

FARMER'S ADVOCATE

AND HOME MAGAZINE.

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THE FARMER'S ADVOCATE

—AND—
HOME MAGAZINE.

WILLIAM WELD, EDITOR AND PROPRIETOR.

The Leading Agricultural Journal Published
in the Dominion.

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Our Monthly Prize Essays.

CONDITIONS OF COMPETITION.

- 1.—No award will be made unless one essay at least comes up to the standard for publication.
- 2.—It is not necessary for essayists to agree with our policy, so long as they give sound reasons for differing from us.
- 3.—The essays will be judged by the ideas, arguments, conciseness and conformity with the subject, and not by the grammar, punctuation or spelling, our object being to encourage farmers who have enjoyed few educational advantages.
- 4.—Should one or more essays, in addition to the one receiving the first prize, present a different view of the question, a second prize will be awarded, the sum being decided by ourselves in each case, and the essay will appear in the same or in a succeeding issue.

Our prize of \$5.00 for the best *Criticisms on the General Purpose Barn*, has been awarded to Frank Howell, St. George, Ont. The essay appears in this issue. The objections made to the plan by all the essayists will be commented on in a future issue.

A prize of \$5 will be given for the best original essay on *How should the Farmer Treat his Hired Men, and how can he Employ them most Profitably?* Essays to be handed in not later than April 15th.

A prize of \$5 will be given for the best original essay on *What Out-door Work should Farmers' Wives and Daughters Perform?* Essays to be handed in not later than May 15th.

Editorial.

On the Wing.

We contemplate taking a trip to the Colonial Exhibition, to be held in London, England. We also hope to visit Scotland and Ireland, and to be able to furnish you with information that may be of interest and profit to you.

We had a conversation with the Commissioner of Agriculture in Toronto, also with the Minister of Agriculture at Ottawa. We find that some changes and increased expenditures are contemplated in regard to agriculture. You will hear of them through partisans and the political organs. We expressed our views to both of the above officers, disapproving of most of the contemplated expenditures. They say they are recommended by their advisers, and by the people. We advised caution in laying too great a stress on the opinion of office-holders and office-seekers, or of journals published in party interests. We would most willingly aid these gentlemen in their plans, if we were satisfied that the majority of the farmers in any township would endorse them. After a fair explanation we believe that both these gentlemen would be willing to advance the interests of the farmers if they could do so, but we fear that the interests of party stand before that of agriculture, and that both of these gentlemen are bound to support their respective parties; that these parties both consist of too many that are elected for or do regard the interests of cities and monopolists more than the interests of agriculturists.

The little good done by government agricultural expenditures is greatly over lauded, and the injury done is too closely concealed. Reactions from booms do more harm than booms have done good. Some expenditures are being boomed too strongly. It is not additional grants that the farmers want; it is the proper expenditure of the moneys now granted. We informed the Commissioner of Agriculture that we considered the interest of agriculturists would be better served by a reduction of the expenditure.

During the past month we were in some of the townships in the Province of Quebec, and conversed with several leading farmers there. In one township a meeting was held, and the general feeling appeared to be that instruction and information were needed for the farmers, and that it could be imparted to advantage by instructors that were similar to the inhabitants—men who really knew their requirements and were able to impart information in an unassum-

ing manner. The existing system of imparting agricultural information was considered by all as of very little good, by some of no good to the inhabitants of that Province. The expenditures that had been made to introduce beet culture and the introduction of artificial manure, were considered as useless. The agricultural schools were considered of very little benefit, and the Government literature was thought to be of very little value. It was considered that a tax on stock animals would not be popular, and that the power of saying what animals should or should not be used would be very apt to be used injudiciously. It was considered that township exhibitions should be encouraged and the farmers encouraged to assemble and talk over agricultural matters, and brought into competition to improve their products. The system of giving prizes to the same individuals every year for over-fed stock was not approved of. The controllers were considered to be looking more after their own advantage than that of producers. One intelligent person said that some of the professors were a combination of impudence and ignorance, and working for their personal interest, and that the voices of producers should be more regarded than those of office seekers. Another well informed person said that some students had been sent to the Agricultural College, at Guelph, and that they returned to their parents, to whom they were of more expense and of less use than they otherwise would have been.

At Montreal we had a private conversation with Mr. Hickson, the Manager of the G.T.R., which we trust will be found beneficial to you as well as to the company. We also had a conversation with another leading railway authority, who complains of the acts of some very unscrupulous agents of Dakota lands; he says they waylay intending settlers and poison their minds by false statements about the advantages of their lands, terms, etc., and falsely depict our Canadian lands. Many have been misled by these means, to the very great injury of the settlers and of our country, as many of the poor dupes are fleeced of the little money they have, or what the sharpers can get from them. He instanced one case where a lot of one hundred settlers were duped at one time by these false allurements, and actually taken from our borders. After having been put to the expense of going into Dakota and spending a lot of their money, they returned to Canada disgusted with the trap they had been led into. We would advise our readers to examine into the real state of affairs before they are misled.

The Farm.

Spring Tillage Operations.

Those who paid attention to the directions given by us last fall will have their heavy soils plowed, and as much of their remaining land as possible. The disintegration and pulverization of clayey soils take place both in winter and in summer; in winter by the action of frost and in summer by ferment of the vegetable matter in the soil. This action is promoted by tillage; in the fall by exposing the soil to the more effective action of frost, and in spring by making the soil porous, thereby admitting the air, which acts on the organic matter. Vegetable or organic matter is only acted on by warm air, aided by moisture, which causes its decomposition, the escape of the gases promoting the decomposition of the small particles of rock found in the soil.

If heavy soils are plowed in spring, it will now be seen that the plant food on the surface, manufactured by the winter frosts, will be buried too deep for the use of the young plants, and the vegetable matter plowed down in the fall will be brought to the surface when it is least wanted. It is important that the vegetable matter (either from stubble or manure) should be thoroughly mixed with the soil, and this object is best accomplished by the cultivator and the harrow. The fact that coarse unfermented manure has the effect of loosening stiff soils has led to the impression that this kind of manure is best for such soils, and although it often produces beneficial results, the results would be more beneficial if the soil were loosened by other means—such as drainage, thorough tillage, the application of ashes or other fine manures, thoroughly incorporated with the soil. Coarse manures cannot be thus incorporated, and they act disadvantageously by obstructing the movements of soil moisture. The greatest amount of tillage should be directed against the uncleanest fields; by doing so, a minimum quantity of manure will be required. On clean land, if the soil is in the right mechanical condition, very little tillage is required.

If there is not time in the fall to do all the plowing, the soils left for the spring should be more of a lighter character. Vegetable soils, which are least benefited by the action of frosts, are much benefited by spring tillage, the soil being made porous for the admission of air, which has a decomposing action on the vegetable matter. These soils can usually be worked earlier in the spring than undrained clay. However, sod land, when plowed in the fall, can be made mellow in spring, and more plant food is made available for the growing crop. Sandy soils may be plowed at almost any time, and the amount of tillage may be mainly regulated by the quantity of weeds in the field. Such soils require heavy manuring, and the manure should be kept near the surface, else it will wash down too deeply, beyond the roots of the plants. The main effects of tillage on the various classes of soils are different. It makes heavy soils mellow, poor soils richer, and dirty soils cleaner. A fine texture or a proper mechanical condition is often quite as necessary as the supply of plant food.

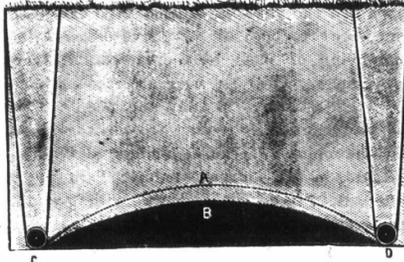
The roller, when not used in the proper time and place, may produce more injury than benefit. Its chief uses are to make a fine seed bed by pulverizing the surface of heavy soils, to compress light soils, and to prevent the too rapid evaporation while the soil is loose by closing many of the surface pores. It is possible, however, to keep out too much air by rolling. Clays should therefore not be rolled when wet, especially when they are not harrowed afterwards. The roller may be advantageously used in rolling winter wheat that has been heaved by the frost.

Farm Drainage.

No. VIII.

How the water enters the drain.—Before you can comprehend how the tiles should be laid and the trenches filled, it is necessary to understand how the water enters the drain.

The dark portion of the accompanying illustration, B, represents the undrained soil, the portion above being drained, the still lighter parts directly above the tiles C and D, representing cross sections of two drains and the shape which they have been cut. It will thus be seen that the pressure of the water is under the drain, not from the top. This curve is called the water-table or line of saturation.



CROSS SECTION OF DRAIN.

Let us now suppose that a shower of rain falls; when the particles of the drained portion of soil become saturated, the surplus water falls to the water-table, which rises, say to A. It will now be seen that a larger portion of the joints between the tiles receives the water, and that a smaller fraction of the soil is drained. Moreover, it illustrates the benefit of deep drains (providing the objections which we have already mentioned do not apply), for in shallow drainage the portion of line of saturation which lies between the drains may be so near the surface as to materially damage the roots of the crop. It also illustrates the advantages of placing the drains sufficiently close together; for the farther the drains are apart the higher will be the curve of saturation, and a smaller portion of the soil will be drained. We are now also placed in a position to understand why smaller tiles are required in a deep drain; for there is less water to be carried off on account of there being more soil to be saturated, and as the water is acted upon by a greater pressure, more will be carried off in the same length of time than in a shallow drain. In the long run, deep drains are preferable in the stiffest clay; for, although they may not give satisfactory results for several years, yet they become more and more porous as time advances, and eventually produce excellent results.

It must not be supposed that the water-table in all classes of soils presents the same curve. In a porous soil the line of saturation sinks, in dry weather, near the level of the drain floor; while in a stiff soil it presents a higher curve, extending nearer the surface of the soil, and leaving more soil undrained between the drains. Take the accompanying illustration, for instance; if the soil is heavy the curve A would represent the water-table, while in a more porous soil it would sink to B, the other conditions being the same. The water-table is constantly descending towards the floor when there is no rain, but the descent becomes slower as time progresses, until the water-table is raised again by a fresh supply of water.

Laying the tile and filling the trenches.—The best form of a trench is that represented in the accompanying illustration, viz., gradually narrowing until the bottom is no wider than the diameter of the tile. But special drainage tools are required for digging this kind of trench. The special advantage is that the tile is not so apt to move laterally out of its place as in wide-bottomed trenches, where the packing of the earth around the tiles is likely to be done unevenly by careless or inefficient workmen. Another important consideration is, never thrust the spade into the ground below the bottom of the trench, for the loosening of the soil may cause the tile to sink in these places. An efficient drainer should therefore be employed for scooping out the bottom of the drain. In digging the trench, throw the fine compact soil on one side, and the coarser soil on the other. In this way suitable soil will always be convenient for placing over the tiles. The digging is usually commenced at the outlet.

In laying the tile, commence at the higher end, and, unless the soil is a stiff clay, a brick is usually placed on edge against the bank closing the opening of the first tile. The tiles should be placed as closely together as possible, for there will always be opening enough at the joints to receive the water. The water does not soak through the tiles, as some suppose, for so long as there is ample space at the joints to fill the drain, no calculation should be made for water entering the body of the tile. If the soil is fine and silty, special care should be taken to procure tiles with smooth, evenly-cut ends, so that the joints will not be too open for the admission of silt. In such soils it is a common practice to cover the portion of the joints which lies upwards, thereby preventing the ingress of silt from above. However, if the fall is considerable, and the tiles small enough to allow the drain to run at times to its full capacity, this practice need not be followed, for the sediment will be washed out, and when the soil becomes settled around the drain, the loss of silt is reduced to a minimum. Where it is necessary to cover the upper portion of the joints, sods should never be used, as is the practice amongst some farmers, for decaying vegetable matter should never be placed near the tile; it keeps the soil too open where it should be most compact, and furnishes a supply of silt to choke the drain. Tanned paper, tea-chest lead, scraps of leather, and clay moistened to a doughy consistency, have all been used with success.

In filling the trenches great care should be taken that the earth is packed evenly on both sides of the tile when the trench is dug with

spade, the bottom being wider than the diameter of the tile. The most skilled workmen should perform this duty. The finest and most compact soil should be packed beside and over the tiles. When the bottom of the trench is narrow, the tiles may be laid by standing on the tiles already laid, first covering them with a few inches of earth.

Direction of the drains.—Where practicable, the drains should always go directly down the descent, even when the fall is great. If the tile is small enough no danger need be apprehended from the effects of the velocity of the flow. In such cases, however, the flow should be straight and smooth as possible. Drains at ordinary distances apart cannot be expected to work to the best advantage unless the highest point of the line of saturation lies midway between the drains. In oblique drains, when the distances apart are, say 50 feet, then the water must flow 50 feet laterally through the soil, whereas it would have to flow only half this distance if the drain were cut directly down the descent, and the pressure of the water into the drain becomes weakened. Another objection to oblique drains is that any obstruction is apt to cause the water to leak out.

Experiments with Potatoes—Potato Rot—Profits and Losses on Fertilizers.

(A Lecture delivered by W. A. Macdonald before the Middlesex Agricultural Council.)

No. III.

The remaining rows were devoted to the testing of different varieties of potatoes and different methods of cultivation, no manure or fertilizer having been applied. The results of different methods of planting, noted in bushels per acre, are given in the following table:

TABLE SHOWING THE RESULTS OF DIFFERENT METHODS OF PLANTING.

	Total Yield.	Percentage Rotten.
Trench system—4 inches deep..	265	16
" " 6 " " "	275	14
" " 12 " " "	150	8½
Hoe culture	187	13
" " hilled up	214	17½
" " flat	178	15

The first item in the table is the average production of the three unmanured rows which I already mentioned, the trenches having been dug with the spade. The next differed only in the potatoes being planted six inches deep instead of four inches, and you see that deep planting resulted in a yield of 10 bushels per acre over and above the shallower planting. The potatoes in all these rows were planted whole and 18 inches apart; but those in the third row mentioned in the table were planted 12 inches apart, 4 inches deep, and cut to one or two eyes. Observe the insignificant yield; but there was a great advantage in the percentage rotten—not much more than half of that in the rows where the potatoes were planted whole.

The first row mentioned in the "hoe culture" was the ordinary system of planting, viz., opening a shallow trench with the hoe and covering the potatoes about 3 inches deep, leaving the surface of the ground flat. In the second row, the trench opened with the hoe was very shallow, but the ground was hilled up, covering the potatoes about 3 inches deep; while in the third row the trench opened with

the hoe was about 4 inches deep, and the ground was turned back until the surface was level. In these rows the potatoes were planted whole and 18 inches apart. Observe that the differences in the yield are considerable; but I attribute the inferior yield of the flat culture row mainly to the wet season and the undrained soil; under reverse conditions, it is quite probable that the yields would also be reversed. By "flat culture" I mean that the rows were never hilled up. The variety planted in all these six rows was also the Beauty of Hebron.

The following table gives a list of the different varieties which I tested, and the yield in bushels per acre, with percentages rotten, of each variety, no manure having been applied. The ordinary hoe system of planting was employed, the potatoes being planted whole and 18 inches apart:

TABLE SHOWING THE RESULT OF EIGHT DIFFERENT VARIETIES.

	Total Yield.	Percentage Rotten.
Early Rose	213	29
Belle	200	37
Mammoth Pearl	254	26
Clarke No. 1	263	9
Morning Star	300	16
White Star	233	10
Early Ohio	225	22
Early Gem	282	9

I should add that I tested another variety, but as I only had seven potatoes, I have not included it in the above table. The variety is quite new and unknown, and is called the Bronze King, having been originated by Mr. E. W. Chambers, of Oxford county, and is a cross between the Early Rose and the Garnet Chili. It proved perfectly rot-proof, but succumbed to the blight before the tubers were fully grown. The quality is excellent. I believe it is worthy of a place amongst our leading varieties, but should be further tested.

In comparing the trench system with hoe culture, I am convinced that it pays to use the spade instead of the hoe, providing the soil is inclined to be stiff, and I attribute the superior yield in the trench system to the mellowing of the seed bed, which is a matter of great importance in potato culture. There is a superstition abroad that a vegetable soil is best for potatoes; but it is not because the soil is *vegetable*, but because it is *mellow*, and when a clayey soil is spaded into a mellow condition, it produces a better yield than any other soil. Vegetable matter has just the kind of nutriment which potatoes don't need, while clay soils are usually rich in potash—just what potatoes like to feed on. However, by special manuring and cultivation, any soil can be made suitable. Moreover, I am convinced that 50 bushels per acre—the quantity of seed which I used—is nearer the mark than 10 or 12 bushels, as is the ordinary practice. I used the rate of 12 bushels per acre only on one row, where the potatoes were cut and planted 12 inches apart, and the table shows that the yield was very inferior. However, when the land is cheap and the potatoes dear, I would not always recommend so intensive a system of culture: per potato, the yield can be increased by cutting to one eye; but there will be a heavy loss in the yield per acre.

