, even among those who handle timber every day, but nevertheless true, that the black walnut (*Juglans nigra*) and the Canadian oak (*Quercus alba*) as a rule increase much more rapidly in growth than our pine and white spruce. I conclude from counting the rings on the trees after they are cut down, and from watching the growth of the living trees, that black walnut and Canadian oak generally gain one inch in diameter in about three years and a half, while our spruce and pine take about double that time to accomplish the same result; this can easily be ascertained by counting and measuring the ring. Of course there will be exceptions, and it would not be fair to judge by those only; I speak of the average.

It is now time to say something of the profits, and I must be careful to avoid exaggeration. Judging by the growth of the living trees and rings of the timber when cut, I do not hesitate to say that a black walnut under ordinary circumstances, at the age of seventy-five years, will have attained twenty-one inches in diameter and will contain at least fifty cubic feet of timber, the actual value of which is about one dollar per cubic foot. (See for prices the *Lumberman's Gazette*, published at Bay City, Michigan, the numbers of the 26th January, 2nd February, and 2nd of March of this year.)

For how many such trees, judiciously planted, will there be comfortable room on one acre? It is difficult to find a regular plantation of any kind of trees of that diameter here, to help us toward a solution of the question, and the way in which trees are scattered in the forest and their irregular size leave but a vague impression on the mind, varying according to the personal experience of each. I am not ready to answer the question at present for want of full information, and will not venture a guess, but I do not feel the same hesitation where trees standing in one single row, with

plenty of room on two sides, are concerned; in that case trees twenty-one inches in diameter would not be too close, standing at eighteen feet from one another. Take a farm three acres wide, with a road across the width and a row of black walnuts of an average diameter of twenty-one inches on each side of the road, the trees eighteen feet distance from one another, you get sixty trees containing fifty cubic feet each, three thousand cubic feet, worth, at the present price, three thousand dollars.

But it will be safer to sow the black walnut in clumps, pretty close. They will protect one another when young, and, as they grow, they can be thinned gradually. Their culture will entail little trouble, apart from the preparation of the soil, and the sowing of the nut; the work of thinning will soon repay itself with the timber removed. The better the soil, the quicker the growth. Such a valuable tree as the black walnut deserves to be well treated. If possible, find some shelter against the strongest prevailing winds for the young plantation, a belt of older trees, or a hill. They are rather soft, like our butternut; it is the only drawback I have found out so far, but not fatal. Even the youngest tree will get several branches torn off and very ugly wounds without dying; they are wonderfully hardy.

The butternut grows spontaneously here; its beautiful timber can be worked with as much ease as the softest pine; it ranks immediately after the black walnut, and is inferior to it only in the color of the wood, which is lighter. Rubbed with linseed oil, it takes the soft, rich hue of sandal wood, and if judiciously sawn, shows wonderful marks. I recommend strongly its culture.

White Oak.—The acorn ought to be sown as soon as possible after it drops, in the fall, as it loses its vitality rapidly; and to avoid the great check resulting from transplanting, it ought to be sown at once, if possible, where the tree is destined to remain. Its wood is tougher, and not so liable to break when young. I think it ought to grow with at least as much ease and rapidity as the black walnut; ours are rather behind, as they have been transplanted twice. The oak is so useful and valuable, and its culture so easy, that plantations of trees ought to contain a good proportion of oak, provided the soil be not too poor for it.

White Elm.—This splendid tree recommends itself sufficiently by its beauty and usefulness to dispense me from dwelling at any length upon it; it grows rapidly in a deep, damp soil. I have not grown it from seed, but by taking up young trees from a low island, where they grow in abundance. It appears to bear transplanting better than the oak, walnut or maple, and can be moved safely at a much larger size than any of those trees.

Maple.—If you wish to raise a maple sugary with the smallest amount of expense and trouble, go to an old maple grove in the fall; the ground is covered with a thick carpet of seedlings. After rain, you can pull them up by hand with the greatest ease, without breaking any of their small roots, if you are moderately careful. Plant them at once in a corner of your garden, about two feet apart each way; weed during the first two summers with a light hoe. We found, after four years, the trees fit for transplanting, about five feet high, and the thickness of a man's thumb. As the ground was mellow and free, we took them up with little damage. Of course, there is still the objection of transplanting, but in a less degree than when you seek your maples in the woods, where their roots are mixed up with those of other trees, stumps and stones, and must be more or less torn up with violence. There is an immense difference in the comparative cost of the two processes, which will tell upon the hundreds of trees required to make a sugary worth working. Those small trees never fail (at all events, none of those we transplanted did), while much larger trees, more injured in the moving from the forest, die in great numbers, and the survivors are seriously checked. I have been told that the seedlings would overtake them, but have not yet had time to verify that statement. Maples will begin to yield a seasonable quantity of sap for sugar when about twenty to twenty-five years old.

The Ash.—It is well known, and its different varieties are found very useful, especially the white ash, which recommends itself for its elasticity; its wood is beautifully marked, and is largely employed in the making of furniture panels, &c. It will thrive where the walnut, oak and maple refuse to grow, or only linger miserably. I remember part of a maple avenue, where, year after year, the maples had been replaced over and

over and failed; at last, we had recourse to white and black ash; none failed, and they are progressing most satisfactorily.

Tamarack will grow in damp, wet ground; we have succeeded with them where even willows had failed; the value of its timber and leaves is too well known to require any comment from me.

Russian Pine (*Pinus Sylvestris*).—In making new plantations, especially from seed, it is no more trouble to try foreign than Canadian seed, and, however strange it may appear, I find it easier to procure the seed of the Russian and the Himalays than of the Canadian Pine. One may find among foreign trees valuable additions to our plantations; such as I think, the Russian Pine, native of the north of Russia. Our climate suits it admirably, and it appears a more vigorous grower than our Canadian White Pine. I cannot give any opinion as to the quality of the timber, as they have only been sown in the spring of 1873. They started rather slowly, and their height and thickness are less than those of the black walnuts sown two summers later, in November, 1874; but they are now beginning to take more rapid strides. I measured the season's growth of one of them last year, on the third day of July. It showed twenty-six inches in length, gained in about thirty days, as the buds of the Coniferae do not open much before the beginning of June; the year's growth was already over, and from that moment it only thickened and hardened into wood.

Since the growing season of our trees is so short, we ought to lose no time if we wish to help them along, by thinning, removing useless branches, mellowing the ground, or otherwise; all that ought to be done before June, so as to afford them every chance during the growing month. I think the *Abies Nobilis*, or White Fir of Washington Territory, is the fastest grower among the Coniferae.

Poplar.—I must beg the indulgent reader to listen to my plea in favor of this tree, and not condemn it unheard. I speak of the kind known as Cotton Wood or *Populus Canadensis* (not to be confounded with the Balsam Poplar and the Aspe). Its growth is wonderfully rapid; twenty-three years ago, in November, 1858, I stuck in the ground three cuttings; it was my first trial at tree culture. They are now over sixty feet high, one is twenty-five inches in diameter, the second twenty-four inches, an average of one inch a year in diameter. In every new plantation, in a country completely denuded of forest trees, and especially in re-wooding our Western Prairies, I would recommend, at the start, a plentiful use of this Poplar, without neglecting, of course, more valuable trees. It strikes at once from cutting, which can be procured and transported anywhere with the greatest ease. Thanks to its rapid growth, it will soon enlighten the other trees in the plantation, and supply timber, not of the first quality, but better than none, until the slower growing trees are ready with their more valuable contributions, and it can easily be cut down when the room it occupies is wanted for better trees. This poplar has been introduced from Canada into France, where it is designated as the "Peuplier du Canada," and considered as a useful and profitable tree.

I must now close this long article. The results of my experiments are nothing to boast of; practical men would have done much better. If I had chosen the soil for the different kinds of trees more judiciously, had not left them much too long without thinning them, and been able to attend to them in the proper seasons, I am convinced that, as a whole, they would be much finer. At all events, it shows that any one who will take the trouble, can begin the culture of forest trees without previous training. I do not speak of orchards here. Having no School of Forestry in Canada, we must educate ourselves; we have got books written on the subject by eminent and practical men, and we have got, always opened before our eyes, the great book of Nature.

In speaking of various winter-wheats tested by the *Rural New-Yorker*, that journal states that of "many which were sown as winter-wheats for the first time, very few would have been appreciably winter-killed had the land in all parts been so drained or leveled that the water could not have long remained on the surface or beds of ice have formed. There is no wheat hardy enough to grow under such conditions, and it is of the first importance, therefore, that in fitting our lands for wheat, hollows should be filled in or thoroughly drained."

Good Grasses and a Variety of Them.

ABRIDGED FROM AN ARTICLE ON THAT SUBJECT
BY THE LATE ALEXANDER HYDE.

While grass indisputably is the most valuable of all farm products, there is no crop which is left so much to shirk for itself. The impression with most farmers seems to be that grass is indigenous to the soil, and will grow any way. We have made a little improvement on the practice of our English ancestors and the early settlers of this country, for they sowed no grass-seed, trusting solely to its spontaneous growth; and when our fathers first sowed seed, they scraped it up from the barn floor, sowing indiscriminately all kinds, weeds included. The modern practice is a great improvement on that of the olden time, but it is strange how closely farmers stick to the custom of sowing only two or three kinds of grass-seed, and these not always the varieties best adapted to their use. For long years the rule was to sow only timothy and clover. Then the custom was slowly established of sowing also a little redtop. Comparatively few farmers have advanced beyond this limit, probably more of them sowing two than four varieties of grass-seed. Nature teaches a different course from this. If we closely observe any old meadow or pasture we shall generally find at least a dozen varieties of grass, and often a score, growing lovingly together. When we sow only one or two, or even three or four, nature supplements our neglect by gradually bringing in half a dozen or more of other varieties. It is very strange that when nature (Providence is a better term) has furnished thousands of varieties of grass, only two or three should be adapted for general culture. Either Providence has made a mistake in this matter or farmers have. As man is fallible we pin our faith on the teachings of nature, and desire to recommend to farmers the cultivation of some grasses which we are confident will improve their stock and profits, and as a preface to this recommendation we quote the following opinion from Secretary Flint, of the Massachusetts Board of Agriculture: "If we sow but one kind of grass, however abundantly the seed may be scattered, or on whatever soil it may be, or under however favorable influences, yet only a part of the plants will flourish; vacant spaces will occur throughout the piece, which will be filled up after a time by grasses of an inferior quality, weeds or mosses. This is the case in some degree also where only two or a small number of species are sown, while if a mixture made up of a larger number of kinds of seed is used the plants will cover the entire surface, and produce a far better quality of herbage. I hold this proposition to be indisputable, that any soil will yield a larger and more nutritious crop if sown with several kinds of nutritious grasses than when sown with only one or two species."

ORCHARD-GRASS.

The first variety of grass which we would recommend for more extensive cultivation is orchard-grass, or "cocksfoot" as the English call it. This is a native American, but is more popular abroad than at home. It was found growing wild in Virginia, and was carried to England about the middle of the last century, where it soon established a high reputation as a productive and nutritious grass, and is now common in every country in Europe, and is cultivated in Asia and Africa. Why it is not more popular in this native country we cannot conjecture. Certainly, it is not because it has not had backers of the most responsible kind. Judge Buel, of Albany, long years ago, said of orchard-grass: "I prefer it to most every other grass, and cows are very fond of it. It is one of the most abiding grasses we have. It is probably better adapted than any other grass to sow with clover and other seeds for permanent pasture, or for hay, as it is fit to cut with clover, and grows remarkable quick when cropped by cattle. Five or six days' growth in summer suffices to give a good bite. Its good properties consist in its early and rapid growth, and in its resistance of drought, but all agree that it should be closely cropped. Sheep will pass over all other grass to feed upon it. If suffered to grow long without being cropped, it becomes coarse and harsh."

Very possibly this latter fact, as stated by Judge Buel, may account for the unpopularity of orchard-grass with American farmers. If left to grow large without being grazed, or to ripen its seed before it is cut for hay, it becomes coarse and wiry, and cattle reject it. We have grown it for nearly a score of years, both as a pasture and meadow grass, and find that, grazed closely and

cut early, there is no grass that cattle prefer before it. Several years ago we stocked two contiguous pastures, apparently of the same quality of soil, one with orchard-grass, clover, and redtop, and the other with timothy, clover, and redtop, and found that the orchard-grass plot furnished nearly, if not quite, twice as much grazing as the other, and after taking away the division fence the cows evidently preferred the orchard-grass, as they spent most of their time in the plot where it grew. Even in Kentucky, famous for its blue-grass grazing, orchard-grass has shown itself a close competitor for the honor of producing the most beef. Mr. Saunders, a practical Kentucky cattle breeder, says of it: "My observation and experience have induced me to rely mainly on orchard-grass and red clover; indeed, I now sow no other sort of grass-seed. These grasses mixed make the best of hay of all the grasses for this climate—it is nutritious and well adapted as food for stock. Orchard-grass is ready for grazing in the spring 10 or 12 days sooner than any other that affords a full bite. When grazed down and the stock turned off it will be ready for regrazing in less than half the time required for Kentucky blue-grass. It stands a severe drought better than any other grass, keeping green and growing when other grasses are dried up. In summer it will grow more in a day than blue-grass will in a week."

Orchard-grass, as its name implies, is well adapted for growing in orchards, oak-openings or any shady place. For its perfect development it requires a deep and rather moist soil. In such a soil, with a porous subsoil, its fibrous roots extend to a great depth, and its flowering tufts will sometimes shoot up five feet high. Its luxuriance of growth is so great that a larger third crop of it can be cut than the second crop of timothy. Still, in spite of this abundant yield, it is a much more permanent grass than timothy, and exhausts the land less. This is doubtless due to the roots foraging to so great a depth, while the bulbous roots of timothy feed near the surface. This grass has the bad habit of growing in tufts, and for this reason and others it should never be sown alone, and the allowance of seed should be liberal—two bushels to the acre, at least, even when clover and other seeds are sown in connection with it.

ORCHARD-GRASS AND TIMOTHY COMPARED.

As orchard-grass is generally acknowledged by farmers to yield much larger crops of hay than timothy, but is often condemned as inferior in nutritive properties, we give the analysis of these two grasses as found in Flint's "Treatise on Grasses":

	Flesh-forming Principles.	Fatty Matter.	Heat-producing.	Ash.
Orchard-grass.	13.53	3.14	44.32	5.31
Timothy.	11.36	3.55	53.35	5.28

It will be seen by the above that orchard grass is really superior to timothy, pound for pound, in muscle forming elements, while it is but little inferior in its capacity for producing fat and heat.

We have already spoken of sowing clover in connection with orchard grass, and the two grow together nicely and ripen about the same time, both making better hay when cut in June, before the formation of seed. But clover needs no recommendation, and all we wish to say about it is that more should be raised. While making excellent forage, it does not exhaust the land as fast as most grasses, as its roots, like those of orchard grass, penetrate deeply and suck up saline material, which the roots of timothy do not reach. But clover is biennial, and soon runs out. Along with it, therefore, should be sown some perennial, and we know nothing better than Kentucky blue. Many suppose from the name of this grass that it is peculiar to Kentucky, but it is common in New England, and does well in Canada, though seldom sown here, and is generally called June grass. This species also does well in a shade, and is therefore well adapted to an orchard. Its creeping roots feed near the surface, and hence this grass is apt to dry up in the July and August droughts, especially when grown on a lawn, but under the shelter of an orchard or orchard-grass it keeps green through the summer and makes excellent hay and the best of grazing. If sown alone the first crop is not large, but if cut in June the aftermath makes a thick growth, which rolls out from under the scythe like a fleece of wool. Blue grass sends up but one flowering stalk in a year, so that in this rowen crop there are no dry stems, but simply a mass of leaves, which cows, sheep and calves devour in winter as though it were the sweetest of morsels. As a milk-producing food we

know nothing superior to it, unless it is cabbage leaves.

Blue grass delights in a limestone soil, and can be induced to grow luxuriantly by liberal top dressing with air-slacked lime, or compost in which pure lime is one of the components. We never sowed a seed of this grass but in one of our orchards, which we limed and ashed liberally for a succession of years. Blue-grass has been the predominating variety for these ten years, coming in spontaneously and gradually gaining the ascendancy. When once well established it is said to be the most permanent of grasses. We certainly have no desire to eradicate it. It starts early in the spring, and with its thick growth and deep color, especially in the aftermath, it looks good enough to eat and soft enough for a bed.

Montreal Horticultural Society and Fruit Growers' Association.

Annual Meeting was held at the Natural History Rooms, Dec. 7th. From the annual report and financial statement presented by Henry S. Coans, Sec.-Treasurer, we extract the following abridgement: The Association having last year offered prizes for the best gentleman's greenhouse, best greenhouse kept by an amateur, and best kept window-garden, a number of entries were received, and though new, the idea was generally received with favor by the members. M. H. Gault, Esq., M. P., having offered the sum of fifty dollars through the Society for the encouragement of window gardening the coming winter. The exhibition of the Society took place in the Victoria Rink on the 20th, 21st, 22nd, and 23rd September last, during the second week of the Provincial Exhibition. The exhibition as a whole was an exceedingly fine one, and in one or two respects, especially the outdoor grapes, was far ahead of any exhibit made in this city heretofore. There was 301 plates of outdoor grapes on exhibition, comprising about 80 varieties, many of them new and at least here comparatively unknown. Of the varieties 26 were white, 21 red and 39 black. It was a pleasing evidence of the interest that the collection excited to see from time to time visitors, note book in hand, noting the names and appearance of varieties that interested them. The reason why the grape exhibit this year was so far in excess of that of any other year is owing to the fact that one particular section was open to the world. The sum of twenty-five dollars and the Society's diploma was offered as a first prize, and entries were received without fee. Circular letters were also written to leading grape growers and growers of special varieties in various parts of the United States and Ontario. Some parties responded favorably and some, owing to the exhibitions in other parts of the country, were unable to do anything. The whole of the grapes exhibited in one section having become the property of the Society for the purpose of examination, a most interesting meeting was held in the Natural History Rooms on the evening of the 5th October. The fruit that had been on exhibition and which in the meantime had been preserved in very perfect condition in Mr. George Wait's refrigerator, was distributed among those present, Mr. Chas. Gibb, as each variety was handed round, making a few remarks as to origin, quality, productiveness and other characteristics. The meeting was very practical, and those present could not fail to gain instruction from the remarks made. In view of the undoubted success attending the plan adopted in this section, it is worthy of consideration as to whether the plan could not be extended in other directions. The show of indoor grapes was exceedingly fine, probably the finest that has ever taken place in Quebec, and numbered 118 plates. The liberality of one of our members in offering every year as liberal a prize is undoubtedly having an effect. The show of apples was very good indeed, between six and seven hundred plates being shown. The number of entries was probably larger than ever, but owing to the lack of competition for both classes of the county prizes, the number of plates of fruit exhibited was not so large as for the last two or three years. Last year the secretary addressed over fifty letters to the secretaries of the agricultural societies in the province, inviting their co-operation, and there was not a single response. The only society that exhibited this year as a society was the Abbotsford Fruit Growers' Association, the fruit exhibited from Huntingdon having been collected by Mr. Edwards, of Covey Hill. His enterprise was rewarded, as he carried off the largest amount in prizes of any exhibitor, viz., \$94.50; Mr. Cameron, the winner of the silver cup, coming second with about \$2 less in value. The society

has made special provision whereby any person residing outside the Island of Montreal can become a member of the association on payment of the very moderate fee of one dollar annually, and also to compete for any prize offered by the society without any extra fee. Notwithstanding, only 18 persons availed themselves of the privilege. Undoubtedly some of the fruit exhibited in the large county collections it is not profitable or desirable to cultivate. It might possibly be desirable to retain the county prizes, but limit the number of varieties shown in each section. If money can be found prizes might be offered for 20, 40, 60, or even one hundred varieties, and by this means a county totally unable to compete against one showing 140 varieties, might be able to compete successfully with 20 or 40 varieties. While on the subject of fruit I may note the fact that the Provincial Association this year also offered prizes for fruit. This may or may not have been much injury to the Society's show, but the receipts at the door were diminished between three and four hundred dollars. The display made at the Mile End was certainly not such as to induce people to visit the Horticultural Society's display, as many strangers would naturally infer that being a smaller and somewhat local association, the display would be still smaller. It is regrettable, with so large a field left to the Provincial Association, that anything should be done that may injuriously affect the interests of this Society. This Association was re-organized with the object of doing Provincial work, and that work is being done in a manner that leaves little to be desired. Those gentlemen who give so much time, thought and energy to the work do so without hope of receiving any fee or reward, save the consciousness of advancing the welfare of the country in which they live. The display of vegetables, though good, was not so large as the previous year. Enough was shown, though, to demonstrate that Montreal has not declined in her ability to grow so large a number of the choicest vegetables in the greatest perfection. Though rather late in the season the show of cut bloom was exceedingly large. The dahlias shown were magnificent, and our Quebec friends, as usual, carried off the palm in different sections. The display of plants was very large, and a marked improvement was noticeable in many of the sections. An interesting collection of 26 varieties of the forest tree seeds of that country was shown by Mrs. Jack, of Chateauguay Basin, which was also awarded a diploma. The Society having brought into notice of late years several varieties of apples of very considerable merit, it was decided to send a small collection to the exhibit of the American Pomological Society, held in Boston in September last. I have the pleasure to announce that the Wilder silver medal was unanimously awarded by the judges. I had the pleasure of receiving a letter from Marshall P. Wilder himself, announcing the fact. The varieties sent were Strawberry of Montreal, Peach of Montreal, Decarie, Fameuse, Sucre, Victoria, winter St Lawrence, late strawberry, Canada Baldwin, Cellini and King of Pippins. A communication has been sent to Dr. Arnold, Superintendent of an Agricultural College at Petrovsk, near Moscow, Russia, inviting him to forward some scions of the hardiest varieties of pears for trial in this country; if some good varieties could be procured from this source, considerable stimulus might be given to the pear culture in this province. The general condition of the Society, financially and otherwise, is very satisfactory. With the knowledge that a large exhibition was going to be held in Montreal this year, and considering that the receipts at the door would be fully up to last year, a liberal prize list, amounting to nearly \$1,600, was prepared. The receipts at the door, instead of being equal to last year, only reached the sum of \$668 85, being about \$333 short of last year, while the prizes paid by the Society have been nearly \$200 in excess. The Society is greatly indebted to Mr. R. W. Shepherd for his valuable services as Secretary of the Report Committee, the whole of the work being done gratuitously. The membership of the Society the past year was 815. This is the largest in the history of the Society, but only exceeds by one member that of 1876, which numbered 814. Few of the members seem aware of the fact that a small but a good library is at their disposal. The total amount of money expended in prizes the present year was \$1,445.28. The sum of \$33.75 still remains in the Society's hands unclaimed. The Association has suffered considerable inconvenience by reason of the late payment of the Government grant. I would respectfully remark that the grant should always be in the Society's

hands in the month of September of each year, as in that month the Exhibition is always held. His Honor the Lieutenant-Governor of the Province and Madame Robitaille, Hon. J. J. Ross, Chas. Guilbault and other ladies and gentlemen paid a visit to the Exhibition on one of the evenings it was open, by invitation. They were received by the president and other officers of the Association, and they all seemed pleased and surprised at the magnificent and varied display that met their view. The books have been audited, and a financial statement of the affairs of the Society is annexed, showing a balance of cash on hand of \$106.68, exclusive of any members' fees that have been collected for the coming year. The Society's affairs have been conducted as economically as possible, but with an Association so active and almost constantly engaged in prosecuting some branch of their work, the outlay is necessarily very considerable. If the Society's work could only be spread out evenly over the year, a man would find himself pretty well employed for two-thirds of the time or more. Mr. George A. Cochrane, a former resident of this city, has brought to the notice of the Society some patent cases of his invention for the proper preservation and safe carriage of the most delicate fruits to the English markets. The pears now shown to this meeting were put away on the 23rd of the month of September, and are apparently in beautiful condition. The apples were, I believe, put away about the same time, in as good a condition as the other fruit. Mr. Cochrane says that the discoloration at the end is a disease caused by the accumulation of carbonic acid gas in the place where they were kept. He states that he has transported melons, tomatoes and such like delicate fruit to the London markets the past summer in perfect condition. Gratifying as is the large membership of the Society the past year, I am convinced that, with a vigorous effort, the membership could be placed at one thousand. This would entail a certain amount of extra work on some of the members, but with the co-operation of our fellow-citizens of French origin, it would be easily accomplished.