The largest yield of potatoes which I have ever known was about 1300 bushels per acre; but the conditions were then all favorable. If my soil had been drained, I might have profit-

ably used about four times the quantity of fertilizers, or say 1200 to 1600 pounds per acre. You may here denounce me as speaking about market gardening and not about potato culture for farmers; but I assure you my object is to find out whether the farmer can grow his potatoes more profitably in the garden than in the field. It is a question of spade versus plow. In field culture a fair average is 150 bushels per acre, while by the intensive system 750 bushels per acre can be as easily assured; in other words, if 150 bushels are the quantity to be raised, one-fifth of an acre will be sufficient, being a saving of four-fifths of an acre of land, and I question if more labor is required to raise 150 bushels on the intensive system. It will require two days for one man to dig the trenches on the fifth of an acre; but the remaining labor will be less than by the extensive system. It stands to reason that an ordinary application of manure or fertilizers will produce more profitable results on a fifth of an acre than when scattered over a whole acre of land.

TABLE SHOWING COST OF PRODUCTION OF ONE-THIRD OF AN ACRE.

Dr.	
Plowing and harrowing	\$ 1.25
Digging trenches, planting, etc.	10.50
Fertilizers	1.15
16½ bush. seed @ 30c	4.95
Hoeing (3 times)	7.50
Paris Green 20c., applying same 50c.70
Digging and picking	8.80
Assorting and putting in cellar	2.25
Total	\$37.10
Cr.	
By 55 bushels @ 50c	27.50
Total loss	\$ 9.60

I paid \$3.00 per day for man and team; \$1.25 for a man, and \$1.00 for a boy. I have not charged interest and taxes because the price of the land has sufficiently increased to cover these amounts.

With so many obstacles to contend with, it would have been a miracle if I had produced a gain. The soil was worn out, only about one-half of the rows was manured, and these should have received about four times the quantity of fertilizers which I applied, had the soil been drained; the season was wet, the potatoes suffered from rot, and the blight struck them before the tubers matured. After lying in a pit for two weeks before they were put into the cellar, ten more bushels were found to be rotten, leaving only 55 bushels of marketable potatoes out of a total yield of 80 bushels, having also removed a few bushels of unmerchantable size; but up to the end of January only a bushel and a half rotted in the cellar, and the remainder is now all perfectly sound.

I have not yet lost courage in my scheme of intensive farming, and believe that the farming of the future must take this direction, whether in the field or in the garden; and if one acre can be cultivated most profitably on the intensive scale, the same principle will apply to the whole farm. I now know what my soil requires, and how to restore its fertility most cheaply, and this knowledge will cover, many times over, all the loss which I sustained in my experiments.

My favorite variety is the White Star. It is the only variety which withstood the blight, and a very small percentage suffered from rot. It is medium with respect to earliness, the quality is excellent, and very few other varieties are superior to it as a yielder. This is not my own experience alone, but also that of

many others who have tested this variety, and Mr. Geo. Nixon, of Hyde Park, informs me that it is the best amongst 40 varieties which he has been testing for several years.

The Rot-proof Potato.

Last year Mr. E. W. Chambers, of Woodstock, Ont., informed us that he had raised a seedling potato from a cross between the Early Rose and Garnet Chili, which he had tested for the past three years, and that he considered it a most valuable potato for our country. He stated that they were most rampant growers, of good quality, enormous croppers, and the best keepers he had ever seen; that he never found a rotten potato among them; that they did not get soft and shrivel up like his other potatoes in the spring, and that they are rather later than other varieties. He wished us to test them; this we consented to do, and sent a few to our son's farm, having some planted in this city, and placing some with others to be tested. Mr. Chambers also placed some with leading potato growers in the county. Every report corroborates the statements made regarding them. They have been tested in Middlesex and Oxford against the different leading varieties, on clay and on sandy soils, and in every instance they have excelled all others in resisting the rot. No potato that we have yet heard of appears so promising or desirable at the present time, now that the potato rot has become so prevalent and is so rapidly extending. Last year one person lost many thousands of bushels, and many thousands of farmers have had their crops materially shortened and some almost destroyed. Should this potato rot increase as fast the next two years as it has the past, the potato crop will be in a bad plight. The propagator calls his potato the Bronze King, from its reddish bronze appearance. It is inclined to be of an oval shape, of medium size, the eye moderately indented; it has a few white spots.

Mr. Chambers has a very high reputation as an enterprising and honorable farmer in his county. He was the President of the Ontario Fat Stock Exhibition the past year, and is the Vice-President of the Oxford Agricultural Society. We have every confidence in him and his potatoes, and have secured a few to present to our subscribers who send us in one or more new subscribers. We would advise you to plant a few of these potatoes even if you have to present the *ADVOCATE* to some friend to procure them. The sample is not as large this year as usual, on account of Mr. Chambers' business causing a neglect in the busy season, but will be found just as valuable for seed. (See advertisement.)

The condition of the woolen goods trade is regarded as satisfactory, old stocks are well cleaned off the markets, and all the mills are fully employed on profitable orders, says the National Stockman and Farmer. This healthy condition of the trade in woolen argues well for the wool trade the coming spring, and if no outside influences affect the business a better feeling will animate sheepmen and better prices will be realized.

Agricultural and Arts Association.

A meeting of the Board of this Association was held in Toronto on the 10th and 11th ult. Mr. Henry Parker was elected President, and Mr. J. C. Snell, Vice-President.

The President said the Association was stronger than ever, and quoted the authority of an M. P. P. to substantiate his statement. The Secretary's report was made up chiefly of evidence of a similar character. He (the Secretary) boasted that London never had, and will not have for some time to come, such a magnificent exhibition as the last Provincial, and yet, he said, some of the citizens of London were mean enough to get up a deputation to wait upon the Commissioner of Agriculture to talk about dividing the grant amongst the agricultural associations. He also criticised the attitude of the *ADVOCATE* with reference to the Provincial, especially in suggesting that the authorities should mend their ways. As evidence that they have no ways to mend, he pointed out that the Legislature had cheerfully voted their grant from year to year, with little or no opposition. There is just as much logic in saying that this action of the Legislature proves that the grant is manipulated by a pack

breeders to control their own business, and prevent its getting muddled up with the Government. The Board has a large number of herd books which they cannot dispose of, and they generously propose to donate them to the agricultural societies. The Board is against the Government giving more encouragement to the agricultural societies, and yet it offers donations from itself. These societies should feel too proud to convert their premises into dumping grounds for Government rubbish.

Mr. Joshua Legge deserves the gratitude of the farmers for his efforts to prevent the butterine men from overrunning this country with their vile stuff, thereby locking up our markets against genuine butter. It appears that a butterine factory has commenced operations in Montreal, and Mr. Legge proposed to petition the Dominion Government to pass stringent laws; but he afterwards interviewed the Provincial Government to ascertain what action they could take. We believe the matter is still pending.

A committee was appointed to look into the liens which the Association held against various properties, which notably includes their right to hold exhibitions on the Toronto grounds, and the relation of the Association to the London grounds, which have been sold.

The Board's educational scheme for last year cost \$313.50. Circulars were broadcasted all over the Province to the number of 10,000, the result being that only 28 students presented themselves for examination. The prize farm scheme has extorted \$251.65 from the public chest. Another boom, viz., the fat stock show, cost \$385.92. Fortunately, no invitations have been received for next Christmas, and this sum may possibly be saved. This expenditure does more injury than the cost of all other schemes combined.

The Secretary presented, in his report, an account of his visit to the Chicago Fat Stock Show, and the

second annual convention of the International Association of Fairs and Expositions, held in Indianapolis, Ind. It is evident that the Board is coming into more intimate relation with the stock boomers on the other side of the line, and the future effects are not hard to forecast.

The Agricultural and Experimental Union.

This organization, composed of students and ex-students of the Ontario Agricultural College, held its regular annual meeting in Guelph on the 11th and 12th ult. We sent a representative of the *ADVOCATE* to take notes of the proceedings. A few farmers attended, and the number of ex-students was small. Most of the time was spent in the discussion of matters pertaining to the College and Farm, in which the critics of the Institution were severely handled.

An organization of this sort should receive every encouragement, for the hope of our agricultural industries depends largely upon the organized efforts of our young farmers. We are sorry to say, however, that the Union is based on a bad foundation, and in its present state cannot merit the confidence and respect of the farming community. It proclaims itself to be an independent organization, and yet it receives money from the government for printing its literature, and the requisites for conducting its experiments are also supplied from the public exchequer. We fail to see that its reports are of sufficient consequence to merit



THE BRONZE KING POTATO.

of speculators and other suckers upon the Government's udder. It is hoped that the new act granting them more power will help them to mend their ways. It is a shame and a disgrace that the report should occupy so much space in their own laudation, scarcely a score of lines being written about agriculture proper.

The report gives the following registrations for 1885: Shorthorn, 1,868; Ayrshires, 212; Polled Angus, 36; Herefords, 7; Devons, 13. Of horses the number of registrations were: Clydesdale, 160; Shires, 46. Of hogs, 229 Berkshires and 21 Suffolks were registered. The registration receipts amounted to \$1,879.75, and \$286 were received from sales of their herd books.

The report urged the patrons of the Clydesdale Book to organize an association in affiliation with the Board, and have their first volume published. They had been compiling for three years, and had now 700 pedigrees ready for publication. The Clydesdale men should hesitate before they unite with an organization which has brought so much disgrace upon the Canada Shorthorn Herd Book. The Clydesdale breeders should wait at least until the Board mends its ways. We would advise these

these favors from the government. We cannot see how any organization can act independently so long as it is in receipt of public moneys. It is the universal experience of all such unions that they bow to the wills of their political masters.

The *ADVOCATE*, having dared to criticize the mismanagement of the Model Farm, received its share of abuse. Mr. R. F. Holterman, an ex-student, moved that the representative of the *ADVOCATE* be turned out of the building. His motion, although not seconded, received an outburst of applause. If the motion had come from an ordinary member, we would have passed it unheeded as being a mere gush of youthful enthusiasm, but Mr. Holterman holds an important office in the Union; he would always be taken for a man and often for a gentleman. There are organizations supported by their own funds, and we do not deny them the right of holding their sessions with closed doors; but we most emphatically demand the right to enter the sittings of any organization supported by public funds. We deem it one of our most serious duties to look after all agricultural expenditures, and if the members of the Union cannot see the matter in this light, they should take counsel from abler authorities.

Items from Manitoba.

Mr. Samuel Grigg, proprietor of the Grigg House, London, Ont., whom we recently interviewed concerning his experience in Manitoba, furnishes us with interesting and reliable items about that Province. In 1881 he visited the west with the hope of recruiting his health, and being favorably impressed with the country, he purchased land from the C. P. R. in the township of Elton, near Brandon. He paid \$2.50 per acre, with a rebate of \$1.25 per acre for improvements, and commenced farming operations in 1882. He says that unimproved land in his locality would now sell rapidly for \$6 to \$7 per acre, and improved land would bring \$10 to \$15.

The land is rolling, untimbered prairie, the soil being a vegetable loam with a clay subsoil; the native grasses, nearly a dozen different varieties, are luxuriant and nutritious, and make a superior quality of food for dairying or fattening purposes. The hay mowed in the sloughs will fatten stock in winter without the addition of grain or other food. For breaking the prairie, heavy teams of horses and oxen are in good demand, the former bringing \$300 to \$500 per team, and the latter \$125 to \$150.

Last summer he had 225 acres under crop, but has now 300 acres broken. His last year's yield was 30 bush. per acre of wheat, weighing 64½ lbs. per bush.; oats 60 bush. per acre, and his barley was a fine crop. His wheat was Red Fyfe, although the White Fyfe and the Golden Drop also do well in that locality. The Maine or Potato oat is the most popular variety. All this work was performed by two men, two boys, one yoke of oxen and two span of horses. Spruce and poplar wood for fuel is obtained from the Government free, but has to be hauled 20 miles, and brings \$4 per cord in Brandon. Good coal from Medicine Hat can now be had for \$8 per ton.

In the Chater market, where he sells his products, wheat brings 74c. per bush.; oats average 25c., but he has sold a good quality for seed for 32c. The frost, which came last season on Aug. 23, did considerable damage, but this was unusually early, it not being usually expected before Sept. 7-10. Wheat sowing commences about April 20, and seeding is usually over by May 10. Seeding can be safely begun before the frost is out of the ground. Farm laborers can readily procure \$25 per month in summer, and \$15 to \$20 in winter. He considers that any industrious man with \$1,000 capital can make an excellent start in Manitoba. Fruits have not yet been sufficiently tested to form an opinion with regard to them.

In speaking of the trade in Brandon he informs us that the average receipts of wheat at the elevator for three months were 10,000 bush. per day, the highest receipts for one day being 19,000 bushels.

Mr. Grigg has great confidence in the future of Manitoba, and thinks that existing drawbacks will in time be overcome. He speaks highly of the healthfulness of the climate, and his own health has very materially improved since his residence in Manitoba.

Cheap and Simple Hand Seeder.

The accompanying illustration represents a convenient device for sowing seeds. It consists simply of a cylindrical shaped tin can, such as those used for canning fruits and vegetables, and can be had at any grocery store, to which is tied a piece of strong brown paper in the shape of a cone. The upper end of the can is open, but the bottom is pierced with several holes of different sizes. Plugs are made to fit into these holes, and if the seed to be sown is small, a plug of corresponding size is taken out in order to allow the seed to drop into the drill through the paper; if the seed is large a large plug is taken out.



This can is usually of a size by which it can be conveniently grasped by the hand, and the attached brown paper should be of such a length that the person sowing the seed can walk along beside the drill without stopping, the point of the seeder reaching near the ground. The seeder should be constantly shaken as the sower walks along, and the seed as it is heard rattling against the paper is the indication that the machine is working properly. It is surprising what a large quantity of ground can be gone over in a day with this simple arrangement, and there will be no complaints about aching backs.

PRIZE ESSAY.

Criticisms on the General Purpose Barn.

BY FRANK HOWELL, ST. GEORGE, ONT.

The two important points to be considered in building a barn are cost and convenience. Which of these is the more important depends on the extent to which the former may be affected by the latter, and the amount of capital a farmer may have to invest in this particular line. Following these two points, and subject to one or both, come size, shape, durability of material, etc. With regard to the shape of the barn under discussion, we know that a circular barn will give more room than we can get from any other shape with the same amount of wall. Following closely upon this comes the octagon, and we find that even a square barn has the advantage over one of an oblong shape in this respect. For my own part, I would prefer an octagon to a circular barn, as angles can be constructed more cheaply than circles, and they are more convenient in some respects.

With regard to size, I would much prefer confining the basement of the main barn to the shelter of the majority only of the stock, and such implements as a farmer might have occasion to use in all kinds of weather, and to which he could attach the horses without leaving shelter, such as buggies, cutters, etc. The smaller buildings should be built so as to serve the double purpose of effectual shelter for the remainder of the stock and implements, and the protection of the barnyard (which should always be on the south side of the barn) from too much exposure to the winds from the east or west. They could be built in direct communication with the larger barn, making it possible to feed all the stock without going outside; and, if the hand-car be a necessary article, the track might continue from the main barn to the farther end of the smaller ones, although the bulk of the food for the smaller stock (excepting any fodder which may require to be cut) could be deposited just where it would be most convenient to be thrown in to the stock. By this arrangement the barnyard could be accessible from each of the stables or pens, which is as it should be. The poultry-house could have a yard at the south, and also on the east and west sides if required. The sheep could have a dry, open shed in one of the buildings facing the barnyard, which would be quite sufficient for

them; the pig-pen could also be in the same building, and a few extra stalls of some sort. The building on the opposite side of the barnyard could have one end for implements, and the other end might be open on the south and the side opposite to the barnyard, and be used for sheltering wagons, sleighs, or other implements which might be used almost daily.

But any ideas which may be thrown out in this essay on the arrangement of stables, etc., are to be confined to criticisms of the plan given in the illustration of the model barn. With regard to the adaptation of this plan to the system of boiling the food in winter and soiling in summer, I would state that we need only consider the latter point. It has been shown by actual experiments that food loses a certain amount of its nutritive value in the process of cooking; and, if this be true, and no advantage in cooking be found to counter-balance this loss, then the cooking must be condemned. Of soiling, however, I would take a more favorable view. The idea of soiling seems to be growing in favor, and it would be necessary to discuss this subject here, were it not for the fact that any plan of the barn which suggests itself for this purpose is just the one required for feeding fodder in the winter. In favorable weather, whether in summer or winter, the cattle should have their fodder out-doors. Let me specify what I mean by "favorable weather." There are days, even in winter, when the cattle are more comfortable outside than they would be if inside. When the air is warm, and the sun shining brightly, it is a luxury for them to get the benefit of the fresh air; and the benefit which they will derive from this source will more than repay any loss of food from trampling it under foot. I have seen horses shivering in the stable when it was quite comfortable on the sunny side of the barn. This was in a common frame stable, but, although a stone stable is warmer, it is also damper. A favorable day in summer would be when not too hot, and the flies not too troublesome. But by all means give the stock the benefit of the sunshine, which is so conducive to health.

Now as to the means of getting the food to the stock. As before stated, your plan should answer for either soiling or winter feeding. As the fodder is above the cattle in the winter, so it should be taken to the barn floor in the summer; and, by all means, let the food go directly to the mangers. Why handle it twice, when once handling will do just as well? The stables for the cows and horses should be in such a position that a space directly over the mangers may conveniently be left clear in order to have trap doors in the floor. These trap doors should be just wide enough to cover the tubes leading to the mangers, and they may be made of such a length as to be easily lifted by a ring fastened in each one. The tubes should be about 2½ x 2 ft. at the top, and about 3¼ x 2½ ft. at the bottom, this shape giving the food a better chance to work its way to the bottom. Each tube of this size will serve for each two head. Those for the cows should have no bottom, but should have a partition below in order that one cow may not disturb another; those for horses should have a bottom, and should have only a small hole in each side, just large enough for a horse to reach his nose in and get a good bite. This is a great preventative of waste, and is also a clean way of feeding.

Now comes the question of water. Right here we have one instance where the comparative importance of cost and convenience depends upon the amount of capital at the disposal of the farmer. I would infer from your illustration that you would have the cistern below the level of the ground, and carry the water from the pump to the stock by means of pails. If a farmer had much stock to water in this way it would incur a great amount of labor; but, by investing more money, he could have this arranged in a very convenient way. In the first place, I would have a large tank placed with the bottom about a foot or two above the ground, and in a part of the basement where it would be most out of the way. At a distance of two or three feet from this tank I would place a smaller one, with a pipe of some sort leading from it, below and level with the

ground, and branching off in front of the different kinds of stock. In the corner of each stall, and behind the feeding tube before mentioned, there should be an upright spout, with the top widened sufficiently for the animal to drink with comfort. This spout should be provided with a lid, in order that the stock may be watered when required, or be allowed to get it at their pleasure. The smaller tank should hold sufficient water to force each spout full, and should be filled from a tap at the bottom of the larger tank. This tap should have attached to it a weight just heavy enough to close it if not resisted in any way, and also a strong cord, which should pass upward from the tap, over a small pulley, thence horizontally toward the smaller tank, over another pulley, and, falling directly over the centre of the tank, be attached to a "float," which should be heavy enough to raise the tap with the weight attached. The float should be placed so that it will allow the tap to close only when the smaller tank is full.

The management of the manure now demands our consideration. If there be a sufficient surplus of straw over and above what is required for feeding, this alone should be used for litter (being first cut), and any muck, leaves, or anything of that description that may be preferred, should be used only for making composts. We will suppose, however, that muck is used as an absorbent. In that case the manure thus made should by all means be placed in a heap and left to ferment, and thus prepare itself to be of use as food for the soil. The balance of the manure should, if possible, be taken directly to the field and scattered over the surface of the ground or snow, as the case may be. The application of properly prepared manure to the soil in winter has been found to be more beneficial than a similar application would be in the spring, and if applied in the fall it is better still. It is also an economy of time to draw out the manure in the winter when one is not so busy as during the summer months. I like the idea of using a tank for the liquid manure if no absorbents are used, but would have as much as possible taken up by absorption.

It seems to me to be a great waste of room in having the hand-car track wide enough for a wagon to pass through. I see no advantage in it whatever, as anything that is required to be put into the different departments can be put there through the floor above; and the space would require to be not only wide enough for the wagon, but to allow for the turning of the horses in passing around the building; but the hand-car might be found quite convenient if properly made, and the track kept in good condition.

You seem to have located the granary in as good a position as could have been chosen; but, in any other than a general purpose barn, where room must be economized, I would have two granaries, one above the other; by this means the grain could be dropped from each bin, through a spout at the bottom, directly to the fanning mill below. No extra room will then be required for cleaning in the granary above.

I would have the open shed exchange places with the shop and shed for implements. The horses would then be convenient to both wagons and implements, and the shop would be nearest to any repairing that might require to be done. This would make the open shed somewhat smaller, but the room for implements should be larger than given in the plan.

The arrangement of the feeding departments seems to be good. The passage next to the bull stall should face the south, so that the horses and most of the cattle could get the most possible light from the noon-day sun.

It is rather doubtful if the ventilator proves sufficient either for light or air without some places of access for the air to the ventilator through the basement from the outside. It looks as though the inner part of the basement would be rather dark, with no more provision for light than is given in your plan; however, we cannot expect it to be as light in a basement of any kind as it would be in a stable above ground.

American Silver and Indian Wheat.

In a recent issue we pointed out the hopelessness of our position as a wheat growing country, unless a revolution took place in the international trade policy of this continent. *The Week* discusses the question in its relation to American silver, the following article being taken from its issue of March 11:

The sudden and almost total loss by the United States of its export trade in wheat is due mainly to the decline in silver and to a tariff that requires England to send gold to pay for American wheat, while India and other countries take her goods in payment. Other causes there are,—the rising competition from our North-West among them,—but the two we have named are the principal; and they have been for some years in operation, although the culmination of the effect has only now suddenly become developed. Silver coin passes at its face value in India; but as it is at fifteen per cent. discount in England, the shipper of Indian wheat, in selling his produce there for gold, has a profit of the premium on gold over the silver currency he uses to make his purchase with. This amounts to a bonus of about fifteen cents per bushel, which the politicians of the States are paying—at the bid of the Silver Ring—to the wheat-growers of India; the artificial stimulus to the production of silver in the States afforded by its compulsory coinage, as a prime cause of the decline of silver, has taken twenty cents off the value of every bushel of wheat raised in the country. Under this favoring circumstance, and notwithstanding the extra cost of transportation, India, which in 1884 contributed fifteen per cent. of the wheat imported into the United Kingdom, contributed last year forty-five per cent.; while the contribution of the United States sank from fifty per cent. to fifteen per cent. The two countries have thus changed places; a fact which is not without significance to our North-West and to Ontario. While the balance of trade was against the States, and England and Europe could pay for their imports of wheat and other food supplies, or raw materials, in manufactured goods, the States, by reason of their industrial advancement and facilities of transportation, could undersell the world; but since this balance of trade has been in favor of the States—a state of things which began in 1879—and England has in consequence been obliged to ship gold to settle the balance, the States not taking her goods, it has been her policy, in order to keep gold in Europe, to encourage the production of not only wheat, but also all other food products of India and Australia. Protectionists in the States are thus not merely closing foreign markets to American farmers, but are moreover fostering the industries of their rivals. And is not Canada doing very much the same? By our added protectionism, the commercial face of Europe is set wholly against this continent. While the price of the wheat grown in our North-West is beaten down twenty cents per bushel by lobbyists at Washington, we aid them by shutting our doors to European trade, although to pay our debts we must sell Europe our grain at whatever price it will fetch.

Temperature of germination. — Mr. Hellriegel has undertaken, in a series of experiments on eighteen species of cultivated plants, to ascertain the lowest temperature at which seeds are capable of germinating. The seeds, sprinkled with distilled water, were planted in large receptacles filled with vegetable mold that were raised to constant temperatures of 45°, 40°, 35°, 30° and 25°, and kept there from thirty-five to sixty hours. It was found that rye and winter wheat germinated at 32°. Barley and oats showed their cotyledons at 32°, but did not start till 35° were reached. Indian corn required 48°. The turnip germinated at 32°, flax at 35°, the pea and clover at 35°, the bean and lupin at 38°, asparagus at 35°, the carrot at 38°, and the beet at 40°. The respiratory function requires little heat, and operates even in the entire absence of light. Heat and light are, however, most favorable for the assimilation of carbonic acid and its conversion into carbon. But little importance is attached to the color of the light.

The Dairy.

Prospects of Ontario Butter.

BY M. MOYER, GEORGETOWN, ONT.

Canadian butter men have every reason to feel encouraged with the results of their efforts in improving the system of butter making and the introduction of the creamery business. Only a few years ago we were assailed by all sorts of arguments that the country was not suitable for butter making, and that we could never expect to take a high stand as a butter producing country. Experience has proved that our natural facilities are unsurpassed, and that it lies all in our power to make Ontario one of the leading butter, as well as cheese countries, in the world.

Since the great North-west and India are sending their wheat into the market cheaper than we can, our farmers feel alarmed; but I am inclined to think that the low price of wheat only drives us into a more remunerative branch and a system of farming which our country requires. Our soil is so exhausted through continual cropping that a change is necessary. Had wheat growing continued to pay, we would no doubt have kept on raising, or trying to raise wheat, until the consequences might have been serious. Butter making just suits the circumstances of the country, and it must be a matter of delight to the farmers to see how rapidly the butter industry is being developed, and that our prospects of profitable farming are as bright as ever. All ideas that circumstances are not favorable to butter making must be abandoned, when we are told by our friend in England, who handles our butter, that Canadian creamery butter stands higher in quality than the American, and compares very favorably with the best from the continent.

When we take into consideration the short time since we introduced the creamery system, and the hard name our butter had in England, nothing could be more gratifying to those engaged in the business than to hear such reports. This should encourage every farmer to support the enterprise in every possible way. Even if our butter compares well with other butter, it must be remembered that it has to be sold as Canadian butter. So long have we sent to England only inferior butter, that there is such a prejudice there against Canadian butter that they buy it very cautiously, and with a great deal of suspicion, and at prices below the value of its quality. Time will overcome that trouble, if we act wisely, and entirely change our system and not ship any more bad butter. If we don't learn to do this through our own enterprise, we will learn it when our butter is no more wanted as human food, and becomes unsaleable. Every bad lot of butter going over there means a few cents off each pound made in this country. To raise the standard and reputation of our butter therefore requires united effort and our influence in every possible way to break up any system of making, buying or shipping which retards progress, and encourage every effort to improve in every line.

The old fashioned way of setting milk in shallow pans should at once be discontinued. It is impossible to make fine flavored butter where the milk is exposed to the influences of the air. There are a great many who do not

agree with me on this point, but time will enable them to shake off their attachments to old habits and free them from prejudices, and then they will agree with me. The unnatural custom of trading the butter through our stores all at the same price, to be mixed with 500 different varieties, should be done away with. This has, perhaps, more to do with the bad reputation of our butter than anything else. As the price depends on the reputation of the butter of the whole country, I see no way through which we can make our butter making pay, except through the creamery system. Here all the butter is made alike, and all will get the benefit of it. As the creamery prospers, so each individual butter maker in the country will be benefited—not only those who are patrons, but also those who are not. With all the weaknesses of the creamery business and its difficulties, it may already be said to be a grand success. A few years more, with the generous co-operation of the farmers, will overcome its difficulties and troubles, and the country will derive its principal harvest from it. Let every farmer, and every lover of good butter, work and act as though success depended on how he does his own duty.

There is a prevailing impression that if we made all our butter good, there would be so much of it that the quantity would reduce the price. Some good butter makers even think that it is to their advantage when others do not make as good butter as they do. This is a great mistake. I am satisfied that even in our own country three times the quantity of butter would be consumed if the quality was better. Let the travelling public speak who are stopping at the hotels, whether ten of them as a rule eat as much butter as one would if the butter was good; and the hotels generally keep as good butter as can be had.

If we, as a country, make a better butter, we will raise the price, increase the demand, fill our pockets, and make ourselves happy.

Comparing Creams with their Percentages of Butter Fats.

The notion is quite prevalent that cows which produce small percentages of cream by volume in their milk should be discarded, giving place to those which produce large percentages. It is well known that the percentage of cream is no reliable guide, but it is hardly ever expected that extraordinary differences are very apt to occur.

The "Scotch Agricultural Gazette" publishes an article from James Long, a dairy expert, in which he gives the following figures:—

Per cent. of cream.	Per cent. of fat.	Per cent. of cream.	Per cent. of fat.
2.00	2.93	16.00	2.76
16.00	4.93	5.00	3.46
13.00	3.16	14.00	2.97
12.00	2.94	17.50	2.51
4.50	4.37	11.50	2.64
20.00	3.67	6.50	4.10

Here the percentage of cream from the milk varies from 2 to 20, and the variation in the percentages of butter fats is but very slight. Comparing the first analysis with the second, it will be seen that the latter has eight times more cream than the former, while the percentage of fat is not doubled. In another case, where the milk shows 20 percent of cream, the fat is actually less than where there is only 4.50 and 6.50 percentages of cream.

These figures should set our creamery farmers a-thinking. The practice of dividing the proceeds of the butter according to the volume of cream delivered to the factory would be a fine thing for the slovenly farmers; but the thinking farmer will not knowingly enrich his stupid, poverty-stricken neighbor in this manner; he will unquestionably prefer making him a present of the money, thereby gaining a reputation for generosity. If the difference is so great in one breed, where is the virtue of pedigree, where like is supposed to produce like? Is it the like of 20 percent of cream or 2 percent? We question if our native stock, a mixture of all breeds, could produce so great a discrepancy.

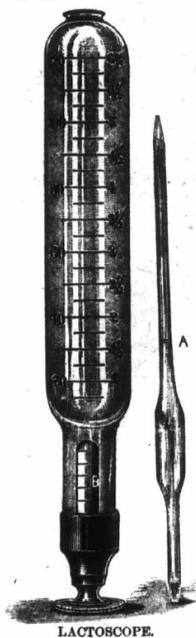
New Method for Testing the Quality of Milk for Butter and Cheese.

Although we still adhere to the position which we took last summer, that the very best quality of butter can only be made in private dairies, yet we desire to encourage the co-operative system all we can, for private dairying will be too limited for a long time to come, and in co-operative creameries an excellent and uniform article can be made, enabling us to compete successfully with rival countries in the world's markets.

We have pointed out the difficulty in securing ample justice to the patrons of the creamery on account of the differences in the butter-producing capacity of the cream from a variety of herds. In the co-operative system the cream must be collected, not the milk, so that the method of analysis should apply to the cream, as the milk cannot easily be reached for analytical purposes.

Herewith we present an illustration of a lactoscope, which we think will remove the difficulty. It is photographed from a lactoscope kindly furnished us by Prof. W. Saunders, of this city, who is the Government analyst for this division. He has tested the accuracy of the instrument by comparing the results with those made by chemical analysis, and he assures us that it is exceedingly accurate. It is constructed strictly on scientific principles, and being the invention of a German Professor, the quantities of water and milk used are given in cubic centimetres.

The small glass tube to the right is filled with milk up to the mark A. This is done by dipping the lower end into the milk; the upper end is then placed into the mouth and the milk drawn up until it reaches the mark A. This measure is four cubic centimetres (nearly a dessert spoonful). By placing the finger on the upper orifice of the tube, the milk is prevented from running out of the other end until it is poured into the lactoscope from above. Water is then poured into the instrument and thoroughly mixed with the milk. B is a small white-colored elevation which stands inside of the glass, and there are five black lines distinctly marked on it. Water is poured in until the milk becomes so transparent that these black marks can be faintly seen through the liquid. The figures on the right now show the percentage of butter that can be made from the milk, and the figures on the left indicate the quantity of water that has been poured in. For example:—If the black marks cannot be seen until the liquid reaches the figure 4, then 100 lbs. of the milk will produce four lbs. of butter, and 80 cubic centimetres of



LACTOSCOPE.

water have been added to the milk. It is easy to conceive that the greater the percentage of butter fat in the milk the more water will be required to bring the milk to a certain transparency. But it may be asked, What has the percentage of fat to do with the quantity of cheese which the milk will produce? and What has the analysis of the fat in the milk to do with the cream? It is now well understood that the fat in milk cannot be sensibly increased without at the same time increasing the total solids, so that the percentage of fat may be taken as a measure of the cheese producing qualities of the milk, and is sufficiently accurate for all practical purposes. There are now three things to be considered, viz.: The percentage of fat, the total solids, and the specific gravity, any two of which being known the third may be easily calculated. The specific gravity can be easily ascertained, also (by the lactoscope) the percentage of fat, whereby the total solids can be computed or found by reference to tables made for this purpose.