The Markham Farmer's Club.

An interesting meeting of this Club was held at the Franklin House, Markham, Dec. 6. The meeting was well attended. Amongst the prominent agriculturists present were J. Slater, Jas. Tran, J. Gibson, S. Rennie, H. Jennings, W. H. Lundy, J. Crawford, J. A. Higgins, Jas. Boyd, Wm. McDonald, J. Ferguson, J. Boynton, A. Forster, A. S. Thompson, J. Lawrie, A. McKinnon, W. Lawson, E. Sanderson, J. Dimma, Jas. Eckardt, W. D. Crosby, J. Boyle, Capt. Milne, and many others.

Prof. Brown, of the Agricultural Farm, Guelph, delivered a lecture on "Fattening Beef." We give the following extract comprising the most important points, and some brief remarks from members of the Club:

BEEF IN THE STALL.

As a province we are growers of grain, roots and fodder, and therefore should be stall growers of beef. It is very desirable to know whether, in every respect, we are keeping up to the times in this valuable line of our profession. It is not an unknown thing to the most of us that it is the "hanging out" for the half cent per lb. that makes the difference between the affluent and the needy farmer, and all the difference also between what we give, when we give, how we give, and how long we give food—in the stall.

Mr. Brown has fully convinced himself that a steer fattened, even at three years old, not only leaves no profit to the feeder, but is absolutely fed at a loss, which is only repaid by the manure made. In accordance with this he says:

I wish, first of all, to make the distinct announcement to you and the province that, if a cost value,—not even a market value, which on an average of things is just double the other,—is placed upon any kind of food usually given in the stall, to fattening cattle, so as to obtain rapid production, there is no profit whatever from the extra weight got by the use of that food. It is a very simple matter of calculation to take a store cattle beast, two and one-half years old in October, when it weighs say 1400 lbs., give it for the six following months whatever you like so as to bring it out about 1700 lbs., and the result will always be no profit, as between the cost of the food and the additional weight.

The Prof. mildly rebukes us in the new countries for adhering to old schools, too slow and

conservative. It is not, he says, necessary to step out of the States to discover this.

How many of us believe there is more profit in getting rid of our fattening cattle before three years old? Comparatively few, and yet it stands as a distinct fact in our practice. A two-year-old, properly handled all along, will always return more money for its time and weight than a three-year-old can possibly do. The reason why every man does not follow this early disposal, is simply because there is more care required in breeding; more attention required in keeping up the calf-flesh, and the existence of a false idea that extra weight, under any circumstances, pays best. Yet again, by fattening in the stall many use the argument that as it is unnatural to confine and tie-up, we should counteract as much of this as possible by giving food in the most natural form, that is hay and straw uncut, and roots unpulped. I cannot agree with this; I certainly agree that, to the breeding animal, it is best to offer unprepared food, but as all our work in *prematuring* for beef is of the most unnatural kind consistent with long life and health, it is better, and more profitable in many ways, to make the high pressure of the most thorough kind. Of course, in this connection, it is obvious that the handling of a small number of animals cannot be so profitable as that which gives full employment to so much machinery and manual labor.

EXTRAVAGANT STALL FEEDING.

Once more: I am of opinion that the most of our stall cattle managers are extravagant in their feeding, for the one prominent reason that they look upon straw as fit only for bedding, or, at the most, that only a small quantity should be allowed with hay. I am not prepared to show that singly, or as a mixture, wheat, oat and barley straw is equal in feeding properties to hay of timothy and clover; but I do assert, without fear of disproof, that when properly managed by being changed in form when associated with other things, our common straws are just doubled in value for cattle food, and therefore anyone is not only extravagant, but wasteful and very improvident, who treats straw largely only as bedding. When we think of the fact that we must continue extensive grain growing, and must produce, on an average, as much straw per acre as hay, it is plain that even though only one-third equal to hay as a feeder, the mismanagement of straw stands as a serious national loss.

From the lecture we extract the following on

FATTENING A THREE-YEAR OLD STEER.

No cattle feeder can take hold of a two or three-year-old steer in the fall, and during the succeeding six months, carry him on and finish for the butcher, at a cost less than \$30,—that is, placing an actual cost value on the food consumed—not a market value, remember, which would be just \$20 more. We have no right to charge our fattening cattle, or any of our animals, indeed, with the market price of things, because that would be making a double profit,—the profit of the market and the profit of the stall; of course there is nothing wrong in it, so long as it is understood, but for our present purpose it is best to handle the one profit. In addition to this there is necessarily the proportion for attendance, bedding, and the usual risk by deaths. I know of but one way of making up any one's account in any business, which is to debit and credit whatever is given or received,—any other way must be false. Our fattening cattle beast must be debited with everything it consumes, or uses, or requires in any shape whatsoever. A proper value on the three things last named is equal to \$10, so that we have \$40 as the actual cost of the six months' finishing of one steer. This is the one item; the other is the value of the animal when bought or entered for the finishing process. If two and one-half years old it would, or should, weigh about 1400 lbs., and be worth \$70. So then it really cost \$110 to produce a three-year-old steer that will weigh about 1650 lbs. by the best management, which may be set down as worth \$107, or 6½c. per pound. Where now then is the profit of cattle feeding? Where would it have been had I followed the usual plan of charging food at market prices? Why, just \$20 less profit apparently, not real, as just explained in regard to two profits. Have we then made nothing by this process of beef making? If all my standing is correct—and I now ask you to challenge it—it is very obvious that unless the manure is properly valued there is no cash balance in favor of the direct growth of beef. Nevertheless, there is a large profit in beef making. The bottom, or end, of the question is just this:—As manure is

indispensable, and as crops must undergo a change through the animal system in order to make the best manure, the growing of beef is also indispensable; so that the farmer need not trouble himself with what it costs to produce that beef.

The delivering of the lecture was followed by remarks from members of the Club:

The President, Mr. Slater, was sure that all would agree that cattle feeding was a very important subject to the farmer, and has been most ably handled by the Professor. Every branch of the subject had been carefully and practically dealt with, and although all might not agree with the statements adduced, yet no one could deny their correctness, as there were so many conditions to be considered. The one little item of the waste of straw, which meant a waste of wealth to every farmer, was in itself a lesson to us all. Relative to the forcing the maturity of stock, that might be debatable ground. Can maturity be forced profitably? Would it not be best to provide natural food for stock and allow natural maturity? Grass was the natural food for cattle, and with that fodder only we cannot mature steers in two and a half years on our quality of grasses.

Mr. J. Gibson said he was not a cattle feeder, but a grain raiser; there were many of that class present. He would remark that our educational system should be so modified as to have agricultural lessons taught both in High and Common schools, to more practically prepare our youth for agricultural pursuits.

Mr. John Crawford was very much pleased with the lecture and the practical way in which it was delivered. He thought that, notwithstanding these high pressure times, we were in danger of using too much pressure in maturing stock, especially on some breeds of cattle. The Shorthorns, the Aberdeen Poll and Herefords were all that he claimed for them, but he had omitted the Ayrshires, which, though wanting in weight, yielded pounded of meat for pound of food with any other breed and of a superior quality, and were excellent foragers. The Shorthorns were bad foragers. In portions of Scotland they could not raise them profitably, as they required such careful attendance and waiting on; they must have the most tempting food, so that they could eat and lie down.

Mr. Lawrie would like to have heard something said relative to the good qualities of the Ayrshires. He had had considerable experience in raising and feeding, both in Grade, Shorthorn and Ayrshire cattle. His experience was that the relative position of High Grade cattle and Ayrshire was three to two. The milking qualities of the Ayrshire was far superior to High Grades, and the Ayrshires yielded as many pounds of beef to the quality of fodder as any other, and of better and more delicate quality. They were steadily gaining ground in the estimation of the cattle raisers.

Prof. Brown said the Ayrshires had not the frame; they were good milkers, consequently good beefers, as all good milkers fed well and easily; but they were too slow in maturing—cannot wait for them.

Mr. Tran quite agreed that to simply use straw for bedding was a great waste. He fed all of his straw by cutting and mixing with turnip pulp.

Mr. Wm McDonald said that he had given careful attention to this, the most interesting lecture on cattle feeding that he had heard, and as he was of an inquisitive turn of mind, he would like to know the comparative values of manures produced by feeding straw, or straw for bedding and tramped under foot; which yielded the most ammonia, humic and urmic acids. In his experience he found the greatest profit in stall feeding for beef was the product of good manure.

Mr. H Jennings said that he was very much pleased with the very practical lecture on "Stall feeding." It was a branch in connection with farming that he was especially interested in, and one that he had practiced for over forty years. Although he had not during that time kept a debit and credit detailed account, he had usually found the general results very satisfactory, and a profit reached his pocket as well as the land. He fully endorsed the necessity of saving and utilizing all kinds of fodder, whether straw, milk, turnips or grain offal. In illustrating his profits on stall feeding at a previous meeting of the Club, he intimated that his profits had been a certain amount in cash, manure and a calf that he had raised on dish washings. That calf was on the same diet fit for the butcher at a large price. He believed in a judicious and generous feeding, and knew that it was the only kind that would pay. It was folly for any farmer to turn his cattle out on the frosted aftermath in November and December, and be-

cause they appeared full at night supposed they were keeping up their condition for successful wintering. They required careful housing and regular feeding in these months, as well as in February or March, to produce profitable results.

Central New York Farmers' Club.

At a recent meeting of the Club a member read an article on "Barnyard Manures and Chemical Fertilizers." The tendency of his reasoning was, that whereas it was shown by chemical analysis that one ton of well rotted farmyard manure contains of fertilizing constituents, viz.:—potash, phosphoric acid and nitrogen, a very small percentage, the application of chemical fertilizers to the soil is more economical than dung. That the low estimate thus formed of farmyard manure is not borne out by fact is our everyday experience. There is, however, much of his article which we can fully endorse. He goes on to say:—What shall be said of farmyard dung as it is generally saved, or rather wasted? It is of little more use to the land than so much muck. Indeed there are many deposits of muck that will show a higher percentage of nitrogen, phosphorus and potash than can be found in many of the manure heaps in this country, and this, too, simply because these fertilizing salts are soluble in water and easily washed out and evaporated from the dung when it is exposed, as it usually is, under the eaves of the barns, to be left in rain, wind and sun month after month. For amelioration of stiff soil, and for the sake of the humus it would impart to sandy land, a ton of ordinary muck composted with quick lime is worth much more than a ton of the side slope, leached stuff called manure. A good, well-kept manure pit, tank, box or cellar is a prime economy to the cultivator of the soil. Farmyard manure is as much a part of the farmer's capital as the oxen in the stall. And yet how many there are who see the nitre and the phosphates run out of their dung heaps in amber streams down to gutters and ditches, and off in the waterways, and yet they view all this with an indifference as stolid as if they thought these rich leachings of no more value than the muddy water that runs in the wheel ruts down the highways. Said a wise farmer, on looking at a moist hollow where a manure heap had been thrown for many years, "I would rather have five loads of the soil under that pile than twenty from the stuff on top of the heap."

Elmira Farmers' Club, N. Y.

From a report in the *Husbandman* of a recent meeting of the Elmira Club, we extract the following results of their experience as given at that meeting:

What is the effect of deep plowing upon subsequent grass seeding? One man said:

"There is a field"—the speaker indicating direction by a wave of the hand—"plowed a dozen years ago more than a foot deep late in autumn, and the next year fitted for wheat, on which was the grass seeding. To-day the sod is like a cushion under the feet, and it has been so ever since the second year after that deep plowing. Why, that is the way to make grass on heavy land. You must get down so that the roots have earth to get hold of or you can't make a sod. That field never had half a crop of grass until the soil was opened by the plow. The treatment wouldn't do so well in loose soils—these gravelly flats for instance—but such soils never get first-class sod with any treatment."

The reply came from a farmer who values grass beyond all other crops, because he regards it as the foundation of successful farming. He said:

"That is good doctrine when applied to heavy soils like most of the uplands skirting this valley. I have just been showing a field that I treated that way, so far as deep plowing is concerned, to a party of visitors who doubted the effect. If I am not mistaken they saw the finest grass they had looked on this year—thick compact sod, grass up full height, fresh and rug ed, set to stay. That land was plowed, part of it a foot deep, late in the fall, harrowed in spring, and grass seed sown without a grain crop. Another part was left till spring because I couldn't get all the work done before, and was then plowed not so deep—say seven inches. On that, grass is fair, but not so rank, nor so well set as on the other. I want to plow seventy-five acres more of that heavy land as deep as possible, and as late as I can before the ground closes for winter. I have seen enough to satisfy me that the way to establish grass on close, heavy

land is to loosen the land first by the plow—my process—then by frost—nature's process."

The first speaker.—"Of course you won't get a full crop every year. I got a light yield this year, but all old meadows are light. Still mine was thick at the bottom, and the crop, although not heavy, will wear well."

A third farmer.—"I don't know that it is good policy to seed with grass alone; it seems to me there is loss of the use of land."

The second speaker.—"So there is, if a grain crop is the principal object; but if you want grass that is the way to get it. You need have no fear if the ground looks rather naked in May, and the crop small in June. Up to July there will not be much pasture, but it will do no hurt to turn the cattle on and along in July they will find more fresh feed than on any other field. Some farmers say keep cattle off; my way is to put them on at any time, for they will find a little very juicy grass to graze, and they won't hurt the seeding a bit; in fact they will do it good, for their feet will plant some of it better, and grazing will thicken the whole by making root-growth."

First speaker.—"Talking of seeding we hear a great deal of complaint from farmers who have heavy soils, that they can't depend on getting good catches. The whole trouble is in the lack of fitting. If they will break up their lands so that grass roots have a place to run they won't fail so often. When they do that they can get better crops, and more surely, both of grass and grain, than farmers on these gravelly flats get, and make more profit, too, although they may have more hard work, for heavy lands can not be tilled so easily."

Second speaker.—"All very true. The first thing we do is to fit land for the crops wanted. When we talk about thin seeding, for instance, with wheat there are protests coming from every direction, but we provide a condition that doesn't seem to be understood by men who don't want to be convinced that three pecks of wheat will seed an acre if the soil is in the best condition for wheat. I don't advocate thin seeding as the general rule, because I know that not one field in ten is well fitted. Get that condition and anything beyond three pecks is thrown away."

Third speaker.—"You want to fit the land so that every kernel will grow, I suppose."

Second speaker.—"Precisely; then I don't have to throw seed away. But if some of it is to be covered by great flat stones, some by heavy clods, and some must fall on land that is too thin to support the plants, even if they make a start, then I must sow more. I want it understood that when I recommend thin seeding it comes after thorough fitting. Get that fact well in mind—attend to the fitting—and there is no earthly use of distributing seed that won't have room to grow. But it's of no use to talk about it, for nine farmers out of ten think they know better. They will go on sowing two bushels of wheat, or three of oats, because they can't persuade themselves that any less may bring a full crop. I have seen wheat this year as thick as I want to see it, and only three pecks of seed were used on an acre. But, mind you, the land was in good order."

The Ingham County Horticultural Society had a good attendance at its meeting, November 12th. The topic for discussion was Apples, opened by B. F. Johnson. He said that this and last year he had handled 4,000 barrels, with Chicago his principal market. He has found the Rhode Island Greening and Canada Red the best kinds for exportation. They keep better in barrels than the Northern Spy. In packing he rejects the imperfect apples and those having a worm hole in the side, using a small basket that will go into the barrel in emptying, and after each basketful he jars the barrel to settle them, and makes but slight pressure after filling. The Wagener does not keep well. The Baldwin in this region seems not to have as fine a color as in other sections of the country, and is apt to be wormy. Western purchasers think a great deal of color, but last year the Greenings sold as high in Chicago as the red apples. If he was setting a thousand trees in view of the western market, he would have them all Greenings and Canada Red. The Wagener and Peck's Pleasant are very good apples, and the Bellflower good for early use. Russetts bring only second price in Chicago. Phoenix and Ben Davis take well for the extreme south-west. It does not pay to ship inferior fruit.

Accounts with Farm Crops.

BY WALDO F. BROWN.

The keeping of a farm diary will be a good preparation for beginning a system of farm book-keeping, for the greatest difficulty in the way of keeping accounts with crops is the want of a regular habit of writing, and this the farmer who keeps a diary will soon acquire. I have for five years past kept an itemized account with each field on which I have grown wheat, and have found the matter so easy and requiring so little labor, that I propose extending it to all the crops grown on the farm. A very few moments' time and less than a page of space in an ordinary account book, will keep the account for a year with any field. I think it better to keep the account with each field than with the crop, because there will be items to charge to the field occasionally, which ought to be deducted from the crop of that particular year. For example, if you grow a crop of wheat, you ought always to sow clover with it, but it would not be just to add the cost of seed and sowing to the expense of the wheat crop which it does not benefit, but it should be added to the cost of the succeeding crop of wheat or corn grown on the clover stubble. If not put down at the time it is sown, however, it is likely to be forgotten, and so I charge it to the field at the time, and then in striking a balance to see what the wheat costs, I omit this item and add it when I strike a balance on the crop grown on the clover stubble.

The first thing to be done when you determine to begin keeping a farm account, is to put a value on each field, for it would not be equitable to value all the fields alike. If a farm of 100 acres cost \$6,000—which would be \$60 per acre—I should expect some fields on it to be valued at but little more than half this. The buildings, orchard and garden I would call number one, and on many farms the value of four or five acres here would be \$2,000. Then 50 acres of the best plow land might be valued at \$50 per acre, \$2,500, and the remaining 45 acres at \$33.33, would make the \$6,000. This estimate would, of course, vary with different farms; but the intelligent farmer would have no trouble in putting a fair value on each field. At the head of each page on which an account with a field is kept, enter the name or number of the field with the number of acres and its valuation. I have adopted the rule of charging each field with eight per cent. in excess on its valuation, this including axes, and I charge all labor at one dollar per day for each man and horse, and let this include board of hands and keep of horses. In harvesting I charge by the acre for cutting the grain the same as it would cost to hire a reaper with hand and team, and in drilling the wheat the same plan is followed. I think this simplifies the keeping of accounts, as it saves separate items for board, wear of machinery, etc. I practice a three-year rotation—wheat, clover and corn—and the account begins with a wheat crop. With a field running through these three years, I would begin after the corn was cut up in the Fall, for I never sow wheat in standing corn. I use the disc harrow to prepare this corn land for wheat, as the use of it makes just the seed-bed I want, and is a cheap way of preparing the seed-bed. I will now give the account with a ten-acre field running through this rotation:

1878. Account with field No. 5, ten acres, valued at \$500.	
Crop wheat	
To interest on capital	\$ 40.00
" twice harrowing with disc harrow	8.00
" rolling or smoothing with plank drag	3.00
" 4 loads of stable manure	20.00
" 1,000 lbs. bone meal at \$36 per ton	18.00
" 1 bush. seed wheat at \$1.25	12.50
" drilling at 50 cents per acre	5.00
" 1 1/2 bushel clover seed	9.00
" sowing clover seed	1.00
" harvesting, total expense	20.00
By cost of wheat in shock	\$138.50
By 250 bush. wheat in shock	\$275.00
Deduct cost	136.50
Net profit	\$138.50
Cost of wheat per bushel, 53 1/5 cents.	

This wheat cost per acre \$13.85, and if, through poor preparation of the soil and withholding the \$38 of fertilizers which are charged, the crop had been reduced to twelve bushels an acre, the cost of the wheat would have been more than doubled, and this is what is done by a majority of farmers who sow wheat in corn; if the yield of this wheat should reach 35 bushels per acre the cost would be less than 40 cents a bushel. The reader will notice that I have made no allowance for hauling and thrashing, for I think the straw worth enough to balance this. The account with this field the next year, if pastured, would show no charge but

the \$40 interest on capital, unless it might be for repairs on fences. It should be credited with the usual price per month for pasturing stock. If it was cut twice—once for hay, and once for seed—the cost should be charged, and the field credited with the hay and seed. Suppose our account to stand as follows:

Interest on capital	\$40.00
Cutting, curing and hauling clover	20.00
Cutting clover seed at 60c per acre	6.00
Hauling to machine	6.00
Thrashing 2 1/2 bush. seed at 75c per bushel	15.00
Hands and board	5.00
Total expense	\$92.00
By 12 tons of hay at \$7 per ton	\$ 84.00
" 20 bush. seed at \$5.25 per bushel	105.00
Total	\$189.00
Deduct expense	92.00
Net profit	\$97.00

The next year of our rotation brings this field corn, and the account stands:

Interest on capital	40.00
Baking, at \$1.50 per acre	15.00
Harrowing and rolling	10.00
Marking out and planting	7.50
Seed	1.00
Plowing 4 times at 50c per acre each time	20.00
Cutting up at \$1.25 per acre	12.50
Husking, \$1.50 per acre	15.00
Total	\$121.00
By 40 bushels of corn at 35 cents	\$157.90
" 10 tons corn fodder at \$4 per ton	40.00
Total	\$197.90
Deduct expense	121.00
Profit on field	\$76.90

In the back part of the book I set apart a page for each field, where I simply put down results, as I want this page to show the profit or loss for a number of years. The entry on that page for these three crops would be as follows:

Field No. 5, 10 acres, value, \$500.	
1878. Crop wheat sold at \$1.10, in Aug	Profit, \$138.50
1879. Crop clover cut for hay and seed	97.00
1880. Crop corn, yield 45 bushels per acre	76.90

Each of these entries should give the page on which the itemized account is kept, so that it could be referred to. I have written enough to show that keeping accounts with the fields is an easy matter requiring but little time or space, and I hope if any of my readers can suggest a better plan they will do so.

Over-Feeding with Hay.

Now that the cows are in their winter quarters, a hint about feeding hay may not be out of place. We often hear dairymen talk as if the height of skill in taking care of cows in the winter, was to get all the hay down that it is possible to cram into them. "I give my cows all the good hay I can get them to eat," is the boastful remark often heard from a spirited and aspiring dairyman, though in doing so he is wasting good provender without promoting the best welfare of his animals. It is a good thing to feed cows well, and to be sure that they have food enough to sustain them fully, but it is neither wise nor economical to crowd them with a great bulk of hay of any quality. It is not wise to crowd any animal with a great bulk of hay of any quality. A horse will do more work and do it easier, on moderate feeds of hay than he will to crowd him with all that can be got down him. It is burdensome for him to move or exert his muscles with an over-distended stomach, and the too large ration will not be digested so well as a smaller one. These objections are more emphatically true with cows. It is the nature of ruminants to hurry down large meals when opportunity occurs, and then to lie by a long time to grind it over, a cud at a time, till it is well pulverized. If palatable food is offered to them, they will take in one meal after another in quick succession, as it gives very little time for mastication, and the successive meals of half ground food will be crowded out of the rumen, one after another, imperfectly digested for the want of being properly pulverized. In this course of feeding the double loss from discomfort and imperfect digestion is forcibly felt. Cows should have no more hay than they have time to remasticate, and if this is not enough for their necessities, they should have some easy-digesting concentrated food along with it. The quantity of hay given should never exceed what they will eat up clean, and twice a day is often enough to give time for properly ruminating.

The peach is often budded on plum stocks, and is fully as hardy and productive as when grown on peach stocks.

Wheat Growing in Ontario.

All the districts in which farmers find Wild Goose, Red Chaff, Rio Grande and such starchy varieties more profitable than Scotch Fife are repeating the history of millions of acres of exhausted lands on this continent. It is always the same. At first the fertility of the soil is "inexhaustible" and crop after crop of grain is taken from it. By and by the farmer begins to suspect that the variety of wheat which has served him so well is running out. He changes his seed, and soon discovers that the poorer a variety is in gluten the more of it he can grow. So the strong, hard wheats are discarded, and some soft, starchy kind takes its place. As long as there is an export market which will pay nearly as much for soft as for hard wheat it is hopeless to expect any change.

Farmers need not flatter themselves that they can succeed for an indefinite time with Wild Goose and Red Chaff. Nature has set a limit to the yield of even these poor grains, and this limit being exceeded, the farmer will discover that rye pays him better than wheat. There is no surer sign of the decadence of a wheat district than to find farmer after farmer dropping into rye. In a very few years the rye has scourged out of the land nearly all the fertility left by the wheat. Then, as the cultivated grasses will refuse to grow on such poor land, resort may be had to pastures consisting of vile weeds and worthless grasses; and buckwheat, the last resort of the rundown farmer, will be found to yield well. There is not yet, in Ontario, much and that has fallen thus low, but in New England hundreds of thousands of acres systematically ruined in this way may be found.—[Ex.]

Winter Killing of Wheat.

An inquiring friend asks the degree of cold that will kill winter wheat in Michigan, the ground being "dry and surface exposed." Wheat is greatly protected by a light covering of snow, and if sown broadcast rarely winters well where the ground is exposed to the frost and winds. Wheat put in with a drill suffers much less; partly because it is covered deeper with earth, and all the seeds are at the proper depth, and partly because the ridges made by the drill protect the plants from the action of the wind. In places much exposed we have made the drill-marks at right angles with the direction of the prevailing winter winds. Ground frozen becomes dry, and the wind often lifts the surface particles and carries them away. Wheat drilled comes up in rows in the bottom of the trencher made by the drill, and each row is between two ridges. In case of uncovered ground, and cold and much wind, the tops of these ridges will be blown off and the trenches between will be filled up with earth, and thus the plant will be covered deeper and deeper by the wind, until the ground is levelled. Wheat that has acquired a good strong root in the fall planted in drill trenches that run at right angles with the prevailing winds, on ground properly drained, will go through the winter with very little loss by reason of the cold. It is not the cold alone that in winter kills wheat; the strong winds of that season, acting on plants not sufficiently covered with earth, "blow the wheat out of the ground"—to use a common expression. The great value of the drill is in the uniform depth at which it places the seed—none of it too shallow, and none of it too deep—and the raising of ridges to protect the plants from the winter winds.

Drilled wheat is sometimes rolled in the fall to level the surface, that the harvesting machines may the more conveniently run over it. It is better to defer this rolling until the ground is settled the next spring; but this is a very busy season, and the period that intervenes between the time the ground is dry enough to allow rolling and the time the wheat is not too much grown, is short, so many farmers do the rolling at the most convenient season, and take the risk, but this practice is not often continued long by the same persons. Since the introduction of the drill deep snows on unfrozen ground are much more dreaded by the raisers of winter wheat than is naked and hard frozen ground.

The very best conditions for wintering wheat are, first, hard frozen soil; then a few inches of snow all over the surface; then a mid-winter thaw, followed by snow to again cover the wheat; then if we can have a spring that has but few warm days followed by hard frost, we have high expectations of a good crop.—[N. Y. Tribune.]

Expensive Wintering.

During the summer and early fall, farm animals, if they have access to good grass and plenty of water, will care for themselves—in other words, will be "self-tenders." But when winter comes upon them the case is quite the reverse, for then they are helpless; and the condition which nature provides during the warm, growing season should, as near as practicable, be furnished by artificial means. The farthest remove from the condition enjoyed through the summer, is that of exposure to inclement weather without shelter. The change from a temperature of 70° to 90° to that of the dead of winter, varying, according to latitude, from the freezing point to 30° below zero, is violent in the highest degree; and farm animals, if not protected, will cease to grow, and if they are of growing age, will very rapidly lose the accumulations of summer. It would seem that the old time notion, that to expose stock to cold renders it hardy, should have long since exploded, but it has not. Farmers kill the fatted cow, fatted on grass, before winter, because experience has taught them that the beast will begin to lose flesh when winter sets in, and they lead the animal to slaughter before the shrinking process commences.

Now, what is the material which is laid on during summer and lost during winter? It is tallow in the case of cattle and sheep, and lard in the case of the hog. The accumulations of summer are not lean flesh, but fat instead; and it is upon this fat, stored away in the cellular tissues, that the animal feeds, through the process of absorption, after cold weather sets in. Tallow at ten cents a pound may be set down as pretty expensive feed. The same may be said of lard, in the case of the hog. When you fail to protect him from the cold, and to feed him fairly, his lard takes the retrograde motion, is absorbed, goes into the blood to prevent the latter from becoming anemic (impoverished), and through this process the animal machine is sustained.

It is a common belief that digestion is promoted by exposure to cold. Within certain limits this is true, but outside of these limits the converse is true. Thus, an animal exposed to the extent of suffering from cold, or, what is worse, cold and wet, will be subject to such interruption of the circulation as will disturb digestion. The blood will be driven from the surface and limbs to the vital organs, and the effort of such undue pressure upon the minute blood vessels of the stomach will be to blunt its sensibilities and retard the natural process of digestion. Every one knows that too much blood in the brain suspends its functions. Under moderate pressure a moderate degree of stupor sets in. Under severe pressure perfect coma supervenes, during which there is a suspension of brain manifestations. What is true of the brain is equally true of the stomach, and in place of cold being an invigorator, under some circumstances it becomes a cause of great hindrance to the digestive process.

The cow that is tied in a dry, well bedded stall, is fed there, and allowed to remain till digestion is pretty nearly accomplished, will go through the process more expeditiously than in any condition where less comfort is guaranteed. The explanation is very simple. If the circulation of the blood be undisturbed by cold—allowed to remain in its natural channels—it will flow to the stomach during the digestive process in exactly the amount required—in other words, in a slightly freer quantity than when the organ is at rest. After the process is completed, the extra flow will return to the general circulation. Now, as stated, the undue exposure to which farm stock is subjected in inclement weather, is damaging alike to the beast and to the purse of its owner. The abstraction of heat in resisting undue cold, the interruption of digestion in the manner named, and the appropriation of the accumulated fat to enable the system to carry on its war with the elements, are reasons to deter any man from leaving stock in the the outer air, to their discomfort. It is infinitely cheaper and better to feed corn and hay by the mouth, at the going price of these, than to sustain the beast upon its own accumulated fat. This is precisely the position that every owner of stock occupies; and whether he is willing to learn the fact or not, the processes pointed out go on nevertheless, and he has the bill to foot. The man who lives in a climate reputed to be moderate, cannot expose his stock with impunity, because the frequently cold rains of such a climate are more damaging than the dry, bracing atmosphere of a more northerly location. Experience proves this; and the proofs are borne out by the teachings of physiology, namely, that a dry, cold atmosphere is a tonic

which, indulged in with moderation, will invigorate; while, on the other hand, a wet, chilly atmosphere is depressing to the vital forces in the highest degree.

Perhaps there is no kind of exposure that is more detrimental, or which causes greater discomfort, than to be forced to stand upon the feet during day and night, or otherwise lie in a wet nest. The cow, the horse, and the pig, particularly abhor a wet bed. Rheumatism, lung and bronchial ailments, congestion of the liver, bowels or kidneys, in fact any ailment which comes of congestion, may be contracted in a night by a beast that is forced to lie in the wet; no function of the body can go on, even moderately well, under the damaging influences of a wet nest; and to put fat upon a beast so exposed is not possible, except through the expenditure of a very large amount of feed—greatly larger than required by an animal comfortably housed and bedded.

Ensilage Alone.

There has been of late considerable falling off in the talk about silos and the value of ensilage as a separate food. At the beginning of the mania the preserved corn-fodder in its perfectly fresh, green state was to accomplish everything unassisted. Milk, butter and cheese were to be produced, condition of the cattle maintained, and health secured solely by the feeding of ensilage; and, altogether, it was to be affected at a rate of economy that must satisfy every one at short notice that this newly-discovered method of making the most out of the products of the earth at the least expense must commend itself to the favorable attention of every agriculturist.

But has it done so? We need hardly say that it has not. Ensilage by itself, as a food for even milch-cows, is not recommended by those who seem to be mostly experienced in the use of it. Almost all extensive feeders employ at the same time other feed, which takes away from the fresh fodder its distinctive features or qualities as a separate food. One farmer says the fodder comes out of the silo in good condition, and is eaten up clean by the cattle; but, he "mixes with it good cut hay," which is given in two feeds per day; but to secure proper results "some concentrated feed must be added," such as cakemeal, bran, &c. And this is the way the question is now treated. We don't pretend to say that this combined food is not very good—excellent—and that cattle will give plenty of milk and thrive upon it; but we beg to be allowed to say, without being much abused for it, that we doubt the economy involved, or that any labor is saved, or that any profits are obtained over the system in vogue before a silo was ever built.

Grass in the Crop Rotation—Suggestions About Seeding.

No system of agriculture can be profitable that does not make grass an essential part of a rotation of crops. When lands are not adapted to grain growing grass is the chief reliance, and it becomes a specialty, but nowhere can it be discarded without great detriment to the soil. The farmer who raises abundant crops of grass, while he is a grain grower also, will raise good crops of grain in alternation. There seems a harmony in the movement from grass to grain which is beneficial to each. The best crops of corn, of wheat and also other farm crops in general, are grown on an inverted sod with a nicely fitted seedbed on the surface; and the most bountiful crops of grass on grain lands are raised the first crop after grain or on newly seeded lands. On our natural grain soils we find it unprofitable to maintain any permanent meadow or pasture. Though a portion of every farm should be in grass our dry grain lands will not give continuous crops of grass without frequent topdressing and scarifying the surface. Hence it is more profitable to seed frequently and use all manure of the farm for the benefit of grain crops.

There need be no lack of hay or pasturage in our dry grain-growing sections, if we seed frequently. A crop turning from one to two tons of hay from newly seeded clover and timothy is as sure as any other crop grown, and is also a renovating crop to the soil. Too little attention is given to seeding in grass by a majority of farmers in our grain sections. Lands in wheat should be seeded to clover and timothy, and if not wanted for mowing or pasturage the benefit to the land by growing grass and clover instead of weeds and thistles will greatly overbalance the expense of seeding. It is not profitable to keep dry land in grass more

than two seasons in succession; then it should be ploughed and two or three crops of grain grown, and then reseeded. The best season for seeding of timothy on wheat lands is in October or late in September, though it may be sown in spring mixed with clover seed, but the growth will be much less the first season of mowing than if sown in autumn. Clover seed is sometimes sown in fall on dry sandy lands to insure the germination of the seed, but it is quite liable to winter kill in changeable winters.

The best and most usual time of seeding to clover is in the month of March, or early in April; or we may say, immediately after the opening of spring and before frosts disappear, the action of which will in a degree cover the seed and aid germination. It is also a good time to seed to clover after the ground is dry enough to go over with a light harrow, sowing the seed immediately before that operation, which is regarded usually as beneficial to the wheat crop as well as to the clover. Timothy seed is frequently sown at the time of wheat seeding, but if wheat is sown early in the season and timothy at the same time, there is danger of choking the wheat by too much growth of grass. It is especially so when the autumn season is wet and an active growth follows. Timothy seed will never fail if sown in the fall, for if there is not wet enough to start it in the fall, it will come in spring without fail. Many farmers do not approve of early sowing of clover seed, fearing that the early germ may be killed by late frosts in spring, but I am convinced by observation that there is very little danger of frosts on the young clover plant unless the ground be frozen to heave and pull the root. The cause of failure in clover seeding is drought immediately after germination of the seed and before the root gets sufficient depth of soil to retain moisture. A drought in the month of May will endanger clover seeding; later drought will only retard growth.

Clover and timothy are the best seeding for dry grain lands, where permanent sod is not required, but where continued grass crops are desired, blue grass, orchard grass and June grass are more desirable, as they are more lasting, and a mixture of these with the former will be found beneficial. A variety of grasses much better pasturage the season through, and stock will always thrive on a variety of grasses much better than on one alone. For our grain lands we have no forage crop more desirable than red clover during the season of its growth, but it matures during July, after which it affords but little pasturage, hence the rule of a mixture of grasses to supply the remainder of the season. In seeding lands we meet with more failures with clover than with any of the grasses, and to insure against failure we should always mix other seeds, which, if sown in fall, one need not fear failure, even if sown so late as November, for the seeds when worked into the soil by the frosts and storms of the winter season will be sure to germinate in early spring, and there is but little danger of injury by frosts; but the same is not true of clover, for severe freezing will pull the young plants out of the ground and destroy them. No amount of experience can enable a farmer to always succeed in getting a good seeding of clover, for the variableness of seasons cannot be foreseen, but a soil in good tilth and fertile, the seed sown early in spring, and slightly covered with harrow and roller, with a dressing of plaster, will seldom fail.—[F. P. Post in New York Tribune.

Upwards of 3,000 steam-ploughing engines are now employed in England and Scotland.

It is said that this year's wheat crop in Canada has never been surpassed either in quantity or quality. The surplus will be about 7,000,000 bushels, which is half a million bushels more than last year, and nearly double what it was in 1878 and 1879.

Potato culture is reviving in every part of the United Kingdom. In Ireland the average has risen since 1880 from 823,000 to 854,000 acres, notwithstanding the increase in beans, rye, oats and peas. In Scotland there was also an increase, though not large. In England 23,000 additional acres were put under this crop. Wales this summer had 42,400 acres devoted to the potato, against 39,000 in the preceding year. The total increase is put down at 60,000 acres. What is Canada doing in this respect? The demand in our markets for potatoes for transport to the United States, prove conclusively that there is in seasons a good market. No other country is on the whole so well adapted to potato culture, and there is no farmer crop so profitable.

Prize Essay.

"THE BEST AND MOST PRACTICAL METHOD OF PRESERVING TIMBER USED FOR BUILDING AND FENCING PURPOSES."

No subject connected with national economy should have more earnest attention and consideration than the most practical methods of preserving timber. The rate at which the timber lands of Canada are being denuded, and the consequent rise in price, cannot be viewed without great and reasonable alarm by those interested in the subject. All successful and efficient devices for rendering timber more durable, are aids in arresting the depletion of timber lands. It is, perhaps, a question whether the Government should not undertake the matter of testing the different methods which have, from time to time, been introduced to ascertain which is the most economic and successful in warding off decay and the attacks of insects. A good laboratory and microscopic bureau might well be added to the Federal Department of Agriculture, to bring it up to the standard of modern times; at present that bureau appears to ignore all agricultural matters and cognate subjects. The complete preservation, for centuries, of woods of quite a perishable character, through accidents of nature, is one of the familiar facts. We are all acquainted with the preservation of oak in the bogs of Ireland, &c. These accidental conditions, if thoroughly understood, might be produced in some inexpensive way, and the wood and system made perpetual.

It is known that the decay of wood proceeds from agencies both internal and external. Cellulose, which constitutes the greater part of all wood tissues, is, by itself, an exceedingly imperishable substance, but it appears when it is brought into contact with fermenting or putrifying nitrogenous matters, to be capable of entering into decomposition very readily. The greatest enemy wood has is water, and hence the perfect seasoning of wood is the most powerful agent known for its preservation. The process of seasoning is, however, rendered nugatory, if the timber is afterwards exposed to air and moisture. Consequently, it is found that the use of chemical agents which combine with the legumen and form imputrescible compounds, is the best course to be adopted. The destructive agency of insects is also a cause that must be guarded against, and this is obviated by impregnation with poisonous chemicals. External destruction proceeds from many causes; the most powerful being exposure to the atmosphere and its attending consequences, the fluctuation of heat and cold, dry and damp.

There are several methods for the preservation of wood from decay, but the object is principally arrived at by a combination of the vegetable albumen contained in it with some metallic salt, or powerful antiseptic agent. The invention of Mr. Bethell, which has been much employed, consists of impregnating the wood with oil of tar, or other bituminous substances containing creosote, and also by the use of pyrolignite of iron, which holds more creosote in solution than any other solvent. This operation is performed by putting the wood into a close iron tank, formed like a steam, high pressure boiler, which is then closed and filled with tar-oil or pyrolignite. The air is then exhausted by the means of air pumps, and the tank is again filled with more oil or pyrolignite, which is forced by hydrostatic pumps, until a pressure of one hundred or one hundred and fifty pounds to the square inch is obtained; this pressure is kept up by wrking the pumps, as the gauge shows a depression during a period of six or seven hours, by which time the wood becomes thoroughly saturated by the liquid employed, and weighs from eight to twelve pounds heavier, per cubic foot, than it did before.

In some of the larger tanks used in Britain, twenty loads of timber may be prepared in a day. The atmospheric action on timber thus prepared

makes it both tougher and stronger; a post made of beech or pine is rendered more durable and as strong as one of the same size manufactured from oak; the bituminous mixture with which it is saturated acts as a cement, and binds the fibres together in a close, tough mass; therefore the more durable the wood is the tougher it becomes, as it imbibes a greater quantity of the bituminous oil, which is shown by its increased weight. This process has also the advantage of preserving iron and other metals from corrosion; nails driven into wood so saturated remain perfectly free from rust. No insects will attack timber thus treated.

The effect produced is the coagulation of the albumen in the sap, which prevents putrefaction. For wood much exposed to the atmosphere, which renders it alternately wet and dry, the coagulation of the sap itself is found to be not sufficient; for, although the albumen contained in the sap is most liable to putrefaction, yet the ligneous fibre, after it has been deprived of all sap, will, when exposed to warm damp situations, rot and crumble to dust. To preserve wood, therefore, which is much exposed to the weather, it is not only necessary that the sap should be coagulated, but that the fibres should be protected from moisture.

The sleepers used for railway tracks in Europe are principally treated in this way; they are long sticks of timber laid the same way as the rails with occasional traces across.

Wood prepared as above with petroleum, for sleepers, piles, poles, fence-posts, &c., is not affected by alternate changes of temperature and moisture, and requires no further painting. After it has been exposed to the air for a few days it loses its unpleasant odor.

Seeley's method is the one now chiefly used, especially in the United States, and its preserving power and mode of application have been witnessed by thousands who have of late passed through the St. Clair ship canal leading from the river St. Clair into the lake of the same name; this work was begun by the United States Government in 1868, and is consequently now in its thirteenth year, and is principally constructed with timber treated by Seeley's process. The wood is immersed in crude carbolic acid in a closed tank, in which the temperature is raised to 300 degrees Fahrenheit. The air and moisture are thus expelled from the timber, which is then suddenly introduced into a bath of cold carbolic acid; by this very ingenious and simple process, an absolute impregnation is accomplished.

Kyan's method, known as "kyanizing," is performed by the impregnation of the wood with a solution of *corrosive sublimate* (by chloride of mercury); it has been largely experimented with, and great expectations were raised regarding it. The system was founded on the known property of *corrosive sublimate* to form insoluble compounds with albuminoid bodies. It was found that railroad ties, made of chestnut, treat by Kyan's process, were perfectly sound after being in use for eleven years, whereas those not so treated decayed in seven. Kyanized white oak ties rotted after twenty years service, and this leads to the supposition that the atmosphere removed the injection after a certain length of time. Railroad ties are probably situated in such a position as to be more liable to decay than any other in which wood can be placed. A serious difficulty presented itself in preparing wood by this process, which was, that the men employed became salivated; so that of late years it has been generally abandoned. Fence posts are made much more enduring by having the end which is inserted into the ground covered with a coating of gas tar. Cedar posts, if treated in this way, become almost indestructible, a barbed-wire fence strung on posts so affected would stand for fifty years. The writer has posts set for twelve years, coated with gas tar, and there is no sign of decay about them where they enter the ground. The method of application is quite simple and inexpensive. A pail of gas tar can be procured from the gas works for 15 or 20 cents; into this immerse the end of the post which is to stand in the ground, and, with an old stump of a paint brush, spread the tar from the pail about four inches higher than the collar of the post, when it is placed in position; then take out and lay the post on something so that the tar end will not touch the ground; in a short time the wood will have absorbed all the material, and should be brushed over the second time. The main object of standing the post in the tar is that it may enter and be thoroughly taken up by the end of the grain. Sawn or split posts may be treated in this way as well as round poles, but, in the latter case, the bark should be first removed, and, in all cases, the

timber should be well seasoned and perfectly dry at the time the application is made.

Paints, whose force is white lead and oil, are the chief things used for the preservation of wood-work; the action of these paints is to keep out the moisture held in suspense in the air; their preserving power extend very little further.

The Silicate Paint Company, who have establishments in both London and Liverpool, England, claim that their paints are the best for out-door work and may be used for covering either wood, iron, or plaster, that they have double the bulk of lead paints, are non-poisonous, and do not blister, that damp walls are cured by this petrifying liquid; they sell it either transparent or in colors; it cost from 4 to 6 cents per yard to cover with this material. The writer cannot say if all these claims can be substantiated, as he has never noticed it in use, but would think if all that is said about it is true, it must be very valuable.

A paint much used for out-door work in the United Kingdom is Hill & Smith's black varnish. It is employed for covering stone, wood and iron-work, and has now stood the test of forty years, during which time it appears to have retained its popularity. The manufacturers of this varnish or paint, claim that it is an excellent substitute for oil-paint for all out-door work, while it is fully two-thirds cheaper. It may be applied by the ordinary laborer, requires no mixing or thinning, and is used cold. It is sold in casks of about thirty gallons each, at 38 cents per gallon, or 42 cents per gallon, delivered at any railway station in the United Kingdom; the manufactory is at Brierly Hill. This company have also an agency in London, England.