With regard to the testing of cream, we have found that the instrument works quite accurately, but the standards of fat marked on the glass do not apply. The standard volume of cream required to make a pound of butter is 113 cubic inches, or two inches of thickness on the cans in ordinary use, but the extraordinary variations from this standard is the cause of the injustice of the existing system of co-operative dairying. Now, if this standard were used in the lactoscope tests, whereby cream of this density (113 cubic inches to the pound of butter) could be made to correspond to a certain figure marked on the glass, the relative qualities of the cream from different herds could be easily ascertained.

We are still prosecuting the enquiry and comparing the results of our investigations with the German standards. There is great need for such investigation, both for the cheese factories and the creameries, the injustice to the patrons in the one being as great as that in the other.

The lactoscope is only 9 1/4 inches in length and 1 1/8 inches in thickness, so that it can be easily carried in the pocket, and an analysis can be made inside of a minute. The milk or cream can be tested before the eyes of the patrons, and there will be no necessity for one party depending upon the honesty of another. By this method of analysis, the same herd can be converted from cheese to butter, or from butter to cheese. No matter what standard the breeder has aimed at—for butter or for cheese—for in either case each patron is paid according to the percentage of fat in the milk of his cows, and receives nothing for the water it contains, as is the case under the present system. Encouragement will thus be given to liberal feeding and good breeding, instead of the profits of the more intelligent patrons being measured by the quality of milk produced by the poorer herds.

Mr. T. D. Curtis is authority for the statement that last year 60,000,000 pounds of bogus butter was put on the market, most of it as genuine dairy product.

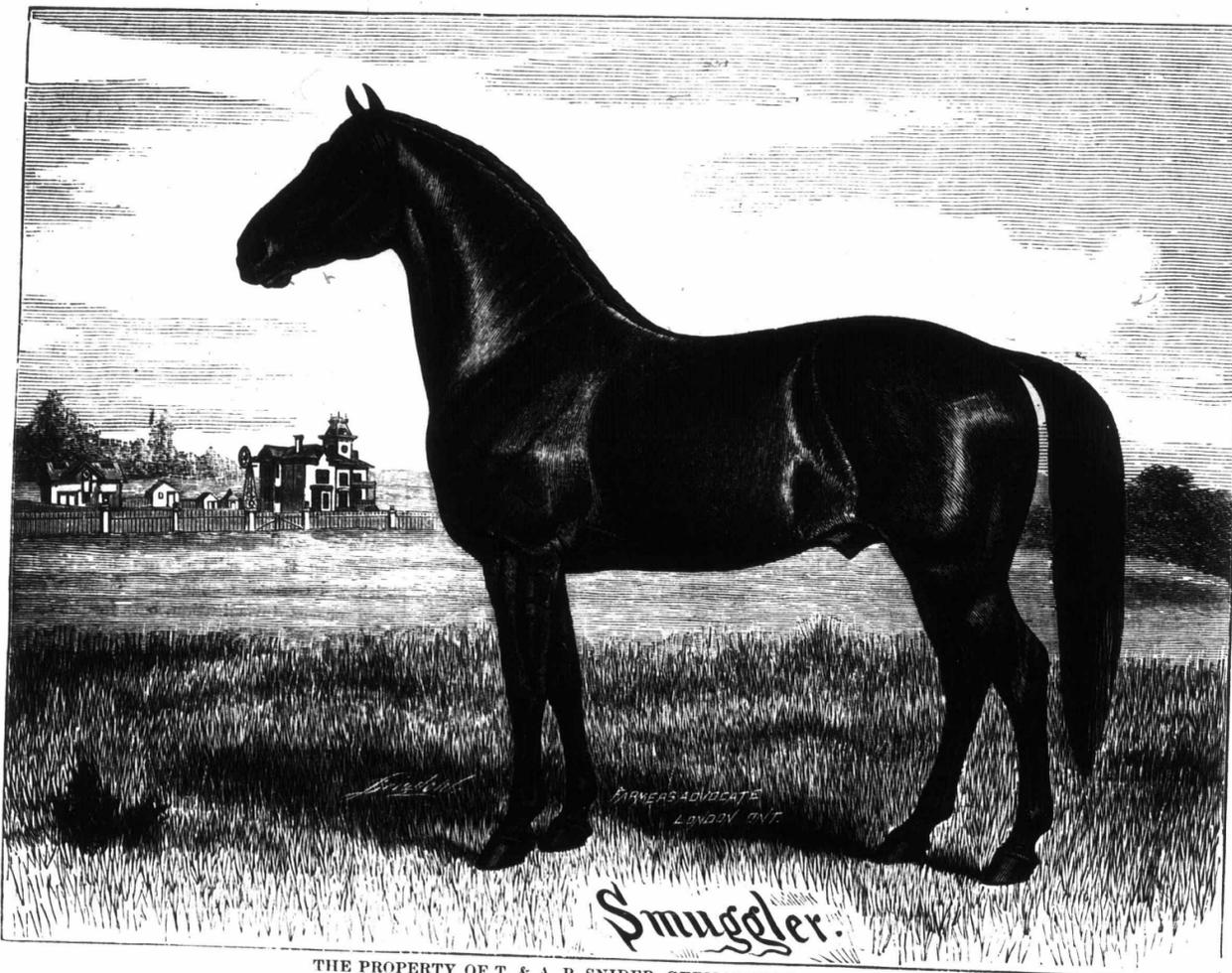
The chief poisonous ingredients used in the manufacture of butterine are caustic soda, nitric acid and mustard oil. Query—When are we going to enjoy our share of the American butterine boom?

Stock.**The Distinguished Coach Stallion
"Smuggler."**

It is with pleasure we call your attention to "Smuggler." Messrs. T. & A. B. Snider have our highest appreciation for their judgment in bringing this horse into our country. It is the class of horses that is too scarce in our horse markets, and the class that will be found the most profitable. It is large sized, clean limbed, handsome, active coach horses that are now and will be wanted, and are the most difficult to procure. Such is our appreciation of him

first prize and sweepstakes as the best Percheron stallion at the Provincial, 1883, 1884 and 1885. He is not only a prize winner, but equally successful in the stud. "Grey Hawk," now thirteen years old, has proved himself a valuable stock getter. The prices realized for all the colts they sold from common mares to date averaged \$260, including one, two and three-year-olds—\$2,000 having been refused for one of his stallion's colts by the present owner in Kansas. Besides these stallions they have also two imported mares. One of them, "Myrtle," was winner of the first prize and sweepstakes at the Provincial Exhibition three years in succession. Her stallion colt, "Vultigeur," foaled July, 1884,

ported by J. J. Davidson, Balsam, Ont. He was winner quite a number of times of prizes at the fall exhibitions. Next comes the bull "Captain," a deep red, of large size, nice straight line, but not equal in substance to the former. He is also a successful prize winner, and stood at the head of their first prize Canadian-bred herd at the Provincial in 1895. The show cow "Rose Strathallan 2nd," has a fine bull calf by her side. This cow has taken first prize and sweepstakes as best Shorthorn cow on the ground in 1885. "Rose of Strathallan 3rd" has a fine red bull calf, very promising. This young cow also took first honors in her class at the Provincial the last three years.



THE PROPERTY OF T. & A. B. SNIDER, GERMAN MILLS, ONTARIO.

that we publish his full pedigree in the advertising columns.

We have now in Canada a pretty good supply of good carriage horses from 14½ to 15½ hands high, but the greatest demand is for coach horses from 16 to 16½ hands. "Smuggler" stands 16½ hands, and is a dark bay, with black points, and weighs 1400 pounds.

The Snider Bros. have long been known as leading importers and breeders of Percheron horses. They have spared no expense in procuring the best Percherons that could be bought in France. They now have six very fine stallions of this class, and several mares and colts. The most successful prize winner amongst them is the horse "Bordine," winner of

is a very promising horse, weighing at present over 1300 pounds, and was sired by "Bordine." These mares are working daily, and are both in foal, and a better team they never had. The other one, only coming four years old, raised a fine mare foal last year. They have also a few very handsome animals, half and three-quarter bred Percheron stallions, coming four years old, which are for sale, also a few mares of same breeding.

Their herd of Shorthorns are doing very well—the show females have calves by their sides. At the head of the herd stands the fine massive bull "Abbotsburn," and a better quality would be hard to find in any animal. This bull was bred by Mr. Cruickshanks, Scotland, and im-

Cow's Milk for Foals.

Sometimes the colt loses its dam, and other times the milk is insufficient for its support. In such cases cow's milk may be used; but as it contains less sugar than the mare's milk, it should be sweetened by the addition of small quantities of sugar or molasses. It should be fed often, five or six times a day, and the quantities given at each meal should be small, say half a pint for a colt two or three days old, when there is no supply from the dam. As soon as it begins to eat grass, oats should be given, and after it is two or three months old skim milk may be substituted for new milk, with the addition of oil cake or flax seed in small quantities.

A Chatty Letter from the States.

[FROM OUR CHICAGO CORRESPONDENT.]

The question of questions that is up for solution now is: Shall the stockmen encourage or discourage the further development of the dressed meat traffic?

As many of the *ADVOCATE* readers may be aware, the pool lines of railways leading from Chicago to the east have lately advanced the freight rates on live stock and dressed meats, and have made a heavy discrimination against the latter. For instance, the rate on live cattle has been raised from 25 to 35 cents per cwt., while on dressed beef the advance has been from 43½ to 65 cents. On dressed mutton the discrimination was much worse, the new rate being 90 cents, or exactly double what it used to be. Just why there should be such discrimination against sheep is more than any reasonable person can understand, unless it is on the theory that the railroads feel that they have a right to charge "all the traffic will bear." It looks as if the railroads had an especial grudge against the sheep industry, as in the west they refuse to haul muttons in double deck cars, while in the east they refuse to haul dressed mutton for less than one-third more than they charge for hauling dressed beef.

Since this last fight between the live stock shippers and the dressed meat shippers has come on, there has been aroused a good deal of bitter opposition to the dressed meat industry on the ground that it is rapidly drifting into a dangerous monopoly.

At the rate the trade has grown in the past three or four years, it would only require about five years more to have it entirely supersede the old system of shipping on the hoof.

It is being claimed that the meat men are not only underselling the local butchers at all competitive points, but that by the immensity of their operations they are in a large measure able to control the great live stock traffic of the west, putting prices up or down at will. The fact that prices the past season have been very low has been used against them, and of course the butchers and cattle shippers all over the country are doing all they possibly can to crush their formidable rival.

Canada and Great Britain might be benefited if the American railways should so advance freight rates as to increase the cost of States stock, but that fact can cut no figure in considering the justice of allowing the railways to levy a sufficient tax upon an improved method to put it back on a par with an old style of operation. In other words, have the railways the right to charge more than a fair profit for hauling dressed meat simply because the dressed meat trade yields larger profits to the owner than does the live cattle trade?

Doubtless this matter will have to be settled in Congress, as interested parties, neither the railroads, the meat men nor the cattle shippers are qualified to say what is right in the premises.

Lately a very few good to choice 1,000 to 1,200 lb. young cattle have sold here to go to Ohio and Virginia feeders at about \$4.40 to \$4.65, but the volume of business going that way is nothin'; now in comparison to what it was in former years.

Feeding cattle in the east has lately been very unprofitable, and many are inclined to lay

the blame at the door of the Chicago dressed beef concerns, who send out train loads of cheap western beef every day to be peddled out all along the lines of railway wherever customers can be found.

There was a lot of 1,182 lb. Illinois cattle came to market lately. The feeder, who had never sheltered or protected them, had fed a great deal of corn, and was under the impression that if the cattle were not fat they ought to be; he had fed them enough corn to make them fat, and was just a little inclined to feel proud of his job. He sent them to a market for fat cattle, but an Ohio feeder paid more for them than could be realized from the butchers. The owner had given his cattle corn enough to make them fat, but he had failed to supply the requisite allowance of pine boards or other kinds of shelter.

The outlook for spring sales of live stock is fairly encouraging. Breeders have not been expecting anything very extravagant in the way of prices, and that fact may tend to make the trade more healthy this year than last. One year ago breeders were expecting a good deal and were disappointed because they got very little. But now they are better prepared to take matters as they come, and thus for that reason there is a better undertone in the trade.

Shorthorn Herd Book Frauds.

We attended the meeting of the executive committee of the Dominion Shorthorn Herd Book Association, held in the city of Toronto on the 11th ult. It will be remembered that the Canada and British American Shorthorn Herd Books recently amalgamated under the name and style of the Dominion Shorthorn Herd Book Association, the committee consisting of six members of the Agricultural and Arts Association and sixteen members of the late British American Shorthorn Herd Book Association.

The meeting occupied itself in discussing pedigrees of doubtful purity for registration in the new book, the standard being that all animals recorded must be imported stock or the descendants thereof. The American Shorthorn Herd Book was first criticised and denounced, it being stated that this book contained "fashionable" and "unfashionable" pedigrees, the latter being spurious. This fact should be distinctly borne in mind; for both of our recently amalgamated Herd Books accepted American registrations, and must therefore also contain the names of animals of impure blood. A prominent member of the committee stated that in former times it was an easy matter to clap a tail to a pedigree in order to make the animal eligible for registration in the American Herd Book.

When the Dominion Association passed the resolution adopting the new standard, none of them knew who was going to be hurt; but when some of the members found out that the pedigrees of some of their most valuable animals could not be traced to imported stock, and consequently ineligible for registration, some loud squealing was audible. Mr. McQueen, one of the sufferers, denounced the Association as a ring who wanted to monopolize the whole Shorthorn business. The Secretary of the new book, Mr. Henry Wade, suggested that the breeder should get the benefit of the doubt in cases where the importation of the

ancestor could not be distinctly traced. Mr. Parker thought the preponderance of evidence should weigh, taking into consideration the character of the parties who gave their evidence. Mr. John Dryden, M. P. P., President of the Dominion Association, declared that the committee had no power in the matter; it must "hew to the line," and carry out the instructions of the Association.

The chief trouble was with the bull "Roger," it being doubtful whether he could be traced to the Kentucky importation of 1817. It was said that this bull was a "wonderful getter" and should therefore be eligible for registration; but it was held that this quality had nothing whatever to do with the standard, and that the committee must adhere strictly to the rules laid down by the Association. Thousands of the best animals in the land will be ruled out on account of this one doubtful pedigree alone, and some magnificent herds will be almost entirely obliterated.

Mr. Gordon told a doleful yarn which struck terror and remorse into the breeders who registered their stock in the late British American Herd Book. He said they were a poor, struggling society of breeders, that they lacked funds and were thus driven to accept the numbers in the American Shorthorn Herd Book, that they lacked means to purify their book; that their editor, Mr. Denison, intended to scrutinize the pedigrees, but had only got so far as to eliminate the fictitious pedigrees of Canadian farmers, but he intended also to scratch out the spurious American numbers when he got time. These remarks brought President Dryden to his feet, who said he felt ashamed and disgusted with the British American Shorthorn Herd Book, and often felt in his conscience as if he should reveal something with regard to it. If this is the plight of the British American Book, what must be said about the Government concern? The former had a good standard, but the breeders did not live up to it; the latter had a low standard and accepted spurious registrations as well. The fact of the matter is, both Associations would register almost anything for the sake of the paltry but almighty dollar.

These unsuspected revelations struck consternation into the meeting, and all sorts of trouble was anticipated. A rival herd book was feared. It may here also be mentioned by way of parenthesis that the Model Farm is also talking about starting a new herd book.

The doubtful pedigrees have been left over for future consideration; but meanwhile who will be able to put a price on these animals? We venture to predict that if the injured breeders are very persistent and threaten to establish a new book, evidence will not be wanting to prove that their animals can be traced to imported stock.

But we have not yet mentioned the worst feature of the whole affair. In the meeting of the council of the Agricultural and Arts Association, which had just closed its session, they could not decide what standard they should adopt in the awarding of prizes at the coming Provincial Exhibition. Some members were in favor of admitting animals into the show ring which were registered in any one of the two books recently amalgamated, while others held that the Dominion Shorthorn Herd Book should be the standard. We should like to

know the reason why the Board consulted the breeders at all in this matter? This fact must also be recorded, that the breeders took upon themselves the responsibility of dictating to the Board what the standard should be, and of course they voted to defend their own interests. It was all but unanimously decided that the Dominion Herd Book be the required standard, Mr. Ed. Jeffs being the only member who recorded his vote contra. It is worthy of note that the motion was introduced by Mr. Gordon and seconded by Mr. Hobson. This incentive to dictate was strong; for if animals would win prizes whose pedigrees would afterwards be ineligible for registration in the Dominion Herd Book, there would be war indeed. The breeders understand their business, sure enough.