A very superior article of oxide of iron paint is supplied to the Rideau Canal office, Ottawa, by Mr. John Taylor, 16 St. John street, Montreal, at the reasonable price of \$1.20 for brown, \$1.38 for purple, per tin of twenty-five pounds. This paint is known under the name of "Sheffield Metallic Oxide," and is used altogether on the locks and buildings of the canal between Ottawa city and Kingston, and gives very good satisfaction. No harder test can be given paint than the use of it on canal locks and gates, where it is subjected to the wash of water when the boats are passing through, and the heat of the sun when the locks are empty.

The following are the addresses of some of the firms who make and vend special paints. It would certainly be to their advantage to advertise in a paper circulating amongst an intelligent class of farmers, who have so many buildings and implements which require painting every few years. Those who are unaccustomed to the use of paint can scarcely appreciate its advantages as a preserver of timber, either in-door or out, or the finish it gives to the appearance of anything to which it is applied.

W. Johnson, Montreal, agent for English and American paints.

Henry Woods, Son & Co'y, Duane street, New York, liquid colors, pure linseed oil paints.

Iron-clad Paint Co'y, Cleveland, Ohio, prepare an iron paint manufactured under Green's patent, specially used for outside work where durability is required.

The Buchanan Mineral Co'y, Hamilton, makers of metallic paints.

Only a very few of the large number of presentative agents which have been employed are given in this paper, a selection having been made from those which appear most to commend themselves; but it is again repeated, it would be well for the Dominion Government if it made some experiments tending to show the best methods of wood preservation; these experiments might be assisted by the paint and other companies who are interested; but as the light-houses, docks, wharves, &c., are built for the Government, it should bear the principal part of the expense in ascertaining the best methods of preserving timber employed in these and other structures, whose foundations are so situated that the constant ebb and flow of water against them leads to their rapid decay.

A good preservative for railway ties would also be of much value, especially now that the Canadian railways are making such progress and timber is getting so scarce. Ties, in the Northwest, cost, at present, from 40 to 60 cents apiece. The Government is interested in the matter to the extent of many thousands of ties for the Intercolonial and Prince Edward Island Railways, and by the employment of a really first-class article, could save the country a heavy and continuous expense.

P. E. B.

Ottawa, Ont.

CORRESPONDENCE



NOTICE TO CORRESPONDENTS.—1. Please write on one side the paper only. 2. Give full name, Post-Office and Province, not necessarily for publication, but as guarantee of good faith and to enable us to answer by mail when, for any reason that course seems desirable. 3. Do not expect anonymous communications to be noticed. 4. Mark letters "Printers Manuscript," leave open, and postage will be only 1c per 1/2 ounce. We do not hold ourselves responsible for the views of correspondents.

A STEP IN THE RIGHT DIRECTION.

SIR.—We held a meeting on the night of Dec. 19th to try and get up a Farmers' Club. There was quite a good turnout, though the roads were muddy. Joseph Davidson was called to the chair and John Crothers appointed Sec'y. The chairman explained that the object of the meeting was to see if the farmers could encourage or aid one another. After quite a discussion, it was decided to appoint three members to have subjects for the next meeting: Mr. Davidson on roads and tolls; Mr. Gibson on stock and seed grain, and Mr. E. Back on ladies' interests. The meeting adjourned to meet on the first Tuesday in January. We will send a report of the meeting for the FARMER'S ADVOCATE. R. G., Glenvale, Frontenac Co., Ont.

To G. S. F.—It is our opinion that the London Business University, managed by Messrs. Yerex & Panton, would be as good a place as you could send to. We have seen several farmers' sons who speak from experience, and they say that the few months spent there have been of very great benefit to them. We know of no more suitable place for you to acquire that knowledge in such a short time.

PLANS FOR COW STABLE.

SIR.—I intend building a stable 60 ft. long by 30 ft. walls of concrete. I should be very glad if any reader of your valuable paper would send me a plan for such a building for a cow stable.

D. S., Stonewall, Man.

[A prize of \$5 will be given for the best plan and description and estimated cost of the building to answer the inquirer's purpose; plans to be drawn showing different sections of the building. The plans and specifications to be in this office by the 6th of February.]

STRAW AS A MANURE.

SIR.—I see from the market reports that straw is continually sold in all our markets, and at very low prices. Farmers who sell it say that the price at which they sell it is more than it is worth for any purpose it can be used for on the farm. Is not straw a good food for dry cattle? Is it not worth more for feeding than the few dollars it will bring in the market? T. Mc., Wardsville, Ont.

[Good, fresh straw is better food for stock than hay that has been ill saved or over-ripened before it has been cut. It is worth more for provender than the market price, and the feeding of it on the farm is adding to the fertility of the soil; whereas selling it is robbing and impoverishing the land. Coarse hay or straw, with roots and the inferior grains, make a more economical fodder than good hay fed by itself. This fodder will leave a quantity of rich manure that will enable the farmer to raise more hord and grain crops. By the use of the straw as an absorbent, and as a coarse food for fattening animals, and by using with it rich food, such as corn, bran or other grains, we can change it into a manure that shall really be very valuable to us, and that will largely increase the crops where used. We must not expect that we can raise large crops of grain year after year and sell the most valuable part, and not by any method turn the straw into a manure that shall keep up the fertility of the soil; if we manure only with straw we must expect to grow only straw upon the land. Raise stock to eat up and tread down the straw, and to be fed richer foods so as to make a full supply of rich manure. With any system of farming we now have, the land must, sooner or later, become exhausted and cease to yield profitable crops if we fail to return to the soil the essential elements of plant food removed in such crops.]

SIR.—I have a heifer coming in second calf, and she has a large lump on her jaw; it is as large as a big turnip. Some persons say it is a "wolf." What can I do for it, or is there any cure? Keep the duty on corn. D. G. E., Lone Water, Westfield, Kings Co., N.B.

[Your heifer has what we call *Ostea sarcoma*, a disease of the jaw bone. We would recommend you to feed her and sell to the butcher. Treating those cases as a rule are unsatisfactory.]

SIR.—In answer to A. S., Colchester Co., N.S. I would say that the fore part of August I have found to be the best time for cutting underbrush and small trees, to avoid the stumps and roots from sprouting up again; even the locust sprouts will die if cut then, and underbrush cut then will dry so as to be burnt in the fall and be ready for the plow the next spring. I prefer that to any other time of the year to trim forest and ornamental trees, and more or less the fruit trees, for on the same principle they do not at that time of year throw out new scions from where the pruning was done, and the wound will heal over dry and healthy. H. I., Batavia, N. Y.

SIR.—I would ask you through your valuable paper, the ADVOCATE, if you could give me some advice how to treat two horses. One has a ring bone on the right hind foot, for which I have been using some remedies this summer without doing any good. The enlargement has continued to increase; it first commenced about the 25th March. The other horse has an enlargement on the right hind leg, just above the fetlock joint; it is soft to press on. It came on quite suddenly. We had been drawing hay a day or two before she got lame. I have used some applications to reduce it without any good effect. Some say it is a wind-gall, but I never had an animal so affected before. If you would advise me how to treat these two cases you would oblige me much. We have a licensed veterinary surgeon within 30 miles on the one side and 40 on the other. I think that Newboro would be a good opening for a veterinary surgeon licensed. We have plenty without license; about every tenth man is a horse doctor. J. N. P., Newboro P. O.

[1st—It would be well to have the ringbone fired by a competent veterinary surgeon and blistered afterwards. The best way is to apply the firing irons carefully, not cutting through the skin; bring the irons over the same place a number of times. Then let it go for about ten days, and apply a blister made of cantharides one part and lard six parts. This you will apply once every two weeks, and apply a little lard the third day after each application of the blister. 2nd—Bathe the part with cold water or any cooling application and bandage at night.]

SIR.—What do you charge for binding, or could I subscribe for the ADVOCATE bound?

R. H. M., Monsell, Ont.

[Book-binders charge 35c. to 40c. per year for binding the FARMER'S ADVOCATE, or 70c. for two years put into one volume. We do not take orders for binding. You can subscribe for bound volumes of the ADVOCATE at \$1.50 each, postage prepaid.]

SIR.—I would state that your paper has come with the greatest regularity, and is looked upon by us as a household necessity, not only for the lessons and instructions it gives us in farming, cattle-raising, etc., but it gives food and amusement for the young, and therefore it is anxiously sought and read by all. We would accordingly recommend the paper to all persons who wish to obtain a good and reliable agricultural paper, as just the paper they need. JOB A. PUGSLEY, Athol, N. S.

SIR.—I have taken the ADVOCATE during the past year and was very well pleased with it. I am now going to England, and wish you would be kind enough to send it to me there. I think it the best farmer's paper I ever read, either here or in England, and shall be well pleased if I can get it there. EDWARD EDGE, Harrow, Ont.

CROPS IN YORK CO., N. B.

SIR.—The crops here are light, except hay, and that a good deal damaged. Our wheat does not turn out more than twelve bushels to the acre; potatoes almost a failure; turnips about half, say 400 bush.; oats about 30 bush.

P. H., Prince William, N. B.

QUARTER CRACK.

SIR.—How shall I best treat quarter crack in a valuable horse? HORSEMAN, McGillivray, Ont.

[The following treatment has been found very beneficial: The edges of the crack should be rounded off without cutting into the depth of the crack. Cleanse the parts, and soften the hoof by means of poulticing, the shoe being removed. With a view of preventing the split from extending upward, make a cross cut or horizontal cut through the horny fibres, immediately above the split. In extensive cracks the edges may be held together by means of carefully inserted rivets. To prevent entrance of dirt, fill the crack with shoemaker's wax. If the split extends through the length of the hoof, remove the bearing of the hoof from the shoe, back of the split to the heel, and apply a bar shoe. Apply a mild blister above the hoof. If the horse can be spared from work, he should be given liberty on pasture during two or three months.]

USE OF CORN COBS.

SIR.—Do you recommend the use of corn cobs ground for feeding, and if so, along with what other feed? Can you tell whether there are any machines for grinding corn cobs in the western part of Ontario? J. T., Paris, Ont.

[Corn cobs ground with the corn have been used to some extent in the United States, but it is a matter of doubt if, when ground, they are worth the expense incurred. There is no machinery for the purpose in W. Ontario.]

SIR.—I would like if you would let me know through your paper what I could purchase a few Norfolk heifers for in your section.

J. W., Northampton, N. B.

[We do not know of any Norfolk heifers in this section of country. There are very few of that breed on the continent.]

CORN SMUT.

SIR.—For the last two years I have grown early sweet corn, and each year when the cobs were nearly ripe a fungus growth resembling a bag of soot appeared on them and destroyed all it attacked. Would you kindly tell me the cause and remedy for this trouble. I procured the seed each year from the same place.

F. G. B., Ottawa, Ont.

[The disease of your corn is corn smut. It is caused by the too great rankness of the land for sweet corn. Sow in poorer soil, having first steeped the seed in a weak solution of bluestone.]

AN INDEPENDENT PAPER.

SIR.—It is with pleasure I renew my subscription to the ADVOCATE, as I find it very valuable as an agricultural paper, full of information to the farmers of Canada; also for the interest you take in defending the farmers against being imposed upon by rings, cliques, or associations, or any other whose object is to feather their own nests at the expense of the farmer. Hoping you may long be spared to be editor of the ADVOCATE. J. C. M. L.

THE HERD BOOK.

SIR.—I am pleased to find the FARMER'S ADVOCATE is full of agricultural information; the December number is worth the whole subscription. In reference to the new Herd Book, I have long thought some change should be made, and thought it strange that the original Herd Book was altered so as to allow even four cross animals to be registered; it has been, I believe, not only an injury to breeders of pure stock, but also to breeders of grade cattle, more especially in this section and other places similarly situated, being comparatively a new country. Here thorough-bred stock is a rather scarce commodity, consequently some parties have gone down the country and bought cheap pedigree stock, selling their calves at a high figure and charging high for the service of bulls also, which has resulted in a good deal of dissatisfaction and loss to their patrons. I think if the Association continue to publish the Herd Book they should refund the money paid for those animals whose names they omit, but I think the better way would be for the breeders to publish their own Herd Book. I fully endorse the idea advanced by Mr. Johnston, of Greenwood, in reference to the usefulness of the Agricultural and Arts Association. A subscriber.

LARCH TREES FOR PLANTING.

SIR,—Can you inform me if there is such a thing as larch trees to plant, in any of the nurseries, I made inquiries last spring at the seed store I want to plant some in the bush where it is thin of trees.
J. S., West M. Gilvery P. O.

[You should apply to a nursery; you can see the leading nurseries advertised in this journal.]

PLANTING RASPBERRIES.

SIR,—I have been unable, owing to the hurry of getting up and storing my roots, and other required farm work, to plant a plot of young raspberries as I had intended. Will you be kind enough to let me know in the FARMER'S ADVOCATE if spring is as good a time for planting them as the fall, and give some instructions for the farmer.
Y. Z.

[You have lost nothing by deferring the planting of raspberries till spring. It is the more suitable season, especially if the soil is heavy or tenacious. Even under the most favorable conditions it is unsafe to set weak, immature plants in autumn. Black raspberries are propagated from the tips of the canes, and where properly managed, many of the leading tips are in condition for burying during this month. The maturity of the tips is indicated by the wiry appearing end, destitute of leaves, assuming a reddish hue. This tip should be buried at an angle of about 45° about one inch in depth. The terminal bud will throw out a cluster of fine roots, and upward a stem which will appear above the surface early in the spring. If the soil is mellow, moist and fertile, a good strong plant, the roots having a brownish, mature appearance, will be grown by the last of October, and be in good condition for transplanting.]

Now have such a soil as we have before described, sandy-loam, gravelly-loam or loam with open subsoil, well prepared and marked out in rows 6 or 7 feet apart one way and three feet the other way. Take up the plants, handling them carefully so as not to break off the tender stem; break off the old cane, and carefully set the plants from two to three inches beneath the surface, burying stem and all. If the young stem shall have already thrown out leaves, pull them off. After the planting is completed, throw over each plant a shovelful of partly rotted barnyard manure.

Blackberry plants are not propagated from tips with the exceptions of a few special varieties, and they but sparingly, but they sprout from buds in the roots of the canes the same as red raspberries. Where the first sprouts that start in spring are preserved, they make very fair roots for transplanting in November, but those starting later in the season fail to make strong enough roots for autumn transplanting. The methods practised by nurserymen for propagating blackberries produce the best plants. Roots are cut up into pieces containing each an eye, and these are planted quite early in the spring in rich nursery beds. If kept clean by proper culture through the season they will make good strong plants by the last of October, which should be transplanted about as recommended for black raspberries. They should be planted about 8x4 to give them room sufficient to work among comfortably when fully grown. The canes should be cut well back and mulched with manure. Plants thus treated will start earlier in the spring and make a stronger growth the first season than if transplanted the following spring.]

SIR,—I must say that I am well pleased with the ADVOCATE, and would be at a loss without it. One single item I saw in the last paper is worth the money; every farmer ought to take it.
O. H. L., St. Catharines.

IMPROVEMENT OF LIVE STOCK IN NEW BRUNSWICK.

SIR,—It was my good fortune to secure one of the Hereford Bulls, imported from England this year by the government, as also one of the Cotswold bucks imported at the same time. The bull weighed 1,100 pounds at fifteen months old. I am almost persuaded to attend the auction sale of Frank R. Shore, advertised in your paper, as I would very much like to get some Cotswold ewes. I have four now, but would like more. The next time you come down this way I hope you will see some improvement in my farm, and I will promise you a pleasanter drive than you had last time. To say we like the ADVOCATE is just a very poor way to express our opinion, as we think it gets better and better. Hoping to see you some time in the future, I remain
C. L. S.

VALUE OF MUCK.

SIR,—Is the application of muck to land of any service? How should I apply it? What is the best season to dig it?
O. R., Waterford, Ont.

[Muck differs very much in value. Some of it is almost worthless. We have found muck very beneficial as an absorbent of liquid manure, as material for compost, and as used for dressing grass land, more especially as a mulch on land that has been mown late. It is a good preservative of the roots of grass and clover from the injurious effects of frost. In winter, when there is no great pressure of farm work other than attending to the stock, some days may be usefully employed in digging muck. When the swamp is solid enough to carry horses and sleds in the winter, it is best to dig out the muck now, by making broad ditches by which the ground on each side is drained and dried, and made more solid. The muck should be thrown up in heaps where it may drain, and can be drawn when the surface is frozen, or a sled road may be made in the winter on the snow. When the swamp is full of water it is most convenient to make a small scow that will hold a two-horse load and put runners under it. As the muck is dug out in a broad ditch the scow sled can be pushed up to the bank where the muck is dug at the end of the ditch, and drawn up to the dry ground by the horses and a rope; the horses are then hitched to the sled and the load drawn where it is wanted. The tools required are a spade ground sharp on the edge, and a scow made of a steel shovel ground sharp, with sides of sheet iron about six inches wide riveted to it. With this tool very soft muck can be taken out.]

AGE OF TIMBER.

SIR,—Can you inform me whether the rings seen on the ends of timber can be counted as the certain age of the timber or not?
J. McF., Tilsonburg.

[It is a received belief that the annual rings in the trunks of trees correspond to the annual growth, though there are doubts as to whether it is always a correct guide. The English oak often has two growths of branches a year, and it may be possible that two rings are produced annually when the extra growth occurs. There is a case recorded of the eucalyptus, or blue gum tree of New South Wales, which was known to be eighteen years old, but was found to possess thirty-six concentric rings. It would be well to experiment in this direction, in cases where the age of trees is exactly known, though there is always the argument against it that we cannot afford to be prodigal of forests.]

THE PEACH YELLOWS.

SIR,—I am pleased to see that the FARMER'S ADVOCATE gives timely notice of the inroad of diseases affecting animals and crops, and treats of the remedies. So far it appears there is no effectual remedy for the yellows in peaches. There have been great complaints about it in the United States, and it has spread over into parts of our Canada. Is there no means of saving our fruit from those pests—cank-worms, codling moths, black knot and yellows? If it were not for such pests, fruit growing would pay us a fair profit.
E. E., Kingsville.

[When once disease, such as the black knot in plums, or the yellows in peaches, has been allowed to become a fixed fact in any locality, it may be necessary to eradicate all the trees in the locality of the kind subject to the disease, in order to eradicate it. The poison seems to have taken firm hold of the soil, and its germs are in countless numbers in the atmosphere. This remedial measure has been found absolutely necessary in some of the most fertile fruit-bearing regions of the United States. Millions of peach trees in an Ohio county have succumbed to this dreadful disease, the yellows. Trees which have withstood summer heat and winter cold during the past twenty years, together with the younger trees, have been wiped out of existence; but fruit growers do not despair; they believe that the cause of the disease will disappear with the entire eradication of the peach, and that as in other localities which have been devastated by peach yellows, we shall be enabled in due time to again grow the peach with immunity from disease. In the meantime our lands are being renovated by clover, and other varieties of fruit are more extensively grown.]

FRUIT TREES FOR N. ONTARIO.

SIR,—Do you know of any nurseries in the Province of Ontario, north of the forty-fifth parallel of latitude? In your November number I noticed an account of fruit growing in New Brunswick, which describes our situation exactly. Trees from southern nurseries never do well, killing down to the old stock, although of the hardiest common varieties. These nurseries mentioned in the aforementioned article are in a desirable situation, but too distant for us to take advantage of. By answering through the ADVOCATE you will oblige.
J. B. W.

[Such enquiries as the above we are frequently receiving. Nurserymen would find it to their interest to advertise their stock. Would some one who can supply J. B. W. communicate with us?]

VETERINARY.

SIR,—I have lost pigs before now on account of irregular feeding. They would put out the same people call it piles. I tried an experiment on one and have had no trouble since in curing the disease by simply moving back the protruding fundament and putting a good stick across to prevent its coming back or out, and feeding moderate for ten days, with gentle physic, two or three years; this will make the animal all right. I have an Ayrshire cow and heifer that come in season every three or four weeks; can you tell me why they do not prove with calf, or if there can be anything done to make them conceive. The cow is five-year-old past and had a calf last spring; the heifer is 24 months old and in condition.
B. M. L.

A CHOKING COW.

SIR,—I get the ADVOCATE through the Agricultural Society, so I use your envelope for an exchange of information. The time to cut underbrush or timber of any kind that it may not sprout is in June, or July, or August, when the sap is in the branches; if cut then it cannot return to form new sprouts. I have frequently removed a piece of beet or turnip from an animal's neck and prevented choking in the following manner: I put one arm over the animal's neck and with a hand on each side of the swallow pipe, gently and firmly press the root downwards with one hand and the pipe upwards with the other, or alternately, and you will soon get it down past the breast bone or as far as you can reach, when it will be taken to the stomach and choking and distress cease. In regard to the duty on corn, the question suggests itself, is it profitable to sell our coarse grain? If we do this our dairy interests will suffer. If raising corn and oats for export is more profitable than making beef, butter and cheese for export, then we want the duty, but not otherwise. It is my opinion that barley ought to be our staple grain product for export to the U. S. A. and let us get their corn at the cheapest possible rate to feed our beef stock, horses and swine, sow for cow feed and make Johnny cake too, if required. Every honest man will approve of your views, wishing to give the Provincial Exhibition to Kingston in regular turn, and likewise see the selfishness of those who refuse to do so, and it is our duty with your assistance to try to devise some means of getting honest directors who would not sacrifice their sense of justice for party power or profit. Now, about the Herd Book, it appears the best animal competing for your prize was a grade, and is not that an improvement of the Shorthorn breed, and if Canadian Thompson, weighing 2000 lbs. at 28 months old, was a bull, would he not be worthy of registration? If any breed can be improved by crossing, why is it not right and wise to register improved grades?
B. M. L.

SIR,—We had very stormy weather during November. About fifteen inches of snow fell. The high wind caused the snow to drift, making very bad roads. This month (December) has been very fine weather. We have just finished up threshing in this settlement. Last year we threshed 9,000 bushels; this year we have over 17,000 bushels of wheat, oats and barley, so that shows we are improving. But the settlers are going more into stock raising than grain, as we have the best pasture and hay land in the world. We have some very fine thoroughbred stock in this neighborhood, and one of our enterprising farmers, Mr. George Moffit, from Guelph, Ont., has lately imported a splendid thoroughbred bull for the improvement of his stock. Farmers are getting good prices for all they have to sell: wheat, 85c; oats, 60c; barley, 70c; potatoes, \$1. S. T., Beaver Creek, Man.

SIR,—The Democrat fall wheat you so kindly gave me while in London is very productive and hardy; from the $\frac{1}{2}$ pound I had 16 $\frac{1}{2}$ pounds. The Scott did not yield so well. The Fultz and Egyptian were not worth harvesting. The barley I brought from Aberdeenshire, Scotland, yields unusually well and weighs 50 lbs. per bushel, and after three years trial I can say without hesitation this is the coming barley. I have sold the greater part of my crop for seed at a fancy price. Send on my old pilot, the ADVOCATE.

J. W., Camden.

[On furnishing information about any new or improved grain, subscribers should explain something about it, if a hybridized variety or an old variety improved by change of location. We can produce new varieties of potatoes, but we are not quite sure that there has been any new variety of wheat, oats, peas or barley discovered in our lifetime. It is the changing of grain from one part of the world to another. We have no doubt but the old China wheat, Bluestone and Soules wheat will come into vogue again, perhaps under a new name.]