These astounding revelations are a serious matter for our farmers; but, for want of space, we must withhold comment and advice for our next issue. Meanwhile, farmers, just think of it; the Government and the Breeders' Association have taken money out of your pockets for the registration of animals which may possibly be hereafter classified as "scrubs," and therefore doomed to extinction. It is for you now to consider whether you are opulent enough to indulge any longer in the ephemeral and degrading luxury of "fashionable" pedigrees.

Treatment of Cows that Don't Clean after Calving.

The best plan is, if the cow does not clean within twenty-four hours after dropping her calf, to oil the hand and cautiously, without rending the cotyledons, draw the after-birth away. If you do not desire to attempt this remedy, you should cut away, with sharp shears or scissors, the parts of the after-birth which hang below the vulva, and squirt into the vagina, twice daily, a carbolic solution of the strength of about one part to a hundred. The syringe must close well in order that no air can be pumped in. This process should be continued until the placenta comes away.

Inversion of the Uterus in Calving.

This occurs at the time of or shortly after calving. The organ must be returned to its place as speedily as possible. In order to accomplish this object, the cow must be placed so that the hind quarters will be higher than the fore, and the suspended organ, after the blood and dirt are first washed off and the remainder of the placenta (membrane inclosing the fetus) cautiously removed, being bathed in some tepid slimy liquid, is then held up by some flat, hollowed-out, smooth vessel. An effort is then made to shove back the uterus by turning it into itself and at the same time into the interior of the cow. If the patient strains much, pause a few moments, but if on continuing the straining becomes severe, secure control over her by placing a bag of sand over her back; and if it comes to the worst, it will be necessary to place a sponge charged with chloroform to her nose. After the organ is returned to its place, some person should keep his hand in the uterus for several hours, and small pieces of ice should be placed in several times. The above is a very reliable remedy for the inversion of the uterus.

What is pedigree?—A string of names.

Spring Care of Cows.

If you heeded our advice made in our issue of last June, you will now have an abundant supply of early cut hay, especially clover. This is a great essential for cows during the calving season. It is a common practice to feed boiled grains and slops of all sorts. This should be absolutely avoided; and no food should be given in a form which will lessen the process of mastication. Slops being drunk, not chewed, defeats the very object you wish to attain.

The best ration for cows at calving time is early cut, well-cured clover hay, run through the straw-cutter, fed with bran and oats, (or corn) or the meal from these grains, all thoroughly mixed together and slightly moistened with warm water. A few roots may also be fed with advantage, the object being to make the ration gradually more succulent preparatory to turning the cows to grass; and while the grass is still young, scanty and watery, meal or grains should continue to form a part of the ration, and the bran and roots should gradually be abandoned. The rule to be followed is, Don't make sudden changes from dry to succulent foods. There are other foods which may be used to advantage, but these are within the reach of every farmer. Studiously avoid giving the cows cold or impure water. Water should not be given with the food, nor immediately before or after; between meals is the best time for giving water.

Destroying Vermin on Cattle.

The surest remedy for vermin on cows and calves is to shear the animals and then rub into the surface of the body a mixture of one part benzine and six parts oil. If you don't like to do the shearing you may comb the hair with a narrow comb dipped into a moderately strong solution of potash. After each scrape with the comb, dip it into the lye, which will destroy the lice sticking to it. Then you may either rub the body thoroughly with a mixture of one part soft soap with three parts of the above mentioned lye, removing it after 24 hours with a brush dipped in warm water, or rub in the mixture of one part benzine and six parts oil. It makes little difference which of these remedies is employed. The principal thing to be remembered is that the rubbing be thorough, and that it be repeated after four days in order to destroy the brood which has meanwhile been hatched from the eggs.

Attention to New-Born Foals.

Many foals are lost through want of attention at the moment of birth. When the functions of respiration are not promptly established in the new-born foal, efforts must be made to excite them by blowing violently upon the muzzle and into the mouth, and by briskly rubbing the body with a wisp. If breathing is but slowly promoted, a few tea-spoonfuls of brandy and water, given after the first few respirations, will be of material service to invigorate the low vital powers.

As soon as the mare has recovered from the shock, the maternal instinct should be encouraged by allowing her to perform the office of nurse to her progeny, which will be physically benefited thereby. If the dam refuses to dry and caress her offspring, a little flour sprinkled over the back of the latter will sometimes attract her kindly to it; should this means fail, the foal must be dried with soft flannel, conducted to the teat, and assisted to obtain its first aliment.

It is sometimes necessary to protect the foal from the ill-intention of a peevish dam; but after the mare has permitted the foal to suck, and has evinced maternal solicitude for its welfare by licking and caressing it, no fear need be entertained that she will subsequently injure it wilfully. All the means briefly reviewed are necessary for the preservation of the newly-born foal and for the comfort of the mare, are to be continued for a period more or less prolonged, as their conditions and surrounding circumstances indicate.—*Reynolds on Draft Horses.*

Farmers' Clubs.

Middlesex Agricultural Council.

[This Council meets on the third Saturday of every month at 2 o'clock p.m., in the office of the FARMER'S ADVOCATE, 360 Richmond street. All communications should be addressed the Secretary, Mr. Henry Anderson, Willow Grove, Middlesex Co., Ont.]

The regular monthly meeting of this Council was held on the 20th ult., President Leitch in the chair. A communication was received on coach horses, but as it arrived too late for the meeting, we publish it in our correspondence columns.

DRAFT HORSES.

The subject announced for discussion, viz., "Horses for the Canadian Farmer," brought a number of leading horse breeders to the meeting, notably Mr. T. D. Hodgins, Mayor of the City of London, who is an extensive breeder of all classes of horses. The following paper was read by Mr. John Kennedy, Ilderton, Ont.:

Canadian, or rather Ontario horses, have not yet, in my opinion, won that reputation which they deserve. It is true we have no clearly distinctive breeds that can be called Canadian in the same sense that we speak of Arabian, or Kentucky horses, but our climate is so well adapted to the development and perfection of the best general purpose breeds that, with properly selected importations, proper breeding and care of our stock, and fostering our reputation abroad, I see no reason why the name of being raised in Ontario should not put a horse at a premium in foreign markets.

A prominent Philadelphian, speaking of the Centennial exhibits, said to a friend of mine: "The exposition gave us a great many surprises, but no other one to myself and many others equal to that when the horses were brought out. We heard there were a large number of Canadian horses; we went to see them, expecting to find a lot of ponies not much larger but far more shaggy than Shetlanders. But lo, and behold! there was a cavalcade of the finest, prancing, spirited equines that ever man set eyes on. Everybody I spoke to was equally surprised." The mistake is easily accounted for. One does not need to travel far south of the boundary to find the opinion that all Canada and its products are measured by ancient Quebec. The Canadian is supposed to be a shivering *habitant*, speaking French, wearing snow shoes half the year, and driving a low sledge drawn by shaggy, hardy Indian-French ponies. We need only a few more opportunities like that afforded by the Centennial to show the world that Ontario is capable of producing as good horses as any other part of the globe. It would pay Ontario exhibitors to attend leading state fairs on the other side. At the Centennial very nearly half (only sixteen less) of all the horses exhibited were from Canada. Royal Tom, weighing 2,200 lbs., was the heaviest horse but one on the grounds. Almost every Canadian horse there could have been sold at a high price; as one instance of a number of examples, a span of carriage horses shown by Mr. H. Kennedy, of London Township, easily sold for \$1,500, and shortly after re sold for \$3,000. In the matter of extending the reputation of Ontario horses the Government might devise some means of seconding the efforts of our exhibitors in the same way that it is helping to place specimens

of our industrial, mining and agricultural products in the world's fairs.

It is an item worthy of more circulation than I think it received that a gentleman sent out by the French Government to make a report on American horses, returned by way of Canada, and before embarking was interviewed by a Montreal reporter, to whom he said that the finest team he had seen on the continent was owned by Mr. John Coote, near London, Ont.

Of late years the raisers of horses have aimed at producing a much heavier class of stock than was common in this part of Ontario fifteen or twenty years ago. This change has been brought about by a number of causes, the two most important of which are that shippers have given much better prices for heavy than for light horses, and that the increased use of machinery has made strong and heavy horses almost indispensable on the farm. Hence the ideal general purpose horse for the Ontario farmer is one combining strength, action and endurance. The practical question arises, what breeds we should import that will best develop those desirable qualities. The English dray and Clydesdales are the best heavy draught horses in the world, but they are not hardy or active enough to suit our purposes. In my opinion no other horse is quite so suitable in every respect for the Ontario farmer and breeder as the Percheron. This breed, which gets its name from the old district of La Perche in France, is descended from the Arabian, and is a very old breed in France, although twenty years ago it was almost unknown in this country. Its rapid importation began about ten years ago, and now there are over a thousand Percheron horses imported annually into Canada and the United States.

This breed presents considerable variety and dealers would do well to bear this fact in mind. The light Percheron is a serviceable roadster, but the intermediate and draught classes are the most useful as breeders to cross with average mares in order to produce stock of sufficient weight to command the best prices. All the classes are strong for their weight, of stylish bearing, free of action, easily broken and handled, kind, gentle and hardy. To say that they are strong for their weight does not imply that the Percheron is a small horse. Mr. Dunham, of Wayne, shows a stallion, a handsome coal black, which weighs 2,000. From all I know or have heard of this breed of horses, I think it just the thing for the Ontario farmer.

The question is often asked by the stock-breeders, Does it pay to raise horses? I say, yes. Like everything else, it requires care and skill. Let a mare run round the stack in winter and in the field or common in summer, and nine times out of ten she will raise the colt. But stable and over-feed or injudiciously feed her, work her and allow the foal to draw the milk at any or all times, and ten to one, if the colt lives at all, it will be a poor one. I would feed a brood mare moderately in winter with cut straw sprinkled with chop stuff and occasionally a few carrots, and if she is worked, never allow the foal to be with her when she is warm or tired. The mare must run on good grass, and her milk will be much improved if she is given a feed of oats daily. When the foal is weaned at five to eight months, a little extra feeding with oats and bran will pay. The colt should be well cared for the first winter. The second winter, if it has a comfortable shelter for the night, it will thrive very well running about the stack in the day time. The young horse should be gently handled and broken at three years, but not put to very heavy work before five. An inherited tendency to bone diseases will, from heavy work or improper treatment at too tender an age, develop to the great injury of the horse, whereas with proper handling until his bones are matured and his strength comes, might altogether prevent the development of such diseases.

Prices are again looking up, and for sound general purpose horses they are likely to remain considerably improved upon what they averaged last year. The reaction in the North west markets caused a temporary fall in the prices. The keen demand for horses needed by settlers, and in the construction of the C. P. R., turned the attention of dealers in that direction.

The market was glutted reaction came and dealers found themselves with stock on hand, which they could not sell in Manitoba for as much as they had paid in Ontario. This state of affairs hurt our horse market here. But it is now much firmer and shows increased activity. American buyers are now readily offering \$200 a-piece for sound heavy horses of the best marketable ages. A New York dealer said last week that heavy draft horses pay better, and sell more quickly than any other class of horses shipped to that city, and that this spring the demand for such stock will be greater than ever; also that high class, good looking, smooth carriage horses, with high knee action, are in great demand. "At our last sale," said he, "we sold four pairs of such horses consecutively, for \$2,600, \$1,550, \$1,500, and \$1,150, respectively. New York City affords the best market in the world for a first-class horse. At our last two sales we disposed of 515 of them, good, bad and indifferent, at the average of \$289 per head." Of course, it would not be safe to swear to everything a New York auctioneer says, but it is undoubtedly true that a handsome carriage team or a heavy draft horse will bring a big price in any of the large cities.

A MEMBER—I understand, Mr. Kennedy, you have officiated as judge of horses at some of our leading shows. Do you think your straw-stack mare would stand any chance of getting a prize?

JOHN KENNEDY—No, no matter what merits she may possess; but any mare kept in her condition should be eligible for a prize.

HENRY ANDERSON—There is an impression around here that the Percheron does not produce as good stock as other heavy drafts when crossed with our mares.

MAYOR HODGENS, in answer to several enquirers, said—The Percheron colt is as fine looking as the colt from the stallion of any other draft breed. The Percheron stallions, as usually found in this Province, weigh 1,700 to 1,800 pounds. Price is governed a good deal by color. Rusty greys are not wanted; good bay, brown or black, are colors which are always fashionable. For brewers' wagons and other purposes well-mated spans of some standard color are always in demand; but for street cars, color is not so much of an object. So far as action is concerned, the Shire or the Clyde cannot be excelled, and I can see little difference between these breeds as to endurance. I regard the Clydesdale as the heaviest, weighing from 1,800 to 2,200 pounds, the average weight being about 2,000 pounds.

ROBERT MCEWEN—The Clydesdale does not average over 1,900 pounds or 1,950 at the most, and I deny that it is heavier than the Shire.

MAYOR HODGENS—While attending an Exhibition at Glasgow, I saw seven Clyde stallions weighed, and their average weight was 2,160 pounds. My estimate of the average weight of the Shire is 1,800 pounds.

FRANK SHORE—The heaviest Shires are not imported to this Province, while our importers bring out the heaviest Clydes they can get. In England the Shires average heavier than the Clydes. Mayor Hodgens is right if he confines his remarks to this Province.

ROBERT MCEWEN—The Clyde is noted for its action. The Percheron is lacking in bone. What is wanted is the heaviest horse which combines the greatest action. A horse of 1,800 pounds may have more action than a 1,600 pound horse. These heavy drafts should not be put to mares weighing less than 1,100 pounds. Our common mares average about 1,200 pounds.

COST OF RAISING COLTS.

RICHARD WHETTER—My experience is that I can raise a colt as cheaply as a steer. A colt will feed on the waste material from fattening steers, and this feed may be said to cost little or nothing.

MAYOR HODGENS—I can keep a colt cheaper than a steer, both being the same age. I work my colts moderately at three years old. When the mare is worked, it costs very little to raise the colt. My mares do best when worked up to within a week of foaling.

HENRY ANDERSON—I can also raise a colt cheaper than a steer; but I find there is greater risk in raising colts, and mares don't breed so regularly as cows.

MAYOR HODGENS—I have more misfortunes with my calves than with my colts. Calves are subject to scours.

FALL COLTS.

FRANK SHORE—I believe in keeping brood mares at constant but moderate work, and, in order to get the most work out of them, they should drop their foals in the fall.

MAYOR HODGENS—I have no difficulty in breeding fall colts, dropped about the latter end of September. There is a prejudice against fall colts because they look so shaggy. My fall colts are the best I have, and I get more work out of the mares.

COACH HORSES.

MAYOR HODGENS—A lighter class of coach horses is now in demand in England than formerly, the light American carriages now getting fashionable there. I can't get carriage horses with quality enough. What is mainly wanted is good action. This I get to the greatest perfection by using the Thoroughbred stallion upon our roomy mares; the coach stallion does not give quality enough. The Thoroughbred has also great endurance, and I have never seen a bad-tempered colt from a Thoroughbred stallion. Coach horses are valuable for farm work.

RICHARD WHETTER—I fear they have too much quality for farm work, and are too valuable to be kept on the farm. They go too fast in the plow.

GENERAL REMARKS.

ROBERT MCEWEN—We farmers are injured by those high pedigree men. There ought to be some arrangement by which the pedigrees are based on individual merit. There is a movement amongst Clydesdale men in the States by which it is proposed to charge \$50 registration fee, basing the entries upon merit as well as upon pedigree.

MAYOR HODGENS said, in answer to enquiries, that the Government should not interfere between stallion owners and the owners of mares. Let both parties be their own judges as to what animals should be used for breeding purposes. Both required to be educated, and the agricultural press and agricultural exhibitions were the proper sources of education. With reference to the stallion season, Mr. Hodgens said that no stallion from four years old should serve more than four mares per day. More than this was downright cruelty. Stallions were surer at the end of the season, and the offspring was better, because they had less mares to serve. During the service season the mares were often kept on grass at bursting pressure, which caused the colts to come wrong, and the offspring was inferior. This

evil was enhanced by the stallion getting too many mares. The mare, if not working, should be kept mostly in the stable for a month before service.