UTILIZING BONES.

SIR,—I have a slaughter house on the farm, and consequently have considerable bones. Would like to see in the ADVOCATE the best and cheapest mode of utilizing them or dissolving them.

A. K. S., Southend.

[Break the bones small with a sledge or heavy hammer. Then put them in a barrel, or even in a heap, in layers alternately with wood ashes, and moisten them through water. In the course of time they will be so decomposed that they can be easily reduced to bone-dust by pounding with a shovel, and will be an excellent manure.]

SIR,—Township shows should not be abolished. There is a class of exhibitors who take an interest in them, who cannot compete at the Industrial or Provincial shows. If the public and agricultural interests are to be cast aside, and Toronto aldermen or any other city nabobs are to take control of the farmers' interests and the agricultural exhibitions, it must be admitted that farmers are a simple class of people to lose the control for the benefit of any city. Toronto may exhibit negroes, etc., but what interest have the farmers in such childish amusements? I hold the agricultural interest is the foundation of a successful show. Keep our produce back, from the turnip seed up to the noble beeves, horses, sheep, pigs, grain and poultry, and what would it be? Can Toronto or any other place make a show without the produce of the farm? If not, let us elect real farmers to carry out what is most beneficial to the interest of the agricultural industry and for the prosperity of this noble Dominion of which we may be proud.

There is another feeling at present in regard to the amalgamation of the breeders and their new Herd Book. There are farmers who have been trying to improve their herds of late, and coming so close now on the leading prize takers of Ontario, that something must be done to keep them back, so more crosses must be made from imported stock before a pedigree can be got. I hold this is a selfish motive of just a few. Reduce their high-blooded animals as they should be for breeding purposes, and plenty of good grades will clean them out for symmetry and weight, and just as good for the butchers as with any pedigree.

G. L., Pinkerton, Ont.

SIR,—On the whole I am pleased with your paper, but I don't like your advocating taking the duty off American corn. I think you make a mistake in this, as there is a very large amount of land in the Dominion well adapted to the raising of corn, peas, oats, rye, etc., which would be depreciated in value by allowing American corn to come in free, thereby injuring the many to the advantage of the few. I believe the farmers of Canada can raise all the feed required to supply their own wants and the wants of others in Canada, without sending our money out of the country to help enrich Yankee farmers at our expense. When they allow our grain to go into their country free, then it will be time enough to talk of taking the duty off corn. Besides this, the question (though one in political economy) of Free Trade and Protection has assumed an extreme political aspect, and as you claim to publish a purely agricultural paper, and also claim to be independent, the introduction of this subject in your paper will have an injurious effect. I would say most decidedly, *don't* take the duty off corn.

J. W., North Dumfries.

CHOKING COWS.

SIR,—I have repeatedly seen cows subjected to much cruel and unnecessary pain in trying to relieve them when choking. I lost a valuable cow from that cause, and shortly after I was told of the following simple and painless method, which I have repeatedly used since, and it has never failed. I keep on hand, hung up in the cow stable ready for use at any time, a piece of round wood about a foot long, not less than two inches through; a small cord is attached firmly to each end of stick. Place it in the animal's mouth (like a bit) and fasten the cords to each horn. Keeping the mouth open will allow all gases to escape, and therefore will prevent bloating, and in a short time the obstruction will disappear. But do not remove the bit until it has done so. I have sometimes left it in the mouth all night. They seem to suffer but little inconvenience after it has been in some time.

F. B., Burlington, Ont.

SIR,—Do you think that sheep are as profitable stock as cattle on high land, and what breed do you think is the best?

S. E., Guelph, Ont.

[From our experience and that of many others, we are convinced that sheep would be a more profitable stock for such a farm as yours than cattle. There exists a different opinion as to what breed of sheep is best. In another column of this number there is an article on the Shropshire Downs.]

SIR,—Can you tell me where the seed of the Russian Mulberry can be procured?

J. S., Chatham, Ont.

[The Russian Mulberry has been introduced into the United States, but we know not of its being brought into Canada yet. By communicating with some of the leading nurserymen you might learn the required information. If any of our readers could inform us on the subject, we would feel obliged by their doing so.]

SIR,—I see that you have been speaking to the Finance Minister about the duty on American corn, and asking the opinion of your readers on the matter. For my part I say decidedly, *take it off*. Let us have cattle food as cheap as possible, so we will be able to compete in European markets with the States and other countries. From all the statistics I have seen, and from my observation in this part of Ontario, a large percentage of the imported corn was used by farmers for fattening cattle for export. We are now paying from ten to twelve per cent. on the food we have to use to some extent, while the Western feeders have their coarse grain free. I can see no possible use the duty is, except to a few farmers living in the southern counties of the Province. By all means use your influence to get the duty taken off.

There is one other question that I think the farmers of Ontario should take an interest in and let their voice be heard—the Provincial Agricultural Association. There seems to be an effort made by interested parties to get Parliament to refuse the usual grant to that Association and thereby break it up. The city of Toronto, I consider, has acted in a very selfish and discreditable manner, by the way they used the Association a few weeks ago. It seems to me that the Toronto Society have made up their minds to ruin the Provincial, and thereby monopolize the large shows. They first of all take the best two or three weeks of the show season for their fair, without any regard to the wishes or prospects of the other cities and towns of the Province, and now this year refuse (although, I understand, illegally) to have the Provincial Fair for 1882 on their grounds. It looks to me as if Toronto people thought that there is no other place in the country fit to hold a fair in but their own city, and they must use all means, both fair and foul, to ruin all other shows and draw the country people (they call every one else in the Province, except themselves, country people) to the great city, the hub, etc., to see horse-racing, boat racing, the Oddfellows, and advertisements of their business houses in the show buildings. I see that the two leading Toronto papers refused to publish a letter of Mr. Carnegie's on the question, and I know from reading that the *Globe* seemed to say that the Toronto Fair was and ought to be the point all show-going people should go to, quite ignoring the Provincial and other shows. I would like to see a good strong article in the next number on the matter, and let the Toronto people and papers see that there are other cities and people in the country except themselves.

T. A. G., Brantford, Ont.

BERBERRY AND RUST.

SIR,—Having noticed in the September number an enquiry by J. C. M., Meadowvale, if berberry hedge is the cause of rusting wheat, I will state that I planted a berberry hedge on my farm about seventeen years ago and gave it good care, but it proved to be of no use for a fence. The thorns are so small the cattle would walk through it anywhere, and from the second year after planting my grain rusted every year, also my near neighbors', and continued to do so until I dug it out, which was four years ago last spring; since then I have had good crops and free from rust, as also my near neighbors. I will give you one instance among many. I sowed about three and a half acres of wheat adjoining the hedge, and it was as stout a piece as I ever saw. It produced about eleven bushels per acre of very inferior grain, on account of it being so badly shrunken.

S. S. P., St. Catharines.

SIR,—I agree with you that farmers should write for a farmer's paper. Their experience might be of service to others. In answer to the question, Does farming pay? I can say it does pay, especially stock-feeding. I have been farming and stock-feeding for twenty years, and I have acquired three farms, whereas I began with one. I have been buying store steers in the fall and feeding them through winter on hay, straw and roots, and if needed, a little grain, and put them to the pasture, not too early, but when the grass is pretty well grown. For a fortnight or so after putting them into the pasture, I give them daily a little dry food, grain or even hay. I then sell them for the English market, and I find they pay me a good profit in cash, besides the valuable manure they make. I find it more difficult to get good stores now than before there was so much attention paid to dairying. Farmers are not careful now to raise good young stock. This is to be regretted, as it lessens our supply of good fat cattle for export. Besides, there is no other means by which the fertility of the soil can be so well maintained. As to your question about township exhibitions, I say let them be continued and encouraged by all means. They have been a benefit to farmers, and that which has been tried and found beneficial should be continued.

J. C., Napier, W. M.

SIR,—I have a good horse which has something the matter with his hind feet, they being all soft and cheesy between the shell and the frog, and smell bad. They are sore round the top of the hoof; no lameness to be seen unless he trots fast or draws heavy. My blacksmith says it is thrush. Can you tell me if it is, and what to do for it, in the next number of the ADVOCATE.

I. McC., Stirling.

[Your beast has thrush. All that is diseased, rugged or detached should be cut off. When moisture has been the exciting cause, such as standing on decomposing dung or litter, it should be removed; see that he has a dry floor to stand on. Have the frog thoroughly cleaned with soap and water, after which a dressing composed of two drachms of chloride of zinc to a pint of water may be used. Calomel, powdered alum, sulphate copper, tar and salt, and various other remedies are advocated. If the feet are bad and much heat in the part, it would be well to apply a charcoal poultice for a day or two.]

SIR,—I have a cow that has been covered with lice for a long while. I have tried everything and have received no benefit, and I would like to hear of a cure for them in your next number.

E. B., Grey.

SIR,—What will effectually destroy lice on calves? I have eleven that are very badly troubled with them.

R. P. T., Miami, Man.

[You will keep the animal in a warm, clean stable. Use the currycomb or brush freely on the animal at least once a day. A thorough dressing of mercurial ointment, or with an infusion of tobacco, or with carbolic lotion made by mixing carbolic acid one part and water eighteen parts; perhaps either of the two last mentioned would be the safest. After you have all of the insects destroyed, it will be necessary to prevent their recurrence by improving the condition of the animal and paying attention to its coat. It will be well to give it a dose of laxative medicine and follow up by giving sulphur in its feed.]

SIR,—Would you inform me if the Government allow cattle, horses, sheep, swine or poultry for the improvement of stock to come over the lines free of duty?
R. M., Colbeck, Ont.

[We made inquiries of the collector of customs in this city. He referred to the statutes, and under the free list the following clause is to be found, page 21, schedule B: "Animals for the improvement of stock, viz., horses, cattle, sheep and swine, under regulations to be made by the Treasury Board and approved by the Governor in Council." He informed us that there has been no Act to repeal that clause. We were of opinion that cattle could not be imported from the U. S. It is our impression that, for the safety of Canadian stock and for the welfare of our Dominion, total prohibition would be the only really safe plan in regard to cattle, sheep and swine, either in a live or dead state. Large quantities of slaughtered hogs are constantly being brought in, packed in Canada, shipped to Europe and the duty refunded. This must eventually tell against the farmers of Canada, at least such is our opinion.]

WHY EWES SHOULD BE SHOWN IN PAIRS.

In looking over the November number of the *ADVOCATE*, I was rather surprised at the article, "Why are sheep shown in pairs?" especially emanating from the pen of my worthy friend, John C. Snell, who I had never taken for a one-horse man, much more the person to advocate a one-ewe show. Having, like my friend, acted the part of director, exhibitor and judge for a good many years, I think I can safely say that I never heard the idea advanced before, and I will here give the reasons why I think they should be still shown in pairs. In the first place judges are not always infallible, and the prizes might too often go for size instead of quality, which is too often overlooked as it is. Secondly, I think the old custom of showing a pair gives an exhibitor a better opportunity of showing the quality of his flock and his skill as a breeder by showing a nice pair of well-matched ewes. Again, I perfectly agree with him that the best ought to win every time, but I think that the exhibitor who has the best ewe in the yard will not be likely to mate her with one that would throw her out of a prize altogether, and as to the comparison between mares, cows and sows, I think it will scarcely hold water. For instance, a farmer wishing to stock his farm or improve what he has, would think he had made a pretty good start by getting a good mare, cow or sow, but would not think it much of a start with one ewe, but would at least want a pair or two—hence the advantage to breeders of showing in pairs, even if they do not all take prizes. Again, the objection raised by officers of fairs is a very valid one, as all who have had anything to do with the management of exhibitions know full well that if their stalls and pens are not well filled their treasury will not be well filled either. It is needless to say more, as I think I have given good reasons why the time-honored custom of showing ewes in pairs should be still continued.

R. RIVERS, Springhill Farm, Walkerton.

QUERIES FOR FRUIT-GROWERS.

We would thank some of our readers who can from their own experience give the information required by the writers of the three following queries, to do so:—

SIR,—Can you give any information for the prevention of the new kind of black rot now affecting the old standard Red Cherry? as it seems to threaten their obliteration, which we can ill do without, as it is one of the best fruits of the land.
N. S.

SIR,—May I ask a few questions, as an amateur. I should like to know what are the three or four best pears or quince for our climate and locality, say for summer, autumn and winter, and where are they to be had down here. If some of your correspondents will answer this they will oblige,
T. P. J., Woods, de, New Glasgow.

SIR,—There are many things in your journal that are each worth more to me than the subscription fee. We are quite engaged in orcharding here, the foreign market opening up with bright prospects. Please keep us posted in the apple market. What kinds would you advise to graft for the English market?
I. S., Berwick, N. S.

Our Scotch Letter.

[BY OUR OWN CORRESPONDENT.]

Now, Mr. Editor, in agreeing to write you occasional letters from the old country on agricultural subjects, it must be understood that there will be no attempt at fine writing, as all that I can do or have time for is to give you readers a sort of glimpse on passing subjects; disjointed they likely will be, only I found your farmers much the same sort of people as ourselves, discussing the subjects that interested them most just as they turned up. So much for prelude and now for the letter.

Our agricultural talk at present in Scotland is confined to three subjects, agricultural depression, its remedy, and the fat stock shows. As regards the two former they can wait and I shall at present pass them by, simply noting the grand and noble stand made by the Aberdeenshire farmers in this matter. They have taken the bull by the horns at once, by forming a farmers' alliance which will likely be joined by most other counties in Scotland. To meet the carping criticism of our landlords and their parties that there was no backbone in their agitation, the Aberdeenshire committees resolved to call a mass-meeting in Aberdeen on the 1st Dec., the result being the largest meeting of tenant farmers ever held in this country; tickets for over 3,000 were issued and did not nearly supply the demand. At this meeting they unanimously passed resolutions: 1st. That it was impossible for the present farmers to go on paying the present rents. 2nd. That the old and antiquated laws of Entail, Hypothec and Primogeniture should be abolished. 3rd. That farmers must get compensation for their capital they invest in the soil and for their improvements, also greater freedom in the cultivation of the soil and disposal of its product. 4th. That Parliament be at once asked to introduce a measure on the lines of the Premier's speech at Leeds; "that it is essential to secure to the tenant not a part but the whole of his interest in the land, his interest in his improvements, and his interests as the law may define it in his tenure." 5th. That a farmer's alliance for Scotland be at once formed to carry these into effect. 6th. That as all are interested in the success of agriculture, all classes are invited to co-operate in this movement. The chair was occupied by a young farmer on the Aberdeen estates, Mr. James Hay, he introduced the business in an able and eloquent speech. The resolutions were proposed and seconded entirely by farmers, and most of the speeches would have done credit to candidates for the honor of becoming a member of Parliament. The platform was occupied by the committee, who are entirely composed of the Chairman and Conveners of public meetings held over the counties of Aberdeen, Banff and Kincardine. They were accompanied by the Lord Provost Gurd, M. P. for the city, the members for West Aberdeenshire and Kincardine. The meeting lasted from 12.30 till 4 p. m. which gives farmers some idea of the length of the oratory, and I can assure them the quality surpassed all expectations. So much at present on the first two of the subjects named, and now for the more congenial one of our Christmas Fat Stock Shows and the great London Xmas Market. The ball was opened at Norwich, Hull, &c., &c., but your space will not allow my dilating on these at present; suffice it to say that a Polled Aberdeen or Angus heifer carried the chief honors, and nearly all the prizes for crosses were won by animals bred in Aberdeenshire, a good many of them owned by wealthy men in the South; still Scotty held his own pretty well with what were left. The first of the great shows is held at Birmingham; the judging took place at Bingley Hall on 20th November and was opened to the public on the 28th, for five days. Scotch exhibitors and Scotch bred cattle now owned in England were very successful, the former winning £125 and the latter £160 of the cattle prize money, or nearly a third of the whole. All classes of stock were more numerously represented than last year, the total entries being 3,583 in 1880 and 3,901 in 1881. Shorthorns as a breed were well represented, with fewer tops than usual. Pure Scotch breeds made a fine display, comprising several grand specimens of the Polled Aberdeens and Highland cattle. Cross breeds as usual occupy an important place in the show, the animals all over being up to the average, though more cracks have been seen. Herefords were an exceedingly good lot, being considered above the average. Your space will not admit of my enlarging on this show, and as most of them reappear at London it won't matter. On Monday, 5th Dec., the great Smithfield Show opened in the Agricultural Hall, being the eighty-

fourth held under the auspices of the Smithfield Club, and the term may be used "a good all round show," to describe that of 1881. A good judge said in describing it, a greater number of cracks have been seen in some breeds better represented, but the display of cattle is quite up to the average, and the £2,500, besides special prizes, were keenly competed for. As showing the breeds represented, I may note entries of the various breeds of cattle, the total number of sheep and pigs: Devons, 36; Herefords, 39; Shorthorns, 58; Sussex, 29; Norfolk, 8; Highlanders, 7; Polled, 12; Welsh, 6; Cross breeds, 33; and extra classes, 7; sheep, 180; pigs, 84. The largest increase is in Herefords, from 20 in 1880 to 59 in 1881; the largest decrease is in Polled, being 21 in 1880 and 12 in 1881, principally in the female classes, to be accounted for in the enhanced value of these for breeding. The reporter of a Scotch paper, recognised as a good all round judge says of the Shorthorns, "there is an increase in the number shown, but we cannot say that the red, white and roan were what they ought to be if they are to succeed in keeping the position they have hitherto been supposed to occupy as the finest breed in the country. There is not only a decided absence of the top Shorthorn in the hall, but the general character of the show is hardly creditable." So much for the red, white and roan at this year's Smithfield. As will be seen above there is a large increase in Herefords, and to me it is a question if that breed's merits have not been a little too long in being recognised, amid the rage that existed for Shorthorns. In my opinion the matter with the Shorthorn is, that he has been bred to death on paper; looking at them alongside Herefords, Crosses and Polls, one cannot help wondering at the position claimed for them, only one thing has always been in their favor: put a Shorthorn to any breed you like and he will improve it, and the time is coming for the Herefords and the Polls to have a try, and on your Western plains I have no doubt they will succeed, as there is plenty good flesh about them and plenty of travel in them as well. Scotch cattle make a fine display, especially in the Poll and cross sections, while Highland cattle are good, though not so numerous as usual. A few of the Birmingham and Leeds decisions have been overturned as usual, but the knowing ones are fairly well satisfied. Once more the champion prize at Smithfield for the best animal in the hall, has been carried away by a Scotch bred animal, and this time by a Scotch exhibitor, Sir Wm. Gordon Cumming, Bart., of Altyre Forres Morayshire, for an altogether unique specimen of a pure bred Polled heifer, only two years and eight months old; and her owner and breeder has also the credit of owning the animal placed as reserve number for the championship, said animal being a Polled ox, also two years and eight months old. As indicated, Shorthorns, though a large display, are not in point of general merit up to the mark; the champion Shorthorn is Mr. W. S. Tibb's cow; she was also Cup Shorthorn at Birmingham. Herefords are numerous and good, and have the credit of having in their ranks the heaviest animal of the breed belonging to Her Majesty, the Queen, which weighs 21 c, 2 qrs, 10 lbs., first at Birmingham and only commended here. I do not pretend to know much about Norfolks and Suffolks, but notice there are as many prize tickets as animals; only two animals appear in the Scotch Polled cow or heifer class, but both are good. Sir William's heifer, although a year younger than her opponent from Drumin, won easily in her class; she is two years and eight months old, bred and fed at Altyre, is got by a Prize bull "Black Watch" (whose full brother, we noticed, was sent by Mr. Wilken the other day to the Hon. J. H. Pope, Minister of Agriculture); she is one of the nicest, if not, at her age, perhaps the very best specimen of her breed yet exhibited; she has been in careful training since calfood, and that she should appear so well matured at so early an age, reflects highly on the early ripening features of her breed; she weighs within 4 lbs. of 16 cwt. or 1,788 lbs., at 32 months old, and few, if any, will yield so large a proportion of dead to live weight, or a higher percentage of flesh to fat and bone, this being one of the best points of the Polled breed. The contest for the Scotch cup lay between the above heifer and the Polled bullock, also from Altyre, of the same age, and, as our man put it, "they're a gay pretty pair," later on the ox won the £50 cup for the best ox in the hall, and the heifer the cup of the same value for the best cow or heifer, and finally the blue ribbon of the year, the £100 champion cup as best beast in the hall; with these two animals Sir W. Gordon Cumming wins no less than £290 in prizes. I must have done at present

SIR.—Can you, through the ADVOCATE, inform me if there are any peas to be got that are proof against the pea bug; and if so, where they can be got and at what price? About a year ago I saw the Prussian Blue pea spoken of in the ADVOCATE as being bug-proof. We have a blue pea here—I do not know whether it is the Prussian Blue pea or not, but it is as bad with the bug as any other kind.
J. W., jr., Harlock, Ont.

[We know of no pea that is bug-proof, except the grass pea, which is very hard and small. It seems to be a variety of the vetch.]

SIR.—I had a four-year-old ox with a diseased tail, and I don't know what to make of it. The animal seemed well and healthy, but the tail commenced to dry up, all the flesh and blood disappeared, and it was working up by degrees towards the spine little by little, or a joint at a time. When it got within 3 or 4 inches of the spine, I took an axe and chopped the tail off just above the dead part. It did not seem to affect the ox at all, for he is as well now as ever. I saw a two-year-old heifer the same, but the tail was not cut off, and the animal died. If you could enlighten me as to the cause and remedy, I should be thankful.
J. F. V., Headingly, Manitoba.

[This malady is what is commonly known by old farmers as the "Hollow-horn," or "Wolf in the Tail." It affects cattle that are poor and have not sufficient blood to keep up a proper circulation. Its appearance is on the end of the tail and in the marrow of the horn causes the flesh and bone to decay, and will kill the animal if not checked. The prevention is plenty of good food and good shelter. No beast properly attended will ever be affected by it. The cure may be accomplished by boring the horn, if the horn is affected, and putting on any substance that will irritate the numbed or decaying part. This will cause a flow of blood to that part, as nature sends its force and strength to any injured part to restore it. Pepper and vinegar are frequently poured into the horn when bored for this malady. When the disease is confined to the tail, splitting it open with a sharp knife and inserting a little salt is often resorted to with good effect. More generous feed and better shelter will almost always restore the beast to health.]

Guelph Christmas Show.

The annual Christmas fair and live stock show under the auspices of the Guelph Fat Stock Club, was a great success. The fair was very largely attended by buyers from all parts of Canada, from Montreal, Q., to Windsor, Ont. Many cattle were sold on the roads before arriving at the ground, and some of them the evening before the fair, so that many farmers had disposed of them before reaching the fair ground. Notwithstanding these early draughts on the fair, there were not less than 500 head of cattle on the grounds in the forenoon, the greater number in good condition, quite a number ranking as extras, and a number as medium. The demand was keen. Prices ranged from 4c. to 6½c., the latter price being paid for choice lots. One lot of 10 head, sold by Walter West, were said to be one of the best lots ever offered at a Guelph fair. They sold at 6½c. per lb., and one at 7c.