W. A. MACDONALD—In my eye the chief difference between the Shire and the Clyde is that the former has a more compact body, comparing those which are seen at our leading exhibitions, so that the Shire may appear lighter than he really is. Upon the evidence of able authorities, the Shire or cart-horse has the soundest foot, which now-a-days appears to be the best half of the horse. For all practical purposes, however, both may be classified as one breed. Both are traceable to the black horse of Flanders, imported into England about the year 1715, and the native horses of England and Scotland at that date were of uniform character. Any difference that now exists between these breeds is more attributable to soil and climate than to breeding. The breeders of Clydesdales have pushed their business with great vigor, which means that they have weakened the constitutions of their horses. Fortunately, however, the whole breed has not suffered in this manner. There is thus more uniformity amongst the Shires, and more caution is required in selecting Clydes.

With all respect to the Percheron, I would not advise any farmer to take up this breed without having a thorough knowledge of his business. The breed of ancient La Perche, south-west of Paris, was, and still is, remarkable for its combination of endurance, strength and action. It is a lighter draft than the Clyde or the Shire, and is the best general purpose horse in the world; but we run a great risk in getting this breed pure. Judging from the weights of the Percherons found in this Province, they must have hailed mainly from northwestern France, where the ancient breed has been mixed with the heavy coarse Flemish breeds. After the introduction of railroads into France, a heavier class of horses was in demand, the coach system of traveling having been greatly reduced, and the heavy Boulonnais mares, north of the river Seine, were used to enlarge the Percheron. There is no doubt that there is Flemish blood in the large Percherons, so that they have the same origin on the sire's side as the Shire and the Clyde. To these circumstances add the fact that unscrupulous horse dealers in France have been buying up all classes of horses and selling them to Americans as Percherons, Normans, Norman-Percherons and Percheron-Normans, and it will scarcely be wondered at that the Percheron has been blamed for producing unreliable stock.

With regard to the weights of draft horses there is a great deal of humbug. Some breeders, in order to give weight and consequence to the stallion, put them on in the shape of fat. In many cases 200 pounds may be easily added in this way, whereas it would be about as reasonable to subtract this amount from the natural weight of the horse in order to ascertain his true weight. By this treatment another disadvantage is gained, viz., it enhances the stallion's chances for getting a prize. Every farmer knows the best working condition of a horse. Why should not this standard be adopted in the show ring, the animal then also being in the best breeding condition? Fat

is inconsistent with action, strength and endurance; these qualities can only be improved by feeding and breeding for bone and muscle.

Farmers who take no special fancy to horse-breeding should, as a rule, breed heavy drafts, as they can be sold younger than coach or general purpose horses, and their price is not so much deteriorated by blemishes. It has been often said that farmers who have light soils should breed the lighter class of horses, but there is an inconsistency here. It is true that coach horses are heavy enough to work light soils, but it must not be forgotten that the most nutritious grasses grow on heavy soils, and this is the kind of feed that gives strength and action. No farmer should breed coach horses unless he takes a special fancy to this line of business.

I wish to say a word with reference to fall colts. It must not be forgotten that the air, light and food obtained in the field are much superior to those in the stable, and there is nothing more conducive to the thrift of a young colt than plenty of freedom and sunshine. It requires special skill to compound a winter ration equal to grass in wholesome qualities. However, if you want to make forced sales, or raise colts for exhibition purposes, getting the advantage of several months' growth, then have your colts dropped in the fall by all means.

Many farmers are as much to blame as our exhibition authorities for the deterioration of certain breeds. I know farmers who begrudge the time lost in unhitching a common mare from the plow in order to let her drop her foal, and yet they are afraid to put a high-priced mare to any sort of work for fear of injuring her constitution. If they have a high pedigree stallion, he is pampered to destruction, and in order to make enough money out of him to lift the mortgage off the farm, they make him serve twice as many mares as he ought. The very best of breeds will greatly deteriorate in a few generations when so many deleterious influences are combined against them.

New Remedy for Milk Fever.

A new and simple remedy discovered by a German veterinary surgeon is published in a recent issue of the *Milch Zeitung*. It consists simply in covering the back of the cow with a woolen cloth and then rubbing the spine with a hot iron—the iron used for ironing clothes. The remedy was tested on a valuable cow, with the following results:—After the cow had lain under a woolen blanket for 10 hours, having been ironed on the back and loin, she stood up for several minutes; after continuous ironing for 24 hours, she could stand for 10 to 15 minutes, when the ironing ceased. After two days she began to eat. It is important in cases of milk fever that the patient's bowels be kept in good order, and in severe cases it is also well to administer aconite.

Ranchmen in the west are complaining that their herds are deteriorating, and they attribute the cause to the infusion of too much high blood. The stock, they say, are impaired in hardiness and fecundity, and the owners propose as a remedy to infuse "inferior blood." In the west, hardiness is a chief essential, and even in Canada this quality is under-rated.

The Bohemian oats swindle, says the Cincinnati Commercial Gazette, is nearly as respectable as the Government seed business.

Feeding Stallions During the Season.

During the season stallions should be well and substantially dieted, nor should their condition be too much reduced in other months of the year. At the same time, every tendency to obesity must be checked by restriction in the quantity, and especially in the quality of the food supply, combined with the exaction of severe exercise, or, still better, by the imposition of a fair amount of labor. No uniform ration can be assigned for a stallion; each will require in this respect especial treatment, to correspond with the amount of work, individual robustness, age, and tendency to accumulate fat. The quality of the articles of diet should be the best procurable. As to kind, oats and hay form by far the best provender. Many persons have a particular inclination for physicking their stallions with all sorts of glandular excitants—a most reprehensible practice, which sooner or later must result in producing debility of the organs repeatedly stimulated. Healthy animals require no medicine; condition in them may be established and maintained by intelligently-applied alterations in the quantity and quality of their food and labor. To check a tendency to plethora, an occasional dose of cathartic medicine is beneficial, but its action must be rationally supplemented by dietetic and hygienic adjuncts.—[Reynolds on Draft Horses.]

The origin of the so-called native cattle on this continent is credited to a small herd brought by Columbus on his second voyage. Other Spanish navigators brought small herds from time to time, while in 1553 the Portuguese landed both cattle and hogs in Newfoundland and Nova Scotia. Cattle are said to have been introduced into Canada in 1608, and Virginia was reported to have 500 head of cattle in 1620. At that time stringent laws prohibited the killing of any domestic animals. Cattle were introduced into New England in 1624. It is said that in those days the red color depreciated the price of cattle, a red calf being more likely to be mistaken for a deer by the wolves and killed, than a black one.

Scratches, grease heel and all similar complications come directly from not taking proper care of the horse's feet and limbs. Farm horses most especially are allowed to stand too long after usage with the mud adhering to them. This, though, is no more prevalent than allowing horses to stand in unclean stables, where the manure is perhaps not thrown out more than once a week. The ammonia arising from the fermenting manure is not only injurious to the general health of the animals, but it is one of the most prolific causes of grease heel, cracked quarters, etc. The stable should be cleaned at least night and morning, and the horses should not be allowed to stand in their dirt after being used any longer than necessary for the mud to sweat and dry.

Sheep are becoming better stock every day, and it may be that next shearing time almost any farmer would be glad to own a few, says the National Stockman and Farmer. It will pay those having good young sheep to hold them until spring without making any effort to dispose of them. In fact the man who has feed and attempts to sell his sheep now is unwise, and more than likely will regret having done it before he is much older.

Garden and Orchard.

Apples for Export to Europe.

[A paper read by President Leitch before the Middlesex Agricultural Council.]

Amongst the many products that Canada exports to Europe, perhaps the orchard points to a greater want of reflection and foresight on the part of the cultivator than any other product of the farm. The buyer, in going to an orchard to purchase apples for export, is painfully impressed with the want of care in the selection of proper varieties suitable for export; in many orchards of forty and fifty trees laden with fruit, not more than one-third, or one-fourth, are fit to barrel, the rest being fit only for use on the farm are of little value, unless the orchard happens to be near some large city, where the fruit can be sold or converted into cider, vinegar, or dried.

It is only a few years since apples began to be exported from this section of Canada, yet the owners of orchards are already beginning to be aware that they made a great mistake in the varieties. They planted in order to realize any profit from them, and are now beginning to enquire what varieties to plant in order to realize the greatest profit. The varieties in favor of buyers at present are the American Golden Russett, Baldwin, King of Tompkins County, Eosopus Spitzenburg, Northern Spy, R. I. Greening, Seeks, and Ben Davis.

Now it is not necessary to plant many varieties for export in one orchard for various reasons, among which may be mentioned: In a lot of ten varieties sent to market mixed, the buyer must open a sample of each kind before he buys, consequently some are eaten, some are wasted, and the barrels that are opened in this way cannot be sold for the same price as those that are not opened, hence the buyer wants as few lots mixed as possible in a car lot of 160 barrels.

The farmer who intends to plant trees to raise apples for export, should not grow more than three varieties. Now what these varieties should be is a delicate matter to advise, as some kinds grow on some soils better than others. I would have no hesitation, after a good many years experience in growing and shipping apples, if planting another orchard, to plant the following varieties for export:—American Golden Russett, Ben Davis and Baldwin. These are all old varieties, well tested from Maine to Michigan, and will grow and yield more profit than any other three varieties that I am acquainted with. But the Baldwin must be top-grafted on some other stock, as the wood of this tree is soft and brash, rots and splits at the crotches, which causes the tree, if root-grafted, to be short-lived and unprofitable, hence the necessity of finding a proper stock to graft on, and for this purpose fortunately the tree is at hand in the snow apple—a thrifty, hardy tree, with limbs and crotches as tough as whalebone, with a neat, compact head, very suitable for this purpose. The trees should be grafted the third or fourth year after being planted in the orchard and growing thriftily.

One hundred trees of Baldwins grafted in this way and occupying about three acres, after being ten years planted, should be worth to the cultivator \$300 per year for the next thirty

years, if properly attended to. I have this year filled eight barrels from medium sized trees of this variety, and ten barrels are not uncommon from large trees, which are worth in the orchard \$1 per barrel, the empty barrel being paid for by the buyer.

Another very important matter in connection with profit from the orchard is: Picking the fruit off the trees, in order to realize the highest price, must be carefully done by hand, and carefully laid by to sweat for a few days, and for this purpose there should be built in every orchard a shed or house of some kind suitable to the size of the orchard, furnished with boxes or bins sufficient in number to keep separate the different varieties; also room to keep the barrels dry before and after they are packed, and it is also necessary that the fruit should be dry before it is packed, which cannot be done if the fruit is laid on the ground in heaps under the trees. It also saves time, as in the month of October may days are wet and cloudy. If fruit is left out in the orchard, it must be slow work, and a great deal of it must be packed in a wretched condition.

Whoever handles fruit must observe some or all of the above rules in order to realize from his orchard any profit.

As few people have any idea of our trade in apples, I may say that from one station in Middlesex no less than 15,000 barrels were exported last fall, all grown within ten miles of Strathroy Station, distributing no less than \$22,000 among farmers and laborers. This year it is expected that not less than half a million of barrels will be exported to Europe from America.

Papers for Amateur Fruit Growers.

BY L. WOOLVERTON, GRIMSEY, ONT.

No. VII.

THE APPLE.

(Concluded.)

Of winter apples the Baldwin is generally acknowledged to be the most profitable that can be grown for market. Under good cultivation it reaches a large and sometimes a very large size, which with its deep red color, makes it very saleable. It is usually a very abundant bearer every alternate year; but for three or four years past this apple has not kept up its reputation with us in this latter respect. Large orchards of Baldwins have been almost barren for several years, and the fruit small and scaly. Probably this failure is only temporary, and will pass away when the trees gather fresh vigor.

The *Northern Spy*, with some growers, is the great favorite. Its delicious flavor, its purplish red color, half obscured by a thin pale bloom, its fine size and great productiveness every other year, justly claim for it a most prominent place. But it is not always satisfactory. Some seasons it spots; grown in unfavorable soil it is poor, and the tree dies young; and when improperly pruned, and left without cultivation or manure, the fruit is small and uncolored.

The *American Golden Russett* is almost without a fault, unless it be that it is below medium size. No apple in our whole orchard makes so few seconds in packing time, almost every specimen being perfect and free from worms.

The *King of Tompkins County* is one of the most valuable apples. Its magnificent size and deep red color in favorable seasons, give it the precedence in all markets; and these qualities are well supplemented by its rich vinous flavor. One might discern a barrel of Kings if opened in the dark by the delightful aroma arising from the fruit. And when cooked, no apple presents such an attractively colored flesh, or makes up into such delicious pies. But, unfortunately, the tree is a scant bearer, and herein consists its chief drawback.

The *Roxbury Russet* is the best keeping apple. No other will open up in May or June in such an excellent state of preservation, or command such ready sale in the spring. It is also an excellent bearer every alternate year; but for two years past it has been more or less blemished in the county of Lincoln.

This closes our list of most desirable apples for cultivation in Southern Ontario, although there are many others well worthy of notice.

We have entirely discarded the *Eosopus Spitzenburg*, because it has apparently run out. The twigs blight very badly, the tree is very unproductive, and the fruit is small and scabby. We hesitate to condemn this fine old variety, but sad experience compels.

The *Greening*, too, has long held the first place in many orchards, but of late we can scarcely rely upon it, except as an admirable cooking apple for home use. The terrible spot has attacked it quite seriously, especially in old orchards, so that some seasons we, at Grimsby, have had to make culls of two-thirds of our Greenings.

For stock feeding no apple is so good as the *Tolman Sweet*. It is a good bearer and a good keeper, and might in many cases be grown as a substitute for carrots to feed horses, but it is not generally profitable as a market apple.

I may perhaps be pardoned for mentioning my new seedling the *Princess Louise*, so highly praised in the reports of the Fruit Grower's Association. It promises *par excellence* as a Christmas dessert apple, combining the beauty of the Maiden's Blush with the delicious flavor and melting flesh of its parent, the *Fameuse*.

It seems scarcely necessary to add anything concerning the apple markets.

Summer apples need to be carefully gathered as soon as they attain full color, and taken to the nearest market in a spring wagon; or, if too far away for this, they should be shipped to some reliable commission house. For some years there have been numerous houses in Montreal soliciting consignments of fruit, from most of which satisfactory returns may be expected. Of late the same business has grown up in Toronto, and very often the shipper will find the latter as good a market for his early apples as any he can find. Ottawa, Kingston, London, St. Catharines, and indeed all our cities will take more or less, but the latter are very easily glutted. Indeed our very largest markets may be very easily overstocked with summer and fall fruit, unless it is the very best and put up with the greatest care.

Our winter apples must usually be exported, except in seasons of great scarcity at home. Of course a large quantity will always be bought up by Montreal and Quebec buyers for use in that Province; while a yearly increasing quantity will go to our great Northwest. Nova Scotia, too, although exporting a large quan-

tity of her own apples, will purchase a limited quantity of Ontario apples, because of the superiority of the latter in flavor and beauty.

Outside of Canada we find a growing demand in the Western and Southern States for Canadian apples, owing to their excellent keeping qualities.

Great Britain, however, is the great apple market of the world, and its ports of Liverpool, London and Glasgow receive yearly immense quantities of American and Canadian apples, and, although shippers frequently lose in the speculation, yet, when apples are really very extra, the returns are usually satisfactory, and the enormous quantity shipped in years of abundance serves to keep our home markets from being overstocked.

Choosing Site and Soil for the Orchard.

During the early settlement of the country, apple trees thrived almost anywhere, and if the question of location was considered, a southern aspect was usually chosen. This was quite proper; for in those days our spring season was cooler and moister than now, retarding a too early growth of buds and blossoms, and injury by early frosts was thus prevented. Usually the orchard was surrounded by forest, softening the climate, and damage by winter frosts and summer drouths was thus largely prevented.

Now all is changed; and our methods must change in sympathy with our ever-changing circumstances. We thus learn that climate and aspect have a greater influence than soil, and both can be had, in a greater or less measure, on almost every farm. First of all, we have therefore to consider the location. We must now choose a northern or western aspect, especially in localities which are subject to early frosts, a southern exposure, particularly on a warm soil, producing a too early growth, which subjects the buds and blossoms to the biting frosts of late spring. However, for early varieties required for the table or the market, choose a warm soil and a southern aspect in localities not liable to early frosts and protected from raw winds.

In a northerly or western exposure it is important that the trees be protected from the high winds, by which the blossoms become injured, and the fruit is precipitated to the ground before maturity. If, therefore, there is no natural forest, a windbreak should be planted on the northern and western sides of the orchard. The sugar maple, the Scotch pine and the Norway spruce are admirably suited for this purpose. This aspect gives a colder and later soil, and avoids the injurious effects of the sun's rays on blossoms laden with frost. A high, dry elevation comes next in order of preference, and if the declivity has a sharp descent, it is not an objectionable feature.

If you have the right aspect, you need not pay so much attention to the character of the soil; for if it is not of the best for the apple, it can be improved by proper cultivation and manuring. However, we prefer a friable, deep clay loam. Such a soil, in the proper location, will produce the best flavored and most nutritious fruit, and an abundant quantity. The soil should be deeply drained, for stagnant

water about the roots is as injurious to the apple as a dry, hot atmosphere. A water-logged, flat soil can scarcely receive drainage enough for the apple tree, and in a low, flat situation, late frosts are more severe than on high land.

The apple is a lime and potash feeder, which plant foods are most abundant in clay soils. This is the reason why unleached ashes produce such wonderful results in the orchard, especially on the lighter class of soils. It will not do, however, to plant where the substratum contains limestone or other rocks, for they obstruct the descent of the roots, causing a lack of moisture in the dry season.

The Asparagus Bed.

One great reason why we have no more good asparagus beds in our small farm gardens is no doubt in the fact that the planter has to wait at least two years for any considerable returns, says W. D. Boynton, in the National Stockman and Farmer. We always want immediate returns for our labor and money. Some plant other garden stuff and leave the planting of asparagus to some future time. Too often this time never comes, and the years are allowed to slip by with no bed established.

It certainly cannot be that the vegetable is not desirable, for no one refuses a dish so delicious to the palate after a long winter of abstinence from fresh green food of any description. Nothing can be more tempting in early spring than a dish of well cooked and seasoned asparagus.

Nor can the gardener be restrained from planting on account of the difficulty of growing. It is easily established and maintained. There is no operation of gardening more simple or less laborious. The gardener must simply allow himself to be a little forehanded at the start and plant for future years.

The investment of a few hours' labor this spring will give the starting point. Don't put it off because you can get no return this coming season. You are simply placing it beyond your power to get anything next year. Start now, and next year, if plants are set instead of sowing seed, some return may be realized—not a full crop, but enough to make you well satisfied with the investment. At least one year's time may be gained by setting plants instead of sowing seed. This is quite an object, and is usually sufficient inducement to the planter to go to the extra expense of procuring plants. In most cases these plants may be procured from a neighboring garden, where a division of the roots is necessary and desirable. The expense of purchasing from nurserymen and seed dealers is not great, and by purchasing a better quality may often be obtained. Two or three dozens of crowns will start a nice little bed.

A bed once well-established and properly cared for will last for many years—some claim for twenty-five and more. This of course depends mainly upon the care it receives. The ground should be put into first-class condition before planting. It should be made deep, rich and mellow. Trenching and filling with manure may be resorted to on a small patch, but is not absolutely necessary. The plants should be set in drills, about 2½ feet apart, the plants ten inches or a foot apart in the drill. Keep the weeds down and mulch all the year round

lightly, letting it wear nearly off during late summer and autumn, to be re-covered before winter sets in.

Peas as a Garden Crop.

Amongst garden crops peas and beans have the greatest nutritive value, and yet they are often the most neglected. Moreover, they do not require so rich a soil as other garden vegetables. They may be said to be the poor man's crop, for they compare favorably with meat and cheese in nutritive value. Farmers who are so situated that they cannot conveniently obtain meat during the summer season, should have an abundant supply of green peas and beans growing in their garden for as long a season as possible.

A comparatively low temperature is most suitable for the growth of peas, and they should therefore be planted as early as the ground can be brought into a fit condition. The earliest and best varieties should also be chosen. To add still another impetus to obtaining an early crop, a warm soil should be selected. It is not desirable to apply a large quantity of barnyard manure, producing a heavy coarse straw and a poor quality of pea and pod, but bone dust or superphosphate will most likely produce the desired effects. The seed should be sown in drills three feet apart, placing the peas from one-half to one inch apart in the drill, covering them firmly with fine soil.

A prize essayist in the "Gardeners' Monthly," writing from Strathroy, Ont., keeps up a succession of crops by sowing different varieties in the following order: "April 1st, one quart of Blue Peter; April 10th, one quart Waite's Caractus; April 20th, one quart Laxton's Alpha; April 30th, one quart McLean's Advancer; May 10th, one quart Laxton's Prolific Long Pod; May 20th, one quart Champion of England; May 30th, one quart Telephone. After this date none may be sown until about the middle of August, when a quart or two of one of the early kinds may be sown for a late crop. Laxton's Alpha will require sticks about thirty inches high; Champion of England, Telephone and Laxton's Prolific Long Pod will require sticks about four feet in height."

Cauliflower Culture.

There has, undoubtedly, been more money made by the cultivation of the cauliflower, acre per acre, than by any other vegetable yet discovered, and to day it is a crop that will pay the cultivator several hundred dollars per acre, says a correspondent of the Country Gentleman.

The early crop, like that of other vegetables, is the most profitable, but as this will require the use of cold frames, hot-beds or hot-houses, I shall not treat of it in this article. There are only two kinds of cauliflowers that are reliable, though in all seed catalogues you will find from five to twenty different kinds. After several fair trials, I found that Henderson's Early Snowball was the surest header, with the Erfurt second. As the seed is very expensive—six dollars per ounce—I would advise the beginner not to buy more than an ounce at first; a fifty-cent package will do in most cases, and it has enough seeds in it to raise several hundred plants.

Cauliflowers will grow upon almost all good soils, but I find that they thrive best upon a

light, rich, sandy loam. Prepare your seed-bed as early in spring as convenient, and be sure that it is fully enriched by manures. For all my seed beds I have at least three inches of well-rotted manure forked into the soil, and then they are thoroughly raked with a fine-tooth iron rake, taking out every stone and pebble and every lump of soil.

Plant cauliflower seeds from the middle of April to the middle of May, being careful to sow them and cover lightly. When the plants are four or five inches high, which will be a month or five weeks after the planting of the seeds, set them out in the rows three feet apart and two feet apart in the row, for the Snowball; for the Erfurt, three feet by three feet should be the distance.

As the cauliflower is a rank grower, it will need plenty of good manure, (the more the better), and not less than twenty-five or thirty tons per acre. For my early crop, I put on at least seventy-five tons per acre of the best horse manure I can get, and it pays too. If you use commercial fertilizer, do not use less than fifteen hundred pounds per acre, and plow it under the same as you would manure. Commercial fertilizers, when only harrowed in, are of not much benefit to plants that are set out, for, of necessity, their roots are below the fertilizer at the very start.

Setting out Apple Trees.

Before setting a young orchard, it is necessary that the soil should be properly prepared. Deep fall plowing would be improved by subsoiling, and the spring tillage should be thorough, and a liberal supply of manure should not be overlooked. If the soil is not well drained, the land should be well ridged up and the trees planted on the summit of the ridges.

It requires great skill to mark out the rows sufficiently straight with the plow. Poles should be used when a number of them can be easily procured. Make the holes sufficiently roomy for the extension of the roots, setting the largest roots towards the northwest in order to stiffen the trees against the breezes. Spread the roots as much as possible, so long as they are not placed in too horizontal a position, which will cause them to grow too near the surface. Place the main roots in such a position that they will grow half way between the horizontal and the perpendicular line, or say an angle of 45°. When the trees are deficient in roots, plant them a few inches deeper than they stood in the nursery rows, which will give them a firmer stand. Tramp the soil about the roots moderately firm.

With regard to the distance apart, much depends upon the soil and variety. The same variety will grow larger in a rich than in a poor soil. The smaller varieties may be set 25 or 30 feet in rows each way, and the larger growers 30 to 40 feet. It is better to err in placing them too far apart than too close together. When the trees are set good distances apart, aided by proper pruning, the fruit will be higher colored and higher flavored, which makes it more marketable.

In all cold climates, apple trees should be set out in the spring; they should be received for planting in a good condition, and should be planted with all possible speed after their arrival. If your time is limited, you should thoroughly prepare the ground and dig the holes in the fall.

Growing Celery.

Celery is one of our most nutritious and delicious vegetables, and should be grown in every farmer's garden. Being put on the table in its raw state, it possesses a great advantage over the cooked vegetables; for, like fruits, vegetables that can be eaten raw are more wholesome, especially when a large bulk of what we eat consists of cooked food.

Celery requires a rich soil and heavy manuring. The seed may be sown as early as the ground can be worked to advantage. Sow in small beds and keep clean until the time comes for transplanting. Unless your seed merchant is a reliable man, from whom you are sure to get good seed, your best plan is to buy the plants from a neighbor or on the market in your nearest town, and you will thus be spared the annoyance of having bad luck with your seed. The plants may be set out in July. It has been the custom to set the plants in trenches dug 6 or 8 inches deep; but experiments have shown that there is little or no advantage in the trench system. They may be planted on the level ground, like other plants, and afterward banked up. Under any system of planting, the plants should not be covered too deep, merely enough soil being used to cover just to the depth of the roots.

The practice of celery growers differs very widely as to the distance between the rows, and the distance apart between the plants in the row. Much depends upon the character of the soil, the quantity of manure applied, and the kind of plant you want to raise. For show purposes or for the market, make the distances apart greater; for the plants will then grow coarser and larger, but if you want a delicious article for your own table, put the plants closer together in the rows, leaving sufficient space between the rows to do the banking up. In field culture on a large scale, the rows are usually placed 6 feet apart, and the plants 12 inches apart in the row, the plants being set out early in June, and are sometimes transplanted the second time on land from which an early crop has been taken. The plants may be set as close as 4 or 5 inches apart, and 3 or 4 feet between the rows. A light soil is best, being more easily banked, and the manure should be well rotted and well mixed with the soil.

Field Cultivation of Potatoes.

No soil can be got into a mellow condition for potatoes than an old sod. The land should be manured in the fall, and plowed about the first of October. In spring it should be cultivated several times, and there is nothing that will pay better than a liberal dressing of unleached ashes thoroughly incorporated with the soil by the cultivator and harrow. The potash in the ashes is the best fertilizer for the potatoes, and the lime, of which the ashes contain about 35 percent, helps to decompose the vegetable matter, making it more available for food. Besides, the mechanical effect of ashes in mellowing the soil is very great.

The rows should be marked out three feet apart each way, thus avoiding the necessity of using the hoe. A double mould-board plow can be used very economically, and by plowing both ways, the potatoes will be made into hills, and not into drills, as is done when the plowing is only in one direction. The cultivator

should be run over the field at least twice before the plow is used to hill up.

Good, medium sized potatoes should be used for seed. They are usually cut to two or three eyes, and three pieces put in each hill, requiring about 12 bushels per acre for seed.

Raising Onions.

Above all other vegetables, the onion is one which adapts itself to a great variety of soils, providing the ground is first brought into the right mechanical condition. It feeds largely on all the constituents of plant food, a general manure thus being required. However, light soils are best; on heavy or wet land the onion grows too slowly and matures too late. Weeds, and especially grass, are a great annoyance amongst onions, so the soil should first be made perfectly clean. The onion delights in a finely pulverized soil, and the manure must be well rotted, fine, and thoroughly incorporated with the soil. This vegetable being a shallow rooter, it is necessary to have the manure near the surface. The onion is a voracious feeder, and requires its food in an available state. Even when the soil is fairly productive, 30 tons of barnyard manure per acre should be applied to secure the most profitable results. There is no use in attempting to raise onions for profit on a half-fertilized, half-cultivated patch.

When it is considered that 800 to 900 bushels can be raised from an acre, it will be seen that a very small plot will be sufficient for the farmer's own use, and several bags full for the market besides. By all means grow your onions in the garden, where the soil is supposed to be finer than on any other portion of the farm, and where you should not begrudge a few extra loads of manure to please your wife and daughters. Ashes, artificial fertilizers, compost, anything will be a valuable adjunct to the manure, being cautious that nothing be applied which will disturb the fine texture of the soil. These may be applied as a top dressing after the onions are half grown, or compost may be used with the manure. Don't dig or plow deep; for it requires twice as much manure to fertilize six inches of soil as three inches, bearing in mind that the onion is a surface feeder.

Sow 4 to 6 lbs. of seed per acre, according to the quality of the seed and the richness and texture of the soil. When you want green bunches for the market or for your table, sow at the rate of 7 to 8 lbs. per acre, and about the same quantity when you sow for "sets." If you have any suspicion about the seed, put a few of them in water, and if many float, you may be tolerably certain that the seed is bad. Never sow two year old seed if you know it, or can prevent it.

The rows should be made 12 to 15 inches apart, and the plants thinned out to one or two inches apart in the row. Cover the seed slightly but firmly with fine soil, and make firm and fine with the roller if necessary. The lighter the soil the deeper the seed should be sown. Sow as early as the soil is in a proper condition. The onion is very wholesome and nutritious, and should not be wanting on any farmer's table.

The Bohemian oats swindlers have taken \$35,000 worth of orders in Eaton County, Mich.

Poultry.

About Nests.

It may seem to some persons that nest-making is one of the easiest things imaginable, says the Poultry Monitor. And so it is. But for all, there is a knack in making a good nest—a nest that will be comfortable and clean, and well adapted to the purposes for which it is intended. One thing that is of paramount importance about nests is to keep them clean, and the cause of many of our fowls being infested with vermin is in the general carelessness about nests. A nest box is fitted and filled with suitable material, and here the patient hens may sit one after the other from early spring to midsummer, and hatch out brood after brood on the same straw. Here, too, lice find a congenial harbor and breed in safety, for they have plenty of the filth they delight in.

Hens left to their own instincts may need no looking after, in fact they seem to do quite as well, and sometimes better, than if set under the most favorable circumstances. But to allow hens to follow the bent of their inclinations, when we design them to hatch fancy eggs would, as a rule, be wrong. However, in our artificial method of treating sitting hens, we can at least imitate nature as near as possible, for the best results usually follow close attention, care and watching. In preparing nests, take a good sized sod and invert it in the box, fashion it like one a hen makes if left to herself. Over this put some fresh-cut straw, made limp and soft by bruising. If this is not done the sharp ends of the straw would irritate both hen and chicks.

Evils of Over-feeding.

One of the signs of over-feeding a laying hen is the egg-shells become thin, then no shell at all. The hen drops her soft egg when on the perch at night, and eats it the first thing in the morning. The owner wonders his hen does not lay, although she is so red! He should be up before day-break, and armed with a spoon, save his egg.

It is impossible to breed profitable chickens from overfed and stimulated fowls. A bilious hen cannot lay a well developed egg; and unless all the matter necessary to form a chick be in due proportion and of good and sufficient quality in the egg, the chick cannot develop its several organs and parts in perfection. Consequently the owner of greasy, fat, bilious, back-yard fowls has to go abroad for his eggs for hatching; has to take his chances of what he gets. He is always befogged and never knows what he may expect.

If a man has a good layer and wants to breed equally good or better pullets from her, he should feed her moderately on fine sharps or middlings, barley, oats, buckwheat or wheat (not a particle of that oily rubbish, maize); plenty of green stuff, turnips, wurzel, onions, etc.; move her from place to place to put her off laying for a time. Get her into good healthy condition. Her feathers should be clean and close fitting, the bloom gleam again in the sunlight. Then mate her with a bird equally well prepared, and set the first twelve or fifteen eggs. He will not be disappointed.

Some of the delusions of the cottager are that a hen should be served in the same way as a

bolster—stuffed, choked and kept so; should be like a druggist's shop, well stuffed with spices and drugs; that an egg is an egg. But there is as much difference in the quality of eggs as there is between small beer and stingo. Customers hunt the man with stingo eggs, but the man with small beer eggs has to hunt for customers. It is also a matter of brag for a man to stuff and stimulate pullets to lay cob-nut eggs at the earliest possible moment—"Soon ripe, soon rotten."—[National Poultry Monitor.

In-and-In Breeding.

Incestuous—so called—or in-and-in breeding, seems to be a great bugbear to many breeders, and I think without cause, says Dr Foreman in National Poultry Monitor. I maintain that the only true way to arrive at the perfection of an ideal is to select a pair of birds which mate properly, and breed them; then from their progeny, another pair; and so on, generation after generation, until the ideal is attained. There are physiologists who doubt if the disastrous results which sometimes follow in the wake of consanguineous marriages among the *genus homo* are dependent upon that fact *per se*. It certainly is true that all consanguineous marriages do not produce, as a consequence, evil results. It is also true that the progeny of many parents are seriously deficient, both mentally and physically, even when the parties to the marriage are perfect in both respects and not at all blood related. It follows, then, that some other cause than the consanguinity of parents may work disastrously to the progeny. Let us be careful, then, not to cripple our resources and miss the mark of our ideal by riding a hobby. It, I believe, is well known that the present breed of Short-horn cattle has been brought about by a careful in-and-in breeding, and that the early propagators of that stock were as careful to exclude outside blood as some of our poultry breeders are to introduce it.