The cattle was the first class shown, and it was the one in which the great interest centered. The show was ahead of anything of the kind ever held in Guelph before. It consisted of six subclasses, exclusive of that for the sweepstakes, and there were thirty entries in these. The competition was so close that in several instances the judges had the utmost difficulty to decide which animal was worthy of the prize. It was a difficult matter indeed in some cases to distinguish in favor of any beast. Animals which did not get a prize at all would have taken that position creditably at former shows in Guelph. Armstrong's steer was the best animal shown, and carried off the sweepstake. Messrs H. & I. Groff and Messrs. J. & R. McQueen carried off a number of prizes, showing very superior animals, and Messrs. Wm. White-law, M. O. Connor and H. Young were also to the front as prize winners.

The following sheep were bought by Mr. E. B. Morgan: 3 Southdown wethers, bred and fed by Herbert Spencer, Brooklyn, Ont.; 4 wethers, of 260 lbs each, from John Evans, of Hespeler; 119 extra sheep, averaging 166 lbs., from Henry Croff, of Waterloo; 2 extra Oxford-down wethers from John Phin, of Hespeler; 50 very dry choice wethers, prize winners, from Alex. Brown, G. It.; and 2 extra wethers from John Hardy, of Winterbourne.

Five very fine cattle, raised on the farm of M. H. Cochrane, of Compton, were purchased by Roberts & Wilder as follows: One 2 year old steer of 1,990 lbs.; 1 Highland Scotch 2 year old, 1,330 lbs.; 1 four year old, 2,050 lbs., and 1 pair of oxen, 4,000 lbs. Mr. Fred Ritchings, of Rose Hill Farm, sold a pair of heifers at 5½c., a pair of steers at 5½c., a pair of heifers at 5½c. Roberts & Wilder had 150 cattle, and of these they sold 2 car loads at an average of \$25 and \$37 per head. Mr. Kinnear sold several cattle at 5c., 5½c. and 6c. Mr. Benallack had some fine cattle under exhibit. M. Laporte, Mildmay, had 19 cattle. He sold two milkers to N. Taillefer at \$65, and the balance to R. J. Hopper for a trifle under 4½c. per lb. Messrs. Daoust & Bros. purchased 17 cattle from Harry Gould at 5½c.; 48 hogs at 6½c.; 15 do same price; 2 extra calves for \$50; 4 fine sheep for \$50, and 25 lambs at \$6 each.

The following is the

PRIZE LIST.

With the exception of three, which are mentioned, every prize was awarded to Messrs. E. B. Morgan & Co. Where no names are given, therefore, it will be understood that these gentlemen were the successful exhibitors. Best carload of cattle for export, not less than 14 head—1st, \$100, given by Messrs. H. & A. Allan; 2nd, \$50, given by Mr. H. Redford; 3rd, \$25, given by Mr. Jas. McShane, M.P.P. The last was awarded to Messrs. Roberts & Wilder. Best five cattle—1st, \$40, given by Mr. M. H. Wells for Messrs. A. & F. Tiernan; 2nd, \$25, given by Mr. J. F. Reid for Messrs. Young & McQuade. This second prize was taken by Messrs. Roberts & Wilder. Best pair of oxen or steers—1st, \$50, given by Messrs. Jas. Nelson & Son, of Liverpool; 2nd, \$25, given by Messrs. James Pritchard & Co., of Bristol and London. The second prize also was awarded to Messrs. Roberts & Wilder. The above first prize was taken by two steers, one bred by Mr. J. & R. McQueen, of Elora, and the other by Mr. J. S. Armstrong, of Eramosa. Best carload of sheep, not less than 50—1st, \$50, given by Messrs. Thompson, Murray & Co.; 2nd, \$25, given by Messrs. John Hope & Co. Best fifteen sheep—1st, \$25, given by Mr. J. H. Smith for Messrs. J. Swan & Co.; 2nd, \$10. Best fine sheep—1st, \$25, given by Mr. D. Shaw, agent of the London Temperley Line; 2nd, \$10.

SWEEPSTAKES.

Best cow, heifer or steer, of any age or breed—1st, \$50, given by Messrs. D. Terrance & Co., of the Dominion Line; 2nd, \$25, by Messrs. A. W. Ogilvie & Co. The first prize in this exhibit was taken by a steer bred by Mr. J. S. Armstrong and the 2nd by a heifer bred by Mr. J. Evans, of Hespeler. Best 10 sheep—1st, \$20, given by Mr. C. H. Chandler for Messrs. R. Bobbitt & Co.; 2nd, \$10. The number of cattle exhibited was about 150.

Montreal Christmas Cattle Market.

At the new division of the Grand Trunk Railway stock yards the Christmas live stock market was held on Dec. 19. There was an exhibition of live stock intended for export, prizes being offered by many leading citizens. Many of the leading drovers of Ontario and the Eastern Townships were in attendance, as also many Montrealers interested in the breeding and exporting of live stock. Among the stock on the ground were a number of prize winners at Provincial Exhibitions. The principal transaction reported was the sale of 50 choice well-bred cattle and a fine lot of sheep, made by Messrs. Robt. Craig & Sons, of Brampton. The whole consignment was purchased for shipment by C. B. Morgan, of O-hawa, who paid from 5c. to 12c. per lb. live weight for the cattle, some fine beasts realizing as high as \$300 each. The finest steer in the market, a thoroughbred Durham 3-year old, was in this lot. It was raised by J. L. Armstrong, Eramosa, and weighed 2,500 lbs. Two other cattle from the same breeder were in the lot; also 3 gold-medals steers and one fine heifer raised by J. & R. McQueen, of Elora; 1 steer of 1,210 lbs., and 1 heifer of 1,500 lbs., raised by H. Watson, of Guelph; 1 steer of 2,000 lbs. bred by W. S. Armstrong, of Guelph; a heifer of 1,690 lbs., bred by J. Evans, of Hespeler; 2 oxen weighing 2 tons, bred by M. Kennedy, of Morriston; 2 steers of 3,000 lbs., bred by J. Russell, of Pickering, and 2 thoroughbred cows of 1,800 lbs. each, raised by J. M. Bell, of Pickering.

Culture of the Cherry.

It is a fact well known that the cherry tree is apt to crack in the body by the intense heat of summer. This is especially true of the large, sweet varieties. The Morello, of all kinds, does the same, to a less extent, however. The only plan known to me to avoid this "three o'clock scald," as it is termed by some, is to shade the trunk by an upright board or other thing, until the tree throws out branches enough to shade itself. If the limbs are allowed to grow low enough down on the body of the young tree, say from about a foot or two of the ground, they will shade the trunk sufficiently to prevent the cracking of the bark and consequently early decay and death.

Another thing fatal to the cherry tree especially, is the placing of strong, hot manure around the base of the trunk. I contend that no manure should be put on the surface near the tree, but after it is four or five years old the grass should be permitted to grow up close to it. I have found that manure so placed will, in a few years, kill or so injure the tree as to render it almost unfruitful. The limbs and smaller branches will die, the trunk rot and the fruit be knotty, small and otherwise quite tasteless and inferior. The cardinal points, then, to be observed in cultivating the cherry, are to have the trunk shaded in some manner, and after the fourth or fifth year from planting out let the grass grow close to the trunk, and never place strong manure on the surface near the body.

Treated in this way this most delightful fruit can be raised in great perfection and the tree will live to a "good old age." One other remark, and I will close. In planting the cherry place them in rows running east and west. This will throw the shade from one to the other at the fatal time of the day in summer (3 to 6 o'clock) and thus render artificial shadings less imperative. From the last of October to the middle of November is as good a time as any to put out all kinds of fruit trees, but they should be heavily mulched before freezing weather with leaves or straw, which should be removed in March following. Such is my experience, after twenty odd years of observation and trial.—Ex.

Hawaiian Geese.

The Hawaiian geese (*Bernicla sandvicensis*) which I brought over in the spring of 1878 have proved hardy, and I trust will prove reproductive. They were all sheltered and cared for last winter, and came through in good order. Both geese commenced laying in April; one laid three and the other four eggs, but only one showed a disposition to sit upon the eggs, and she, after attending to her business faithfully for ten days, tired of it and quitted the nest, so they produced no goslings. In the wild state they lay but two or three eggs, while in domestication they sometimes lay eight or ten (Mr. Rickwood, postmaster-general of the kingdom, who had them in domestication for many years, sometimes raised as many as ten in a brood). In domestication they seem to have strong attachments, and are fond of human society; one gander in particular has become very fond of me, and always greets me cordially, and will talk with me in a low soft plaintive tone so long as I will indulge the humour. They are less aquatic than the other geese. The foot is not more than half webbed. They take a bath scarcely once a day, and rarely remain in the water long. I once saw one with the tail under water, as we see a hen when forced to swim. Their native habitat are the high volcanic mountains in the Island of Hawaii, where they breed among the lava beds, depending upon the pools which they find among the rocks for water, never going down to the sea. They are of strong flight in the wild state, though in domestication they show little disposition to fly. Altogether, they are the most interesting water-fowl pair I have left. A few weeks ago I lost the other pair by a mink.—[JUDGE CATON, in American Naturalist.]

WINTER FEED FOR A COW.—An excellent food for butter cows for winter consists of clover hay cut and mixed with two quarts of wheat middlings, three quarts of ground corn and oats (four parts corn and one of oats), and one quart of cotton-seed meal. This may be given at two feeds, one morning and one at night, with a feed of hay at noon. With this meal 15 pounds of hay per day will be required.

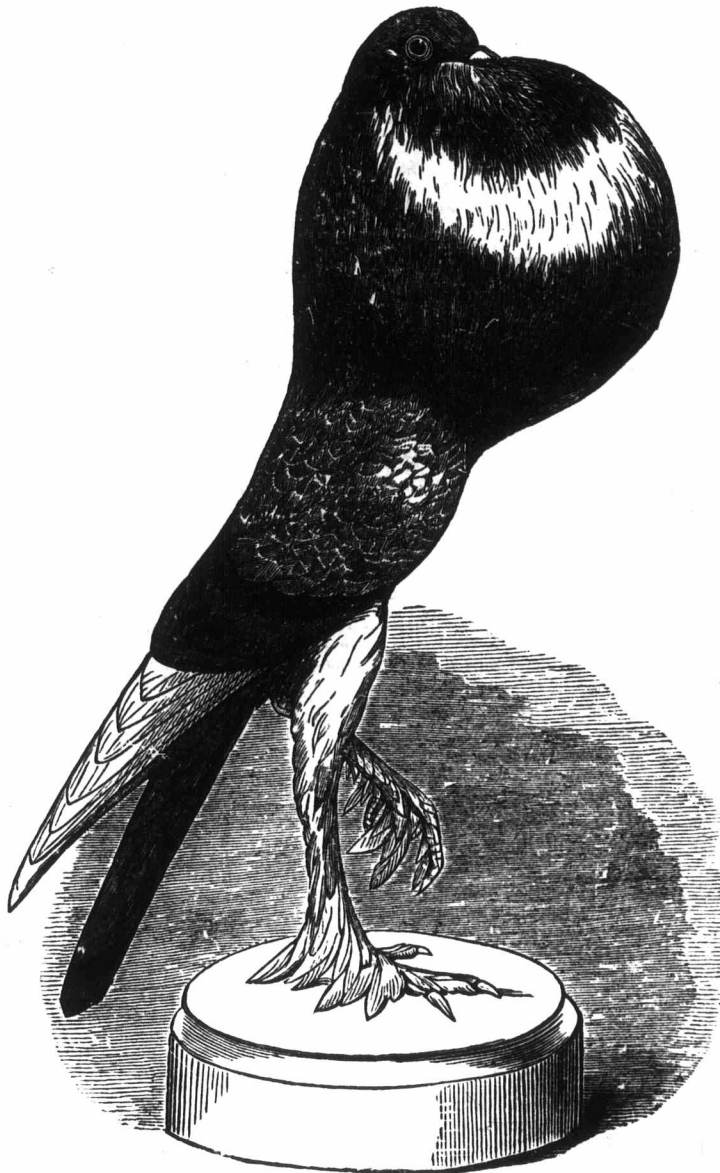
The Pouter Pigeon.

We have the pleasure this week of presenting our readers with an illustration of the Pouter pigeon, which is claimed by breeders in the old country to be inferior to none. This breed of birds is bred to some extent in this country, and a few desirable pairs have been shown. The Pouters are divided into five classes—blue, yellow, white, red and black. The engraving given represents a cock bird of the first-named color. There are also mealy or mixed-colored Pouters, which are the result of crosses with the other kinds; probably in some cases the amalgamation of the whole, and consequently they are not of a very attractive color, but are generally large and of a vigorous constitution, and are mated with good effect to birds of a weaker stock, but of finer feather, for the sake of regenerating them, and keeping up the size and stamina of those of more value. Blue Pouters should be of a clear, bright color, a shade darker upon the head, neck and tail than elsewhere; the sides of the wings, breast and back should be blue, descending from the neck and terminating in a distinct line from thigh to thigh; the wing covert should be crossed with two black bars, also a black band nearly at the end of the tail; on the sides of the wings and near to the shoulder there should be a few white feathers, as represented in the engraving. These are called the rose, and when good and distinct are a great set-off to a Pouter. An important feature in the markings of this bird is a clear white and well-defined crescent upon the front of the crop or globe. These birds, of either color, should possess a large rounded crop, narrow girth, and long pinions, the points of which meet over the tail, but by no means should they cross each other. In all cases of a perfect they should be of a slender and graceful construction; of large size, but not unwieldily; pure, rich and uniform in color. Heavily muffed birds do not find favor alongside of their brethren with downy-clothed legs. They strut about in an awkward and stumbling manner, carrying their body in too horizontal a position, lifting high their legs, crossing their wings, and appearing as though they were stepping through water, and were desirous of passing through unspotted. On the contrary, the trim, proud birds are always noticeable for their lofty carriage and dignified appearance, looking with disdain upon other broods, if any appear in their immediate vicinity.

Economy in Dress.

A girl who can trim a hat, put the "fixings" on a jacket, economize the old dresses and make all the furbelows look to the best advantage, saves a good deal from the milliner's bills and keeps down these little items of expense which often derange the household and put the temper out of gear. Economy in dress is a great advantage to those who practise it, and it often happens that the most stylish girls are those who do a good deal of their own little sewing; who cover up old hats with new trimmings, turn old dresses to good account and in general do what they can to make the cents travel over a great deal of knick-knacks, frills, ribbons and what-nots. Some girls must, however, have everything new. They have no idea of economy in dress. If a hat looks old they do not renovate it; they must have a new one. If a dress looks shabby they discard it, instead of using it for other purposes and turning it to good account in other way. They will not wear old boots under their rubbers; and they spend time galavanting the thoroughfares when they should be darning their stockings or mending their clothes. And young men note all this. They see and they

admire the girls who take special pains to economize in dress. They like the girl who buys a "shape" and puts the fixings on herself; who gets a little trimming and makes an old dress look new, and who in general practices economy in dress, and thus keeps down the expenses of the household. Such a girl is a treasure to a man. She has a fortune in the practice of economy. She makes a dollar do where another girl will want five. She is often neat and more stylish also than her extravagant sister. She has developed good taste by experience, and she harmonizes colors better, than the girl who has everything made to order, and never minds the expense. In fact, a little millinery and a little dressmaking



THE POUTER PIGEON.

should be taught at all schools. They would enable the girls, in after life, to practice that economy which so often leads to the happy and the prosperous home. Economy in dress has made many a fireside happy, while extravagance in dress has driven many a family to ruin. As trades should be taught to our boys at school, so should the use of the needle, millinery and dressmaking be taught to our girls. Each would be a step in the right direction; and a household, where the boys were taught trades and the girls millinery and dressmaking, might look to the future with the confidence of that self-reliance which always comes from knowing that everything has been done to guard against the worst, even if disaster overtakes it in the future.

Patrick on the Zebra—"Phat kind of a baste is that—the mule wid his ribs on the outside of his skin entirely?"

A clergyman on his way to church one Sunday was overtaken by a heavy shower of rain. On arriving at the vestry, he exclaimed, rather impatiently, "I wish I were dry!" "Never mind," said his colleague, "You will soon be in the pulpit and there you will be dry enough."

Care of the Hair.

The hair is a woman's greatest ornament. A fine head of hair sets off a homely face and adds a great charm to the personal appearance. No woman ignores the value of a fine growth of silky, luxuriant hair, or the value of constant care and attention in preserving it. Fine hair is a sign of perfect health. When the hair falls off, there is some constitutional disturbance; so that to preserve the hair it is not only necessary to keep the scalp clean, and the hair well dressed, but to observe and care for the general health. Indigestion is injurious to the hair, because it lessens the nutritive value of the food, and the hair is often the first part of the body to suffer, becoming dry and harsh and falling off, before any suffering is felt in other ways. The stomach must then be watched and looked after closely by any woman who would preserve a clear complexion and skin and good hair. Nervous excitement also quickly affects the hair. Every one has heard the story of people whose hair has suddenly turned white from fear or sudden excitement. And a constant irritation of the nervous system is injurious to the welfare of the hair. It is often to be observed that a cross, petulant disposition and harsh, thin hair go together, while smooth, silky, abundant and luxuriant hair is found with a quiet, calm, easy temperament, that is never troubled about trifles. Women who desire to preserve this adornment in the most perfect condition should therefore practice a calm, patient demeanor, and avoid a fretful disposition.

But when the hair fails, remedies must be resorted to. It may be best preserved by frequent washing of the scalp and the use of a gentle stimulant. Cold water is the best wash, and after that has been well rubbed into the skin, a small quantity of weak alcoholic tincture of capsicum, or of Spanish fly, is very useful for producing a thickened growth. A little glycerine added preserves the softness and silkiness of the hair. This treatment is better than the copious use of hair oils, which too often render the hair dry and harsh. Anything that is used to strengthen the hair is better applied to the skin from which the hair grows than to the hair itself. When the hair is falling out, the best remedy is a stronger preparation of the above tincture. Blistering even restores the hair upon bald scalps, and irritating substances such as proto-chloride of copper and strong tincture of cantharides, and even caustic potash, have been used with success as hair restorers. But as these are dangerous substances, the guidance of a physician should be sought in using them.

The Married Life.

The universal expectation of all young people is that their married lives will be happy ones. Deluded dreamers! They imagine that they are different from other people, and that when they enter the portals of matrimony, love, peace, and prosperity will ever be their attendants. Such ones had better by far consider themselves the same as others, but form iron resolutions to do differently from other married people—resolutions that will keep them from the dangerous coasts on which so many have been wrecked and ruined. Unhappy marriages depend upon many causes. In this fast age there is too much deceit practised by the young of both sexes. Previous to marriage, many try to appear more intellectual, more amiable, or more accomplished than they really are. Depend upon it, that love brought into existence by a moonlight stroll, strengthened by deceit and fashionable displays, and finally consummated through the influence of intriguing friends, will fade in after life almost as fast as the flowers which compose the bridal wreath.

When is a fowl's neck like a bell?—When it is wrung for dinner.

When does a farmer double up a sheep without hurting it?—When he folds it.

Minnie May's Department.

MY DEAR NIECES.—Let us take time for reading. It will never come if we wait to have every piece of work finished, and every speck of dirt removed from every article we use. No kind of labor is degrading if done from a worthy motive, and no motive can be nobler than the womanly desire to make a pleasant home. With this end in view—with love as a prompter—washing, and darning and scrubbing, are all elevated from drudgery to a nobler place. But our houses cannot be properly attractive and profitable to our families, if we ourselves are dull and harassed. Our brothers and fathers, and husbands and sons, need cheerful and intelligent companions at home. It is necessary that good home-makers and keepers should read and reflect, and listen and converse. What shall we read? Whatever really helps us along, whether it be history, science, philosophy, or morals. I can't read hard books when I am tired. Then I take what I call easy reading, good stories, and the lighter newspaper articles. But if we live on light reading entirely, we cannot expect to gain in mental strength and growth. Besides, a vacant mind takes all the meaning out of the fairest face. The lessons of our own experience are most valuable, I know, but good books are great helps. From them we get the results of the experience and observations of others.

MINNIE MAY.

Recipes.

HOW TO REMOVE CORNS.—Saturate a small piece of cotton with alcohol, apply it to the corn for a minute, then with a sharp scalpel or knife carefully separate the corn from the healthy tissues, which is easily done by a careful handling of the knife and gentle pulling with forceps while the parts are being immersed with alcohol. If the alcohol dries away while operating, apply the saturated cotton again, and I frequently find it necessary to apply this several times before the operation is completed. The alcohol not only lessens the sensibility of the parts, but it facilitates the separation of the hard corn from the soft and tender tissues. This cures, and that without drawing a drop of blood, or producing any pain, except what results from pulling on the corn with the forceps. After raising one edge it is about like removing a piece of adhesive plaster.—[Am. Med. Journal.]

ROAST BEEF WITH YORKSHIRE PUDDING.—Three-quarters of an hour before the beef is done, pour nearly all the drippings from the pan, then place the meat on a wire grating, or even a few sticks across the top of pan. Pour the pudding into the pan and return all to the oven; the drippings from the meat will fall on the pudding and season it, when done place the meat in the middle of the platter, and lay the pudding—cut in pieces—around it. If preferred the latter may be baked in a separate pan, and served around the meat in the same manner.

FOR THE PUDDING.—To a pint of sifted flour, add a teaspoonful of salt, and half a pint of milk; add the beaten yolks of four eggs, then another half pint of milk. Lastly put in the four whites beaten to a stiff froth. Don't use baking powder, but beat furiously; turn into the hot pan and bake three-quarters of an hour.—[Prairie Farmer.]

MINCE MEAT.—Take seven pounds of currants well picked and cleaned, of finely chopped beef suet, the lean of a sirloin of beef minced raw, and finely chopped apples, each three and a half pounds; citron, lemon peel and orange peel, cut small, each half a pound; fine moist sugar, two pounds; mixed spice, an ounce; the rind of four lemons and four seville oranges, mix well and put in a deep pan. Mix a bottle of brandy and white wine with the juice of the lemons and oranges that have been grated together in a basin, pour half over and press down tight with the hand, then add the other half and cover closely. Some families make this one year and use the next. It is an excellent recipe.—[M. W.]

CANDY CARAMELS.—One pint cream, one pound sugar, one cup of butter, one-fourth cup chocolate, one cup of molasses.

LEMON PIE.—One lemon, one cup of sugar, half a cup of water, two eggs, one teaspoonful butter; line your pie plate with a nice crust, pour in the above, bake in a quick oven.

Answer to Enquirers.

J. L.—Is there any way to clean rusted steel beads upon a velvet work bag without soiling the velvet? **Ans.**—No; unless the beads are removed. They may then be cleaned by putting them in a small bag with some emery and rubbing it between the hands.

Lonely One.—Soup is eaten with a spoon. It would not be possible to eat soup with a fork. **2nd** You must decide for yourself as to whether you should marry a man whom you love dearly but who smokes constantly. We should fear that he would become so impregnated with the smell of tobacco that no love could outlive the ordeal. **3rd.** There is no fixed form for replying to a proposal of marriage. A girl who cannot find words in which to frankly say whether she will accept or refuse does not deserve to ever have a proposal.

Mrs. W. W.—How can I grow pond lilies without a pond? **Ans.**—Procure a large tub, half a barrel will do. Put some soil in the bottom, 16 inches deep and plant a root of the lily in the soil; fill the tub with water. That is all. The tub may be sunk in the garden level with the soil, a few stones arranged around it, and a miniature pond is thus made.

H. F. S.—1st. Do you think I was treated right by a young lady upon whom I called last Sunday evening to go to church with me. When I went into the room she sat still and did not ask me to take a chair or take off my hat. **2nd.** Do you think she answered me right by saying, "I do not want to go to church with you?" **3rd.** Did I do right by leaving right away. **4th.** Did I do right by telling her to "stay at home then?" **5th.** What is the best way to stop other young men (who have heard of my misfortune) from tormenting me? **6th.** I met the young lady at singing school this winter; should I speak to her? **Ans.**—The young lady certainly was not polite, but neither were you if you did not take off your hat before entering the room. A gentleman never waits to be told to take off his hat. The lady should have asked you to be seated and should not have answered so rudely. If she did not wish to go to church with you, she should have made some excuse. You were right in leaving at once, but wrong in answering so rudely. You should have said "I beg your pardon, I am sorry to have troubled you. Good evening!" and with your best bow you could have retired knowing that you had behaved like a gentleman while the young woman had proved herself very far from being a lady. **5th.** It is very vulgar to tease another in that way, but we do not know how you can stop it, unless by either knocking the unmannerly fellows down, or else by taking no notice of the annoyance. **6th.** It is the lady's place to notice you first, and your course must depend upon hers; however, we fancy you will not care to have much to say to such a rude person; and she may not care to speak to you after the rude way in which you left her.

The number of votes cast up to Dec. 31 have been 108—74 of which have been in favor of corn being admitted free, and 34 for the continuation of the duty; of these 87 responses were from Ontario, 11 from Quebec and 10 from the Maritime Provinces. These responses are from the best class of farmers. They give sound reasons, but as might be expected, only a very small percentage of farmers care about expressing their views or troubling themselves so much as to write for a purpose that they may think can have little effect. Quebec sent 6 applications to have it taken off, and 5 for it to be kept on. Maritime Provinces sent 4 to take it off, 6 to keep it on. Several also stated that they wished to see the duty increased. We regret that any should think the question was put politically. We had no such thought, and to prevent politics from interfering with the tone of this journal, we leave this subject and ask for your opinion on other questions that have been agitated: 1, Should township exhibitions be abolished? 2, Should the Provincial Agricultural Exhibition be abolished? 3, Should the importation of American cattle or swine be prohibited or not? Remember it is small drops that make the ocean, and your still small voice has its power.

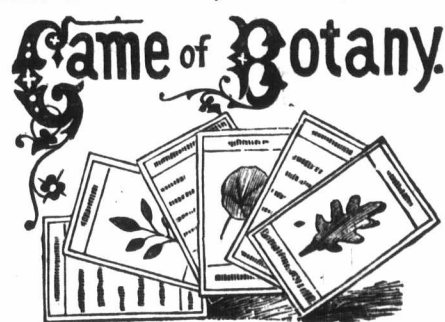
Winter Campaign!!

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Our engravings, "The Offer" and "The Accepted," by Thos. Faed, R. A., and the colored lithograph, "Life's Voyage," have been described in our Dec. No., 1876; Jan., 1877, and April, 1878, respectively, and after a most careful examination of hundreds of valuable engravings, we have not been able to find any more pleasing or suitable. They are without doubt unrivalled premiums.

In April No., "Homeward, or The Curfew," by Joseph Johns, was described, and a cut but faintly suggested the merit and beauty of the large engraving, 22 x 25 inches in size, now offered; and in May No., 1881, a small wood-cut of the chromo "Balmoral Castle," is given. This engraving, 24 x 30 inches in size, is of elegant finish and design. The last two mentioned were published at Two Dollars each under copyright.

"Lorne and Louise" was fully described in our Dec. No., 1879, and but a few copies remain in our hands.

OUR RULES

The name sent in must be a new one, and the subscription for one year (\$1.00) must be enclosed.

The prize is for the old subscriber who sends in the new name, and not to the new subscriber.

Choose your prize when remitting, otherwise a choice may be made for you.

To any subscriber, to any member of a subscriber's family (boys and girls), to all postmasters and school teachers, who send in new subscribers, these prizes will be mailed, postage paid.

Remember the annual meeting and elections of officers of the agricultural societies takes place on the third Tuesday in January. If you are interested in agricultural advancement you should attend the meetings and hear what is brought forward. There may be resolutions passed that may affect your future agricultural position. Absence from these meetings shows a neglect of your duty, as it may be the only time in the year you may have an opportunity to express your views, to suggest improvement, perhaps to fix or abolish township exhibitions. We have seen party influences brought to bear, to the injury of agriculture. Try and avoid all votes or discussions for party purposes. Unite for the general advancement of your agricultural interests. There should be longer discussions held at these meetings; they are generally too hurried. Do not be afraid to express your views; it tends to draw forth information from others. Attend the meetings, and try and get others to attend; also let agricultural interests be first on this day.

Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES—What shall a New Year's greeting be to all our boys and girls but to wish them a "Happy New Year." Now, it seems not very long ago that we did the very same thing. Bless us! how the years do fly! To you, young people, it seems a very long while from Christmas to Christmas, and from New Years to New Years. When the holidays are over, and you have enjoyed your visits, your presents, your vacation, and all the pleasant things that holiday time brings, and after school has commenced again, and you have talked it all over with your school-mates, then some of you no doubt say, "Oh, dear! it is so long before Xmas and New Years will come again." It is not so with us older people; we find the years come around fast enough—too fast, indeed, for all the work there is to be done in them. You, too, will find it so when you are no longer boys and girls. "A Happy New Year!" How often, at the beginning of the year, do we speak that wish to our friends? A pleasant wish it is, but, if it is mere empty words, it doesn't make any one happy. We must follow up our words by deeds, if we would have our wish come to pass. We wished you a "Happy New Year," and we shall try, in our way, to contribute to your happiness. We don't see each other but once a month, but we will try to have a jolly time. I hope to have a large addition in membership to our circle, and, although I think you all take an interest in our puzzle department, yet, to make it still more interesting this year to our children, I will offer the following inducements: For the best aggregate collection of original puzzles sent in during the present year, I will give three prizes of 3, 2 and 1 dollars, respectively.

For the greatest aggregate number of answers to puzzles in this year's volume, three prizes similar to the above.

In addition to these I propose to give a prize of fifty cents a month, for the best original illustrated rebus sent us.

The puzzles, with their answers, must be sent in by the twentieth of each month.

Hoping that all my nephews and nieces will enter as competitors, and, again wishing you all a very happy and prosperous New Year, I remain, your

UNCLE TOM.

PUZZLES.

No. 1.—TWO ENIGMAS.

- 1.—First in butter, but not in cheese.
Second in burn, but not in freeze.
Third in virtue, but not in sin.
Fourth in needle, but not in pin.
Fifth in lie, but not in truth.
Sixth in Nettie, but not in Ruth.
Seventh in wagon, but not in sled.
Eighth in white, but not in red.
Ninth in narrow, but not in wide.
Tenth in run, but not in ride.
My whole is a town on a lake's fair side.

D. B. C.

- 2.—First in game, but not in play.
Second in evening, but not in day.
Third in knife, but not in fork.
Fourth in stopper, but not in cork.
Fifth in eyrie, but not in nest.
Sixth in labor, but not in rest.
Seventh in minutes, but not in hour.
My whole the name of a beautiful flower.

ALICE.

No. 2.—CHARADE.

My first is an animal spry.
My second is an animal spry.
My whole is an animal spry.

WILL A. METTE.

No. 3.—WORD SQUARE.

1. To improve. 2. A landed estate. 3. To follow. 4. Parts of speech. 5. To clothe.

No. 4.

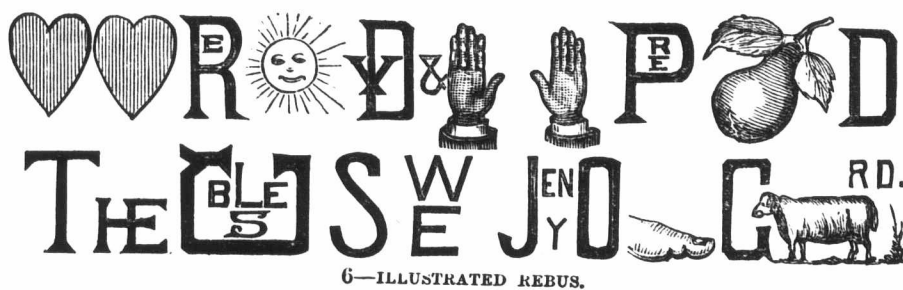
Whole I mean to pronounce a public discourse on religious subjects; behead and I mean to arrive at or to extend to; behead again and I mean either of the two or every one; now behead and twice curtail and I am a vowel.

No. 5.

Whole I mean to allow to admit or to bestow; behead and I mean to rave in high-sounding language; behead again and I am an insect; twice curtail and I am a vowel.

Answers to December Puzzles.

- 159—Cornwall.
160—1st Swell, well, ell.
2nd—Skull, kill, ill.
3rd—Trifle, rifle.
161—Wood.
163—To be or not to be, that is the question.
Whether 'tis nobler in the mind to suffer
The stings and arrows of outrageous fortune,
Or to take arms against a sea of troubles,
And, by opposing, end them?
165—Be content with small beginnings.



6—ILLUSTRATED REBUS.

Names of Those who have Sent Correct Answers to Dec. Puzzles.

Mary Fleming, Minnie G. Gibson, Sarah Miller.

A story is related of a Boston congregation that when they closed the church edifice to give the minister a summer vacation, a sign was put over the entrance reading: "No service or Sunday school in this house during the hot season." Some sarcastic wag drew on the door of the side entrance, in colored chalk, a picture of the devil, life-size and in full costume, horns, hoofs, tail and all, with the inscription underneath: "Not too hot for me here?"

Old Pete's wisest remark: "Ef de descendants ob de rooster what crowed at Peter was ter make a noise every time a lie is told dar w-uld be such a noise in de world dat yer couldn't heah de hens cackle."

Coming of Age—A Domestic Drama.—My Lady: "No, no, General, don't talk to me of school and college! There's nothing like home influence for boys. My precious darling has never left my side since he was born—just twenty-one years ago this very day, General—and he has kept the heart of a child, and never given me an hour's anxiety in all his innocent life!" The General: "Ah, he'll soon be wanting to marry the lady's maid, or something of that sort. See if he does not!" My Lady: "Good Heavens!" (To footman, who enters.) "Adams, where's Parker?" The footman: "She just stepped out for a minute this mornin', my Lady, to get some 'airpins, she said. But they do say down stairs as Master George were waiting for her round the corner with a four-wheel cab and a small porkmanteau. Leastwise, she never come home, nor Master George hasn't neither. Lunch is waiting, my Lady"—Punch.

Mother Shipton's year: "This has been a year of wonderful events," observed Mrs. Marrowfat to her neighbor, leaning over the railing that separated the front court-yards of the two houses. "Truly remarkable," chimed in Mrs. Phenix. "We have had storms and droughts, and comets and fires, and earthquakes and assassinations, and such like, until I'm dazed." "Indeed we have," added Mrs. Marrowfat, "and Mr. M. hasn't been to bed with his boots on since the first of January."

GOING TO THE DENTIST.—I like to come across a man with the toothache. There's something so pleasant about advising him to stuff cotton into the tooth, to use camphor, creosote, and peppermint, and I always feel better after giving it. I have had an aching snag, and I know just how it feels. It used to wake me up at night, and make me mad at noon, and set me to swearing early in the morning. I didn't meet man or woman but what they advised me. One said that a hot knitting-needle pushed down on the root was excellent; another said that opium was an excellent thing; and others said that it must be dug out by the dentist. I ate cotton, peppermint, camphor, and opium until I got black in the face. I put bags of hot ashes to my cheek, applied mustard, held my head in the oven, and the ache still ached. After the third week I decided to have my tooth out. I decided to, and then decided not to. I changed my mind four times in one afternoon, and at last I went. The dentist was glad to see me. He said that if he could not take that tooth out without hurting me he would give me a million. It got easier as he talked, and I concluded not to have it pulled. I started downstairs, but a jump caught me, and I rushed back. He said he would look at it; perhaps it did not need pulling at all, but he could kill the nerve. By dint of flattery he got me into the chair. Then he softly inserted

the knife, and cut away the gums. I looked up, and said I would kill him, but he begged me not to—said the cutting was all the pain there was in it. He finally got me to lie back and open my mouth, and then slipped in his forceps, and clamped them round the tooth. "Oh order order—order of order!" I cried, but he didn't pay any attention to it. He drew in a full breath, grasped the forceps tightly, and then he pulled. Great spoons!

but didn't it seem as if my head was going! I tried to shout, grappled at him, kicked, and then he held up the old snag, and said, "There—I guess you won't feel any more aching." I leaped down and hugged him; I promise him ten millions; I told him to make my home his home for ever; I hugged him again. I shook hands with everybody in the street, kissed my wife, bought the baby a dozen rattle-boxes in a heap, and it seemed to me as if the world was too small for me, I was so happy.—[Danbury News.

The lot of the Virginia schoolmarm is not a pleasant one. One of them has been "telling tales out of school," and thus relates her story: "It is the fashion in my school for notes to come to me from the parents, written on the children's slates. 'Sary Ann is not by no means to be let sit side of Uberia Tuck. The families be settin' horses at time present.' 'I would like Willy Anna to learn the panner. I hear you pick the chunes very clever.' 'I request of you to hold in my son Adoniram. He is a torrid child, and will get ahead of his health unless held in.'"

A DROPPED LETTER.—A peculiar sensation is felt in dropping a letter, especially if it is one of value, into the box of a post-office. One feels a sort of revulsion, as if a part of himself, as it were, had fallen into an unfathomable abyss, never to be recovered. This rot strikes the heart like destiny, irresistible for ever. If any error has occurred in the letter it is entirely beyond correction; if anything happens at the instant, as there sometimes does, which ought to make a change, there is no help for it. What is done is done, and past redemption. No repentance will avail. You would have something otherwise, but it cannot be. It is too late. The missive has passed away, and is no longer yours, or subject to your alteration or control. Beware, therefore.

A Judge's Charge, with Variations.

The following comes from Georgia, and its accuracy is vouched for by the stenographer who took it down:

Judge — was noted for the way he got mixed in his charges to the jury. On one occasion a case was tried before him the points of which may be briefly stated thus: Smith brought suit against Jones upon a promissory note given for a horse. Jones' defense was failure of consideration, he averring that at the time of the purchase the horse had the glanders, of which he died, and that Smith knew it. Smith replied that the horse did not have the glanders, but had the distemper, and that Jones knew it when he bought.

The judge charged the jury: "Gentlemen of the jury, pay attention to the charge of the Court. You have already made one mis-trial of this case because you did not pay attention to the charge of the Court, and I don't want you to do it again. I intend to make it so clear to you this time that you cannot possibly make any mistake. This suit is upon a note given for a promissory horse. I hope you understand that. Now, if you find that at the time of the sale Smith had the glanders, and Jones knew it, Jones cannot recover. That is clear, gentlemen. I will state it again. If you find that at the time of the sale Jones had the distemper, and Smith knew it, then Smith cannot possibly recover. But, gentlemen, I will state it a third time, so that you cannot possibly make a mistake. If at the time of the sale Smith had the glanders and Jones had the distemper, and the horse knew it, then neither Smith, Jones, nor the horse can recover. Let the record be given to the jury." — [Harper's Magazine.

AN UNHAPPY MORTAL.—Is the want of energy really both physical and mental? If so, it will require double treatment. What, again, is your age? You are probably young, for from seventeen to twenty-four young fellows find it difficult to settle down, and complain of drifting aimlessly through life. Again, are you in business? Has jealousy, emulation, love, ambition, never affected you? Any of these will find you an object and give you energy. A sword to be used must be previously sharpened. Is this "deadly torpor stealing over intellectual and bodily faculties" the result of bodily sin? Do you take opium? Are you criminally selfish in your indulgences and indolence? The very first step towards cure is to debate the matter and "have it out" with yourself. Of course you can be cured; fix that as a *sine qua non* in your mind.

"Where are ye living now, Moike?" "In Doengal street, number eleven. Come an' see me." "Faith, I will! Ought I to come be the airy, or be the front dure?" "I don't care; but as I'm occupyin' the garret perhaps it would be more convenient for ye to come in be the skylight."

De Yaller Chinee.

AS DISCUSSED IN THE CABIN.

He kin pick up a libbin' wharebber he goes
By wukin' de railroad an' washin' ole clothes;
He kin lib 'bout as cheep as a leather wing bat,
For he watches de rat market keen as a cat;
An' his board an' his rations is pretty rich free,
For a mighty smart cuss is de yaller Chinee.

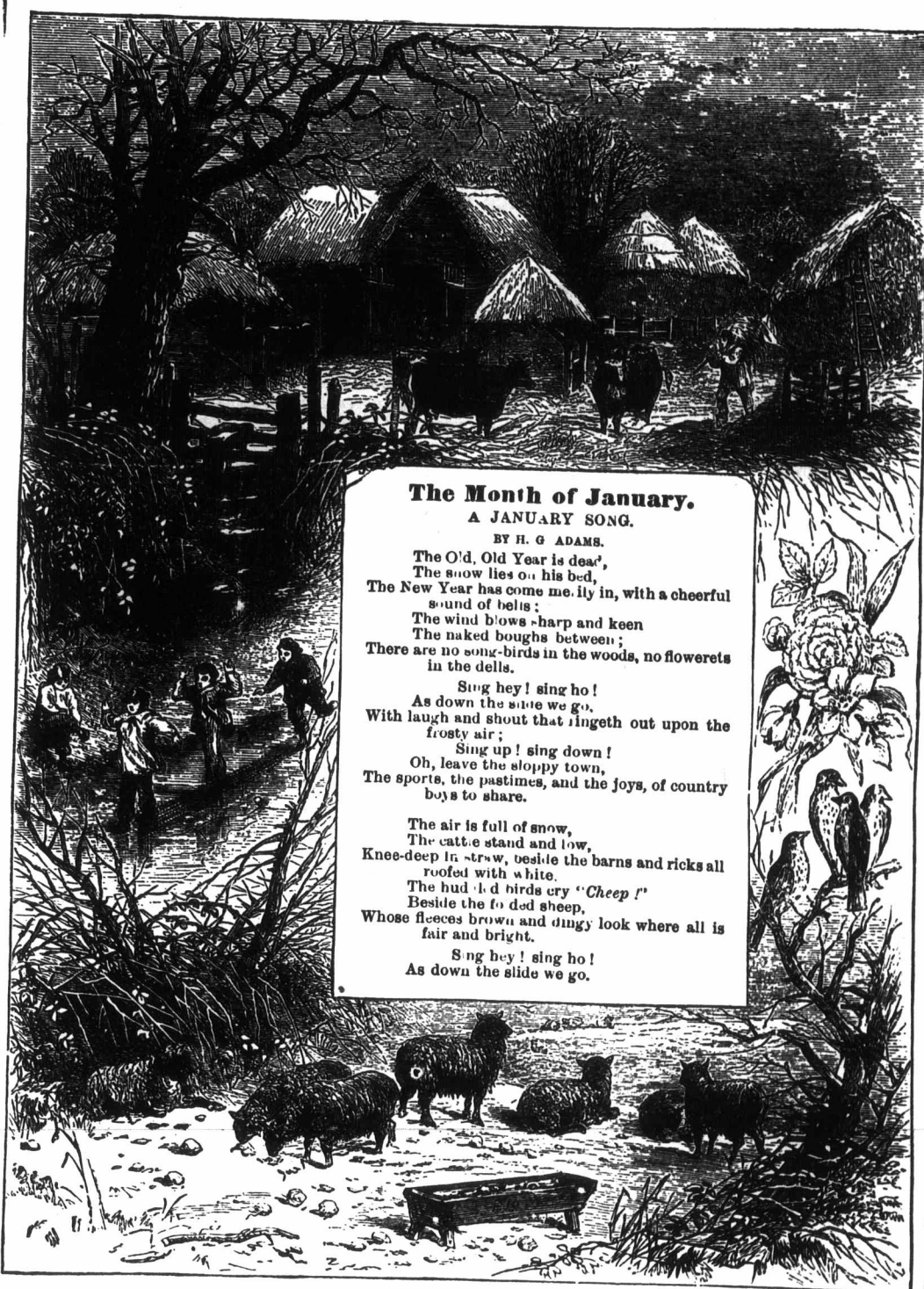
Den he's not gwine to keer whar you put him to stay,
An' his eatin' don't cost but a nick-el a day;
An' he won't gib a straw for de finest hotel,
When a slab-sided shanty wud suit him as well;
An' a empty old box, or a holler gum tree,
Is a big boardin' house for he de yaller Chinee.

To warm up his fingers an' git out de cole,
Dar's gwine to be a fuss in de family, sho'!
An' one ob de critters mus pack up and go;
An' de Chinerman's gwine to di-kiver right soon
Dat de rabbit can't lib in a stump wid de ocon.

When de wood-pecker camps on de morkin'-bird's nes',
You kin tell pretty quick which kin tusale de bes';
Dar's a mighty good chance ob a skirmish ahead
When de speckled dog loafs 'round de tommy-cat's bed;
An' dar's gwine to be a racket wuf waitin' to see
When de wukin'-man butts 'gin de yaller Chinee.

Facts About Fishes.

Much interest is now being taken by scientists in regard to the habits, instincts and emotions of fishes. Naturalists have generally accepted Cuyler's view, that the existence of fishes is a silent, emotionless and joyless one; but recent observations tend to show that many fishes emit vocal sounds, and that they are susceptible of special emotions, particularly such as regard for their young, attachment between the sexes and for locality. Among monogamous fishes there is often seen decided evidence of watchfulness over their young, in which the males not infrequently act an important part. Among nest building fishes the male often prepares the nests. Among some who do not build nests the eggs are carried about in the cheek hollows of the male. Cases have been noticed where male fishes have remained in the same spot in the river from which the female had been taken. A case is noted where, after a pair had been separated, both appeared miserable and seemed nigh unto death, but on being united again both became happy. In fish battles it is sometimes noticed that the conqueror assumes brilliant hues, while the defeated one sneaks off with faded colors, the change evidently being brought about by emotional feelings. There are certain classes of fish that are capable of a kind of organization for acting in concert for common defense or to attack a common enemy. The remark has been made which has of late attracted the breeding of fish has shown that as a matter of economy an acre of good water is worth more to a farmer than the same area of the best arable land. This subject, in all its bearings, is one that deserves even more attention than it has hitherto received.



The Month of January.

A JANUARY SONG.

BY H. G. ADAMS.

The Old, Old Year is dead,
The snow lies on his bed,
The New Year has come me-ily in, with a cheerful
sound of bells;
The wind blows sharp and keen
The naked boughs between;
There are no song-birds in the woods, no flowerets
in the dells.

Sing hey! sing ho!
As down the slide we go,
With laugh and shout that ringeth out upon the
frosty air;

Sing up! sing down!
Oh, leave the sloppy town,
The sports, the pastimes, and the joys, of country
boys to share.

The air is full of snow,
The cattle stand and low,
Knee-deep in straw, beside the barns and ricks all
roofed with white.

The huddled birds cry "Cheep!"
Beside the faded sheep,
Whose fleeces brown and dingy look where all is
fair and bright.

Sing hey! sing ho!
As down the slide we go.

An' he eats little mice, when de blackberries fail,
Till de har on his head gits de shap' ob a tail,
An' I know by his clothes an' his snuff culled face
Dat he cums fum a scrubby an' *one-gallus* race;
An' I's trabled a heap, but I nebber did see
Such a curisome chap as de yaller Chinee.

Dis country was made for de whites an' de blacks,
For dey hoes all de corn an' pays all de tax;
You may think what you choose, but the 'sertion
is true
Dat de *orf-cullud* furriner nebber will do;
For dar's a heap o' tough people fum ober the sea,
But de cussedest sort is de yaller Chinee!

When de bumble-bee crawls in de dirt-dobber's hole

Not to be trusted.—The Rector: "A gent'e-man I know slightly, is coming down from London, Farmer Groggins. Do you think you could board and lodge him for a while?" Farmer Groggins: "Oh, yes, sir." The Rector: "I believe you will find him to be an immensely studious and a deeply, most deeply, religious young man." Farmer Groggins: "In which case, begging your parding, sur, I expex my money in advance." — [Fun,

Stock Notes.

SIR,—I am a young man reading, with the expectation of becoming a farmer, agricultural journals, such as the FARMER'S ADVOCATE, Chicago L. S. Journal, and Country Gentleman. These last few months I have been studying the Canada Shorthorn Herd Book, with the view of ascertaining what may be considered perfect and imperfect pedigrees. Will you kindly publish my questions, with your answers, in the next ADVOCATE, whether I am correct in including the following classes of pedigrees as imperfect: 1—When one of the bulls before the imported cow has an asterisk or star prefixed, and one of the bulls with an American number after the imported cow with an asterisk makes it imperfect, and does it extend to all their descendants? 2—Undoubtedly all those called grades, with from four to eight crosses, beginning with the Canada mongrel cow, are imperfect. Will you kindly answer what you consider is the difference in value for breeding purposes between a four and an eight cross, where the pedigrees of the bulls used and the animals are of equal merit? 3—I find that in some imported cows where there is one, two, and sometimes three cows not registered at all, and usually directly after the imported cow—does this make them imperfect and also their descendants? 4—When a bull is recorded in the C. H. Book as having say five crosses and is used in Canadian pedigrees with American numbers, and an imported pedigree attached, would you consider it to be an improved pedigree? 5—Are those that are called the seventeen importations, ending in Mrs. Motte, by Adam, and others, considered defective and why? My sixth question relates to breeders and not to Shorthorns, and is a very delicate one. When a breeder is well informed in pedigrees and is breeding what he considers to be imperfect and sells them to parties who know nothing about pedigrees, would you consider him a perfect— I have left a blank for breeders themselves to answer, and not you.

Falkland, Ont.

MECHI.

I received a communication from the British American Shorthorn Association, enclosing copy of constitution and by-laws, but fail to see what benefit it is going to be to men who only keep a bull for service. The members are required to pay a fee of \$5, and an annual subscription of \$4 per year. Will you please answer in your next number of the ADVOCATE what benefit we will derive from the Association, and where this money goes and to what purpose put; and what is wrong with the other Herd Book? F. B., Princeton, Ont.

[We call the attention of the President, Vice-President or Secretary of the British American Shorthorn Association to the queries in these letters.]

J. C. Snell, of Edmonton, Ont., writes that the prospects for the British American Shorthorn Herd Book are very flattering. A large number of breeders have recently availed themselves of membership, and pedigrees are being sent in rapidly from all parts of Ontario, and many from Manitoba and Quebec. The office, 64 King St. East, will be a convenient resort for breeders visiting Toronto, and Col. Denison is always glad to welcome Shorthorn men.

SIR,—Please make the following correction of our report of cattle in your next issue, namely, the cost of feeding was \$30.00 per head for the last 6 months, instead of 3 months, as you have it, at the rate of \$5.00 per head per month. Also, our address is not Almira.

H. & J. GROFF, Elmira.

The following communication from J. B. Snider, of German Mills, must convince any one of the great demand for Percheron horses. When half-bred animals bring such prices, what will the pure-bred bring?

SIR,—Our sales since 1st of July have been as follows: To John Swisher, Fingal, Ont., one pair of two-year old mare colts, for \$400; G. S. Dickson, Cedar Hill, Ont., one two-year old stallion colt, for \$320; to Samuel Kline, Marion Centre, Kansas, also a two-year old stallion colt, for \$350; to John Kraft, Marion Centre, Kansas, a yearling stallion colt for \$200, making a total of \$1,270 for five colts, or an average of \$254 each. These colts were all got by our imported Percheron Norman stallion, Grey Hawk, and out of common Canadian mare. The two-year old stallions weigh 1,432 and 1,480 lbs. respectively. We have a great many enquiries for young stallions of this kind.

The most important stock sale that we have heard of to take place during this month, is that of Mr. Frank Shore, of Westminster. See advertisement. We have received one letter from a subscriber in New Brunswick stating he might possibly attend this sale.

Ayrshires are increasing in popularity and value. At the recent auction sale of this class of animals, held near Georgetown, Mr. Bessey realized good prices, ranging from \$100 to \$300 per head; the average being \$149. The sale realized \$3,200. Mr. A. C. Smith, of Emerson, Manitoba, was an active purchaser. Mr. J. B. Coles, of Woodstock, Ont., was not slow in gaining some good animals. Several other Canadians invested, and a few animals were purchased by Americans.

It affords us pleasure to call the attention of farmers, feeders and stockmen generally to the advertisement of the Thorley Horse and Cattle Food Co., Hamilton, found in another column of this paper. This food seems deserving of the high opinion entertained of it by many of the leading stockmen and breeders of Ontario and Quebec, as the highest prizes given for fat stock in the Dominion both in 1880 and '81 were carried off by animals that had been fed upon it. It was fed to the beautiful prize animals of Messrs. H. & J. Groff, Elmira, which won the FARMER'S ADVOCATE prize, and of which a cut appeared in issue of December (see their reference), and has won laurels even at the fat stock show, held in Chicago in November last. We understand one ton of the food has just been purchased at the Model Farm, Guelph, where it has been fed in increasing quantities for the past three years. It is well recommended also by the manager of the Prince Edward's Island Government Stock Farm. The company, we understand, paid \$400 in prizes during the past two years at the fairs in Ontario, and that they are generously offering the sum of \$600 at the leading fairs in Ontario and Quebec in 1882, which cannot but be productive of good results.

Commercial.

THE FARMER'S ADVOCATE OFFICE, }
London, Ont., Jan. 2, 1882. }

We think it must trouble the oldest inhabitant to recollect having previously seen a parallel for the unusual mild weather. Some one says it is 21 years, and another 56 years since such a green Christmas was seen in this part of Canada. Persons could sit comfortably out on verandahs and in summer houses on Christmas day. But all this, although a novelty, is not a desirable one. The weather is both unseasonable and unwholesome, and its effect upon business is not at all satisfactory.

WHEAT

Has passed through another month of quietness, and very marked contrast to that of some three months previous. Bad roads and lower prices have tended to keep back deliveries, so that there is no very great accumulation of stocks in this country. Many will wonder how it is that wheat can be moved from Chicago at the prices quoted, but this will be much easier understood when we explain that grain has been taken from Chicago to New York (all rail) for about 10 cents per 100 lbs.; whereas the rate from this city to New York is 27 cents. This is the effects of the cutting in rates by the railways. Messrs. King & Co.'s Toledo circular says:—

"Late private cables report that latest official estimates make wheat crop of France 15,200,000 bushels less than last year. They imported 61,000,000 during the year ending August 1st, 1881. The net imports of wheat and flour during August, September and October this year were only 10,913,000 bushels, against 19,617,000 bushels same three months last year. Their imports thus far would hardly confirm the report that their crop is 16,000,000 bushels less than last year, although the high prices of wheat may have restricted the consumption, and diverted it to other and cheaper food." H. K. Jackson estimates that the East Indies have a crop of 42,000,000 quarters of wheat. This quantity is so much

in excess of expectation that a Chicago firm cabled last week to a London house asking if those figures are credited. The answer was that they are probably correct for the total crop.

PEAS.

Holders still ask the high prices obtained last fall, and the result is that there is not much doing.

BARLEY

Has been very quiet for some time and stocks are pretty heavy in dealers' hands. Malsters and brewers contend that the price asked is too high.

CLOVER SEED.

Very little has been done in this article as yet, but we hope to see a move before long. Whether the English trade will take hold at present rates remains to be seen.

CHEESE

has ruled very quiet the past month. There is a good deal still unsold, although a large proportion of what is now held is not strictly fine. The cable is down again to 55 shillings for summer cheese and fine Sept. is quoted at 63 to 65 shillings in Liverpool. Stocks of cheese in London are estimated at 65,000 boxes, against 90,000 boxes at this time last year.

BUTTER

keeps in the same dull unsatisfactory state. The mild open weather has made butter-making quite practicable up to date. Stocks of medium butter are heavy all through the country.

POTATOES.

The "boom" in potatoes seems to have settled down to a quiet, legitimate trade. Considerable quantities of potatoes have been shipped from Liverpool and Glasgow to New York, and more are said to be on the way.

FARMERS' MARKETS.

LONDON, ONT., 31st December, 1881.

Wheat, Deihl .. \$2 10 to \$2 15	Lard, per lb. 14 to 17
" Red .. 2 11 to 2 15	Flax Meal .. \$8 50 to \$3 75
" Spring .. none offering	Rye .. none offering
Treadwell .. 2 10 to 2 15	Barley .. 1 50 to 1 65
Clawson .. 2 10 to 2 15	Timothy seed .. 2 50 to 3 00
Oats .. 1 15 to 1 17	Butter, per lb. 21 to 23
Peas .. 1 21 to 1 30	" tub .. 15 to 20
Corn .. 1 50 to 1 60	" crock .. 16 to 18
Hay, per ton .. 12 00 to 14 00	Eggs .. 20 to 23
Linseed Cake .. 2 01 to 2 25	Hops, 100 lbs. .. 21 00 to 30 00
Potatoes, bag .. 90 to 1 00	Wool .. 23 to 25
Honey, per lb. 20	Apples .. 40 to 60
Chesny, per lb. 12 to 12 1/2	Onions .. 75 to 1 00
Cordwood .. 4 00 to 4 50	Straw, per load .. 2 00 to 3 00
Geese, each .. 40 to 60	Turkeys, " .. 50 to 1 25

TORONTO, ONT., 31st Dec.

Wheat fall .. \$1 22 to \$1 24	Potatoes, bag .. 90 to 95
" spring .. 1 33 to 1 34	Apples, brl. 1 25 to 2 00
Oats .. 44 to 45	Butter, lb. rolls .. 23 to 24
Hogs, 100 lbs. .. 7 50 to 7 75	" dairy .. 18 to 20
Beans .. 2 25 to 2 50	Eggs, fresh .. 21 to 25
Peas .. 79	Wool, per lb. 23 to 24
Hay .. 9 75 to 14 00	Barley .. 78 to 87
Rye .. 85 to 86	

GRAIN AND PROVISIONS.

MONTREAL, P.Q., 31st Dec.

Wheat—	Cornmeal .. \$3 50 to \$3 50
Can. spring .. \$ 40	Butter .. 90 to 95
Red winter .. 1 43	East'n Tp's .. 18 to 21
White winter .. 1 39	Brockville and
Barley .. 63 to 70	Morrisburg .. 17 to 20
Oats .. 39	Western .. 15 to 17
Peas .. 86	Creamery .. 22 to 24
Flour car lots—	Eggs .. 20 to 25
Superior ex. .. 6 15 to 6 20	Lard .. 14 to 15
Superfine .. 5 95	Hams .. 13 to 14
Rye .. 85	Bacon .. 12 to 13
Oatmeal .. 5 10 to 5 25	Cheese .. 11 to 12 1/2

HALIFAX, 31st Dec.

Flour—	Extra State .. \$6 40 to \$6 50
Sup. extra ..	Cornmeal .. 3 93
Cheice .. \$7 25 to \$7 50	Yellow k. d. 3 80
Spring extra .. 6 75 to 6 80	Fresh ground .. 3 80
Strong baker's 7 30 to 7 50	Oatmeal, Canada .. 5 90

WHOLESALE PRODUCE MARKETS.

NEW YORK, 31st Dec.

Flour—	Rye .. 93 to 97
No. 2 .. \$3 20 to \$4 60	Eggs, State .. 29 to 30
Good .. 5 00 to 5 80	Potatoes .. 2 50 to 2 75
West'n ex. .. 7 25 to 8 25	Pork—
Wheat—	New mess .. 17 50
No 2 red .. 1 42 to 1 43	Lard .. 11 50
No 1 white .. 1 41 to 1 42	Butter .. 18 to 40
Corn—No 2 .. 70 to 72	Cheese .. 9 to 13
" yellow .. 70	
Oats—	
Mix. white .. 50 to 54	

CHEESE MARKETS.

Liverpool, Eng., Dec. 31, 6 p.m.
Per cable, 56s.

BOSTON, MASS., 31st Dec.	
Flour—	Butter—
Choice winter. \$3 00 to \$3 50	Creamery \$ 38 to \$ 40
Choice spring. 3 00 to 3 00	Dairy 30 to 32
Corn meal bbl. 3 15 to 3 25	Common..... 16 to 17
Oatmeal, bbl. 6 75 to 7 35	Cheese—
Oats, 55	Best factory... 12½ to 13
Wool—	Farm dairy... 11 to 12
Western fine... 41 to 42	Beans, pr bu.—
Pulled extra... 30 to 43	Hand picked. \$ 30 to \$ 35
Canada pulled... 30 to 40	Mediums..... 2 00 to 3 30
Combing..... 33 to 40	Common..... 2 50 to 3 00
Hay—	Potatoes, per bus. 75 to 90
Coarse, ton ... 21 0. to 22 00	Onions, per bbl. 2 50 to 3 00
Fine..... 14 0. to 15 00	Hops..... 99 to 99
Oat straw..... 9 00 to 10 00	

LIVE STOCK MARKETS.

Buffalo, N. Y., U. S. A., Dec. 30.

Carefully prepared statistics bearing on the Buffalo live stock trade show that the movement of 1881 was not up to that of 1880. The total receipts show a decrease of 3,236 car loads of cattle, 2,097 of hogs, an increase of 508 of sheep, and a decrease of 216 of horses; making a total decrease of 5,041 car loads. The total shipments eastward show a decrease of 3,518 car loads of cattle, 2,177 of hogs, an increase of 42 of sheep, a decrease of 223 of horses, forming a total decrease of 5,876 car loads of all classes of live stock. The cattle trade of the year just closed has been of a prosperous nature. Interior butchers have been liberal buyers, and probably a larger business has been done in that direction than during any former year in the history of the trade. The receipts of cattle from Canada show a marked increase as compared with 1880, being no less than 2,984 car loads, while the total number of loads coming to hand was 12,255. The class coming from the Dominion is known as stock cattle, and as all of them change hands in this market the trade is one of importance. In price they have ranged from \$2 to \$4 50 per cwt., with most sales at \$3 35 to \$4 35. Sheep and lambs—Buffalo is probably the largest receiving point for this class of stock west of New York, western shippers usually finding buyers for all kinds of stock. The trade is largely speculative, and on the whole has been remunerative. On the average the market for hogs has ruled \$1 50 to \$2 per cwt. higher than in 1880; the trade has at times ruled fairly active, stimulated as it frequently has been by the presence of Philadelphia and New York buyers, a number of whom are located here. There has also been a steady local demand on the part of three or four packing firms who kill the year round.

Montreal, Dec. 29.

The supply of cattle at Viger Market to-day was small, coming about 100 to 170 head, among which only a very few could be classed as good stock. Two butchers left the market to-day without buying, on account of the offerings not being suitable for their trade. Two of the best steers on the market were sold at 8c per lb. live weight, but the run of sales was on medium to fair grades at 4c to 4½ per lb. Common stock sold at 3c to 3½ per lb., a lot of six lean 2-year-old cattle selling at 3c to 3½ per lb. The offerings of sheep and lambs were small, numbering only some 70 or 80 head, sales of which transpired at \$3 to \$4 25 for lambs, and at \$4 to \$5 50 for sheep, but the latter were very ordinary. Dressed hogs remain steady at \$8 to \$3 25 as to quality, notwithstanding the bad weather for handling.

IMPORTANCE OF RICE.

The Indian rice is the staple article of food for many millions of population, and besides the enormous consumption of it there, there was exported from four ports from January 1 to October 31, 1881 874,200 tons, equivalent to 6,993,600 tierces of 280 pounds each. During the same time London and Liverpool received 283,309 tons, distributed 230,592 tons, and had on hand October 31, 123,191 tons, and afloat for three months 139,950 tons, making a visible supply of 263,141 tons, equivalent to 2,195,128 tierces. If a pound of rice is equal to two pounds of wheat as an article of food, the exports from India for ten months are equivalent to the supporting value of about 65,000,000 bushels of wheat.

LONDON VIEW OF WHEAT.

The London correspondent of the Financial Chronicle, under date November 19, says: The most important feature in the grain trade this week is a quiet sale for wheat, caused by the large quantities which are now coming forward from Calcutta and Bombay. It appears that Indian growers and merchants were under the impression that, by holding, prices should become more remunerative; but now that the quotations have declined, there is more desire to sell, and liberal shipments are being made. The mildness of the weather also contributes very considerably to the inactivity of the trade. Produce is still being shipped freely from Russian ports, and there are very strong indications that we shall be amply supplied with foreign produce during the winter months. Millers therefore are by no means inclined to purchase in excess of their actual requirements, but there is no pressure exhibited to sell on press sales.

AUCTION SALE OF THOROUGHBRED STOCK. On the 7th February next there will be sold by Public Auction, on Lot 16, Wilmet Township, Waterloo County, the following Thoroughbred Stock, viz:—16 cows and heifers, and 6 bulls and bull calves. Subscriber's premises are four miles from Baden Station, on the G.T.R. Parties attending sale will be conveyed to and from the station. JOSEPH Y. SHANTZ, Haysville, Ont. 193-a

A Meat Diet.

It is generally conceded by the majority of poultry breeders that a meat diet is essential during cold weather, when worms, bugs and insects are not to be found by the birds. But though considered necessary to atone for the lost insect food, it should be used sparingly.

In winter and early spring, to keep up egg production, the fowls must have something to work on. The best way to supply them, if there is not enough of waste meat scraps from the breeder's table to meet the required demand, is to get scraps from the butcher or slaughter-house. The waste

meat, offal and the bloody pieces which are un-saleable can be bought for a cent or two a pound.

The best way to utilize these scraps and to render them more digestible and nutritious is to cut them into fine pieces, put them into a boiler with plenty of water, and boil them until the bones separate from the flesh. Then stir cornmeal into it until it makes a thick mush, season with salt and pepper, and cook till done. Feed this when cold to the poultry and they will eat it with evident relish, and you have a most excellent food which will keep during cold weather.

Our experience is in favor of cooking the meat. It goes further, is more nourishing and less injurious if over fed than in a raw state. Sheep's heads, shanks, livers and bone pieces can be utilized in this way and the soup mixed in with meal or scalded wheat and seasoned to suit. Young fowls should be fed sparingly with flesh; meat, grain and cooked vegetables is the best staple food when properly varied.—[Poultry Monthly.

BEST SEEDS GROWN

For sale at the Agricultural Emporium, 360 Richmond St., London, Ont. Send for Price List. We buy and sell none but the best seed procurable. We aim to give satisfaction to all. Address PEARCE, WELD & Co., London, Ont.

READER! If you love **RARE FLOWER** choicest only, address, ELLIS BROTHERS, Keene, N. H. It will astonish and please. **FREE.** 193-a

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ONE TON (2,000 lbs.)

Thorley's Improved HORSE AND CATTLE FOOD!

Was on Dec. 7th shipped to the Model Farm, where it has been largely fed for the past 3 years. The fact of the free and continually increasing use of our FOOD at an Institution where things are never done at random, but where experiment and investigation are always made with the utmost care, and on scientific principles, we shall allow to speak for itself.

For sale in all Principal Places.

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(Agricultural Emporium)
360 RICHMOND STREET,
AGENTS for LONDON.

Manufactory 48 John-St. South, Hamilton, Ont. 193-d

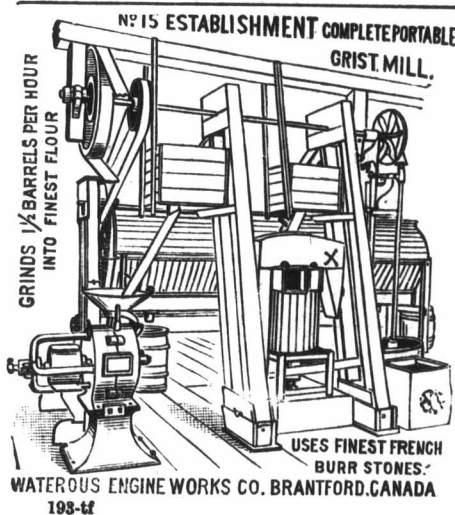
Good Reliable Men Wanted!

in every Township in Ontario, to take orders for the sale of

Fruit Trees and other Nursery Stock.

Address, with references, ALEX. PONTEY, 193-t St. James' Park P. O., Ont.

NEW ADVERTISEMENTS.



BEST WHEAT

GRAZING LANDS ARE FOUND ON THE Northern Pacific R. R. IN MINNESOTA, DAKOTA, AND MONTANA.

BIG CROP AGAIN IN 1881

LOW PRICES; LONG TIME; REBATE FOR IMPROVEMENT; REDUCED FARE AND FREIGHT TO SETTLERS FOR FULL INFORMATION, ADDRESS R. M. NEWPORT, GEN. LAND AGT. ST. PAUL, MINN. MENTION THIS PAPER. 193-y

HANSEN'S DANISH LIQUID BUTTER COLOR!

SELF-BANDAGING CHEESE HOOPS All royalties paid. Inventors and Manufacturers of very best Cheese and Butter Apparatus. Twin Creamers more Cream and Butter than any others. Simple CHEESE EXTRACT makes finest Skim-Milk. Silos, &c. New Circular.

Thirty Highest Prizes, three Gold Medals at World's Fairs. Vegetable oil. Colors the finest butter made in Europe. Fast superseding all other Coloring in America. Does not color the buttermilk. Butter beautiful, greatly enhances value. No alkali. Dozen bottles, directions, free to druggists or dealers. HANSEN'S LIQUID CHEESE COLOR. LIQUID EXTRACT OF RENNET. No Manufacturer or Repacker can afford to neglect Danish preparations. GANG PRESSES, Farmers and Factories. Winning in all Tests. Yields valuable. Acid Buttermilk and Skim Milk saved. Artificial Cream. Visit our Model Creamery, Barns, WHITMAN & BURRELL, Little Falls, N. Y.

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