The habits of at least some wild animals and birds give the lie to the doctrine of incest. Take the common quail. A pair rears a brood of twelve or fifteen young ones. They remain in one flock, if unmolested, until they pair off in the spring, and unless there is an odd one, it is doubtful if one of them ever goes out of the covey, composed wholly of its father and mother, brothers and sisters, for a mate. The quail has certainly not deteriorated either in body, feathers or vitality. The truth is, there is no way of fixing a quality in an animal except by in-and-in breeding. If the doctrine of an original single pair be true, as is maintained by both scientists and Christians, this method of breeding was a primitive necessity, and by its means, no doubt, were the different types of animal life established. Man exercises judgment, discretion and common sense in breeding or propagating everything under his control except his own progeny. That, presumably, is unworthy his exalted ambition. No man can hope to breed any bird up to an ideal until he takes into consideration the fact that the imperfections of the parents, whether of feather, form or constitution, will as certainly appear in the progeny as the desirable qualities. Hence, you may place a flock of the finest Light Brahmas ever produced by Felch or Williams in the hands of a common farmer, and let him breed promiscuously, good, bad and indifferent, and in a few years they will be run down in color, form

and constitution. But let a poultry breeder select from the same flock the best birds for a few years in succession, and he can restore them to their original vigor and beauty.

But especially does the necessity of close breeding exist in such new varieties as the Wyandotte. Every bird is liable to breed back and produce more or less of the infirmities common to the flock or parentage from which it came. Hence the necessity of excluding foreign blood if an ideal is ever to be obtained. Let every breeder ask himself the question whether he knows by careful observation that in-and-in breeding results so disastrously as he has been led to believe, and I think there are but few who so believe but will be compelled to admit he has believed on insufficient evidence.

Fertilized eggs, or eggs that will produce chickens, can be distinguished in from five to seven days after the hen begins to sit on them. If held against a strong light the germ may be seen in a dark spot, and the examination may be relied upon. If no dark spot is visible at the end of seven days, the egg is sterile and may be removed. When examination shows the shell full and dark, the chick is within a day or two of hatching, and if the little bird is alive the ear will readily detect its movements within the shell. Eggs for hatching should be selected with care. The largest are not always the best. Choose the medium-sized and those that taper sharply to the small end. Carefully examined against a strong light, eggs may be selected which in nine cases out of ten will hatch.—[Orange County Farmer.

Mr. Franklin, as reported in the *Home-stead*, says the reason for finding so many dead chickens in the shells at the end of the period of incubation is the lack of moisture in the eggs, thus causing a thick, mucilaginous substance to adhere to the backs of the chicks, and almost cementing them in their prison shells; also the want of vitality and strength in chicks to break the shells. Eggs of Asiatics are harder to hatch than other breeds, Leghorns the easiest. The best breed for early spring chicks, for raising broilers, etc., is a cross of Light Brahmas and Plymouth Rocks, which produces a large, strong chick that grows rapidly, feathers early, has a yellow skin, dresses off plump and fine, and are by far the most profitable to raise for early chicks. One of the principal reasons for lack of fertility of eggs in cold weather is confinement of the hens, their yards and runs being covered with ice, etc. Long experience has proved that the laying hens require outdoor exercise to make their eggs hatch well during the cold winter months. The incubator is indispensable if very early chicks are to be hatched, and the brooder is just as important to raise them in any season, as the rate of mortality is so much lower than by the mother hen.

"A bird in the hand is worth two in the bush" is a proverb that cannot always be relied on. If the man with the bird in the hand kills the bird, the latter had better remain in the bush. The existing practice of killing birds for the purpose of decorating ladies' hats should give rise to the proverb: "A bird in the bush is worth two in the hat." Killing birds is not only a shamefully cruel practice, but also ruinous to the best interests of the people. The chief cause of destructive insects, which destroy crops to the value of many millions of dollars annually, is the destruction of birds which feed upon them. Associations ought to be formed everywhere for the protection of birds.

Correspondence.

NOTICE TO CORRESPONDENTS.—1. Please write on one side of 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. If an answer is specially requested by mail, a stamp must be enclosed. Unless of general interest, no questions will be answered through the *ADVOCATE*, as our space is very limited. 3. Do not expect anonymous communications to be noticed. 4. Matter for publication should be marked "Printers' MS." on the cover, the ends being open, in which case the postage will only be 1c per 4 ounces. 5. Non-subscribers should not expect their communications to be noticed. 6. No questions will be answered except those pertaining purely to agriculture or agricultural matters.

Correspondents wanting reliable information relating to diseases of stock must not only give the symptoms as fully as possible, but also how the animal has been fed and otherwise treated or managed. In case of suspicion of hereditary diseases, it is necessary also to state whether or not the ancestors of the affected animal have had the disease or any predisposition to it.

In asking questions relating to manures, it is necessary to describe the nature of the soil on which the intended manures are to be applied; also the nature of the crop.

We do not hold ourselves responsible for the views of correspondents.

Saddle on Working Harness.—Discussions prevail with us about the saddle on working harness; some say it is useless, others again the reverse. In your experience I hope to get a satisfactory solution.—**ENQUIRER, Carrick.**

[The general rule may be laid down that the less fixings about the harness the better. However, for young or wild horses the rule should sometimes be reversed. For horses that are well broken in, we would not use a harness saddle for field work or in the wagon, especially in warm weather. The horses feel freer and will likely perform more work.]

Feeding Grain to Horses on Pasture.—When a horse runs out on pasture in summer, will it do him any good to give him a small feed of grain before driving him? Some say that it won't unless he is fed regular.—**E. H., VIENNA, Ont.**

[It is injurious to horses to feed grain when their stomachs are full of grass, as the bowels are then overloaded and digestion is interfered with. However, when the stomach is only partially filled with grass, a light feed of grain will not likely prove injurious, although it is better to accustom the horse to grain on grass by feeding it regularly and not at distant intervals of time. A good deal depends upon how the animal masticates the grain.]

Enlarged Thyroid Gland.—I had a calf last spring that died, we think from an extraordinary large lump of flesh, very much like liver in appearance, growing around the windpipe, and an aged ram we had was affected the same. I should like your opinion as to what it is and the cause of it, and also if it could be cured.—**T. W. F., OXENDEN.**

[It is a case of enlarged thyroid gland, often found in young stock, the cause not often being known. The treatment is as follows: Dress the enlargement with tincture of iodine, and for young calves, give small doses of iodide of potassium in the milk, say one-fourth of a drachm every morning and evening. The ram may be treated in the same way, but give the iodide of potassium in half drachm doses in soft feed—such as bran mash or boiled oats.]

Calves in Orchard.—I suppose you are aware that calves, from one to three months old, when allowed to run in a young orchard, are most destructive to the trees. I was surprised to find this to be the case when I let a few of them into my orchard two years ago. The same number of goats could not have been more industrious in peeling off the bark than they were during the short time they were allowed to remain, and these same calves at six months old did not molest the trees in any way. Now it would be very convenient for me to put the calves in my orchard this year, and I want to know if you can give me a remedy for the above, or suggest some plan of protecting the trees.—**R. B., Brantford.**

[We know of no better plan than using hurdles to fence in the calves between the rows of trees, moving the hurdles every week or so. These hurdles come useful for various other purposes, and should therefore not be regarded as expensive.]

Michigan Canadians.—Myself and family prize the *ADVOCATE* very much. Though a Canadian publication, I find it just as well adapted to our wants here in Michigan as when I lived in Canada. In reality I think you Canadian people are becoming more American every year. This country has a marvelous power of "assimilation." Our crops were very good here last year; hay saved in fine condition; fall wheat good; 30 to 40 bus. per acre was a common yield. One man had 5 acres of Egyptian wheat that weighed over 50 bushels to the acre. Barley did fair, peas well, oats not so well as previous year. We did not have as much rain in harvest as Ontario; clover seed good, one of my near neighbors had 134 bushels from 20 acres.—**W. S. MARLETTE, Mich.**

The Right Hon. W. E. Gladstone's Farm—The Kerry Cow and a Lamb Raiser—Clovers and Grasses.—Having read your valuable paper with thorough interest for some years both in England and Canada, I would feel pleased if the following facts may be of any value for your columns.

My father farms 635 acres in the Parish of Hawarden, near Chester, England, under the Rt. Hon. W. E. Gladstone, and has won several hundreds of premiums at different exhibitions both for crops and stock. He has a breeding flock of from 250 to 350 ewes, of which I had charge. About 7 years ago we had a very wet and cold lambing season, consequently the ewes were weakly and short of milk; thus I had several pet lambs, which you know are a great nuisance. Having a very small half bred Kerry cow, it struck me she may be a useful assistant to rear the lambs, so with a little patience I succeeded to get her quiet with them (had no difficulty to get the lambs, to suckle, and in a short time she got so fond of them that she made more fuss over them than if they were her own calves; eventually we turned her to pasture with 8, which she reared splendidly; if one was sickly she would fondle it continually, never straying away more than a few yards. She knew her own, and should a stranger try to steal a suckle, became very furious with it, but would adopt any lamb in about 4 days. One season she reared 14 (not all at the same time), but am sorry to say that, when we weaned the last lot she reared (it was in the harvest, and we were too busy on another part of the farm to note her doings), the poor creature fretted so badly that she fell very sick; we could not conceive what to do for her, so put her in the stable; in a few hours she became very weak, being hardly able to stand. As a last resort I brought her favorite lamb, and will never forget the next sight I saw; when I got to the stable door she was moaning at the further end of the box stall, but the instant she heard the lamb, the poor thing came trembling across (too weak to walk), and never once took her nose from the lamb until she died in a few hours, being about 2½ days from the time we weaned the lambs, when she was in perfect health. The pastures in which they grazed were close against the railway track and highway; very frequently a passer-by would call at the house to say that the lambs were suckling one of the cows, not thinking they had any right to do so. The above facts can be thoroughly vouched for. If you will allow me, I will say a few words on clovers and grasses. Your prize essayist is perfectly correct in his admiration of Timothy, Cocksfoot (orchard grass) and Meadow Fescue, as for permanent pastures we found them 100 percent better than any other kind; but Cocksfoot is the best. Our attention was first called to this several years ago, as we noticed that there was a particularly rough-looking, strongly and quickly-growing grass which the sheep ate ravenously, and would always pick it out, gnawing it almost out by the roots, while they refused to eat the grass around until it was eaten. My father at once inquired from a well-known seedsman what it was. He said it was Cocksfoot (*Dactylis glomerata*). Father was so much interested that he tried several experiments, proving the three I named far the best, but Cocksfoot will grow twice the bulk that Timothy will for a hay crop, while the Fescues are not much use for hay crops. Our favorite mixture for haying one or two years, is Red Clover, White Trefoil and Alsike; grasses, Italian Rye Grass, Cocksfoot and Timothy. Your essayist speaks highly of Rye grass for permanent pasture, from which I infer he means the English Perennial Rye, which we considered to be a worse weed than the thistle, being so very why that no animal will eat it. But the great secret in getting good pastures or haying lies in the proper cultivation and preparation of the soil for a seed bed. A deeply worked clean seed bed must first be had, but it should be at the same time rather firm on the bed's surface, as this enables the seeds to strike out and take hold of the soil easier. The best plan we found was to plant wheat after a hoe crop in the fall, and sow the seeds in the following spring as soon as the wheat would bear harrowing and rolling. Yours respectfully, **J. R., Brantford, Ont.**

Value of Barley Straw—Alsike vs. Red Clover.—(1) What is the feeding value of barley straw, and how does it compare with oat straw? (2) Will Alsike clover do as well on sandy and somewhat dry soil, as red clover? And, both being the same price, which would you advise me to sow? (3) Can Lucerne be sown with other grasses, or must it be sown alone?—**C. W. B., Prescott, Ont.**

[1. Both grown on the same soil and harvested alike, oat straw has a considerably higher feeding value than barley straw. 2. Yes, if the weather is not too dry. We would advise you to sow Alsike. 3. Lucerne may either be sown in permanent pasture mixtures or by itself. It is well adapted to soiling when sown alone.]

Roaring in Horses.—I have a horse that has the "Roars," or at least what people call the "Roars." The horse seems quite well when standing still—at least he is well at all times, only after taking a heavy pull he seems to get out of breath and becomes quite choked up; he tosses his head up and down, and opens his mouth occasionally until he gets his breath. Then he appears as well as a sound horse. The animal is in good condition, only he appears to be getting a little blind.—**W. G., Bracebridge, Ont.**

[If the roaring is caused by a thickening of the mucous membrane of the larynx (windpipe), it will be relieved by a stimulating liniment, such as a mixture composed of equal parts of turpentine, ammonia and oil, rubbed in every third day. When it is caused by atrophy of the muscles of the larynx, there is no hope of relief, except when treated by a skilled veterinary.]

Seasonable Notes on Poultry.—Success in the poultry yard depends largely on the pride that is taken in this department, and the one that has this is sure to succeed. As the hatching season is now upon us, a few seasonable notes may not be out of place. The first and main point in the poultry yard, as well as in any other business, is honesty—straight-forward dealing, no matter who he or she may be with whom you have to deal with. No one ever made anything by trying to take the advantage of any person. Great care should be taken with the setting hen. If it is at all possible, never have her where other hens are laying, but get them into a place by themselves where they will not be disturbed by other hens, and after they are once set all that is required is to give them feed and water daily, and leave them to come off and on at their own will, and never handle or touch the eggs, as the hen will turn them often enough. But in order to have early chicks we must have a warm place both for the setting hen and also for the chicks after they appear. Ducks by this time should all be laying, and now is the time to set for early birds and show purposes. They should be set under hens, as you will have better luck this way, and by doing this you can keep the ducks laying right on. Ducks are great foragers; therefore they grow very rapidly, and can be raised on every farm with large profits to repay all trouble that is bestowed on them, especially if they be pure bred, for they can be sold in the fall for a handsome price for breeding or for the market.—**W. B. C., Aberfoyle, Ont.**

Alsike for Pasture and Seed.—Would it be injurious towards securing a crop of seed to pasture a field seeded exclusively to Alsike clover until say the 10th or 15th May, my object being to lessen the growth of stalk and thereby to prevent lodging as much as possible.—**J. T. K., Iona Station.**

[Much depends upon the season and locality; but as Alsike makes a poor growth after August, we think you would not be safe in pasturing much in spring.]

Interesting Notes from Manitoba.—There is not much of any interest that seems to suggest itself to me on which to write you. Wheat has taken a turn in favor of the farmers, who now get 75 cents for best wheat; but unfortunately there seems to be but little of that remaining in farmers' hands. Barley may be bought for 25 cents, and oats for 18 cents per bushel. Pork is quoted at the low figure of 4½ cents, and beef, according to quality, from 4 to 7 cents per lb. I was glad to learn from your correspondent's letter in last month's issue that there are some parts of our country where prosperity, and its twin sister contentment, are no strangers. I wish they were more generally known over its entire surface. But the deserted farms, with their buildings falling to pieces, and the yellow petals of the wild sunflower and arctostyle gleaming in the sun, where a bountiful harvest of golden grain should be gathered, seem to tell another story. Yet nature has lavished her gifts upon some parts of our country; we have a soil full of fertility and easy of cultivation. Still we languish. How is this? The want of railway facilities doubtless has been a great drawback to our prosperity. It is neither pleasant nor profitable to have a two or three days' journey to market our grain, and then to receive about enough for our load to pay expenses, and on returning to our homes to find that some prowling Indians had paid our house a visit during our absence, and kindly carried away our blankets and store of provisions. This is no fancy picture, but has really happened this fall. Another drawback has been and still is the heavy taxes on our tools and other necessities of life. Why should we have to pay 35 percent more for an inferior article, for the benefit of a few eastern manufacturers? If there is any reasonable cause why this should be, we certainly are so pig-headed that we cannot see it. We seem to think that we ought to be allowed to buy where we can get the best value for our money, and not be compelled to give \$250 for a binder when we can get its equal for about \$100. This seems to touch a sensitive place—our pocket. But notwithstanding our grievances, fancied though they may be, we have some faith in the future of our country. It is too good a land to be given up to the red man as a hunting field. What we want is a start, and with fair play, in a few years we shall become one of the chief food-producing countries in the world. In your last issue there was, in "Papers for Amateur Fruit-growers," a little good news for us in Manitoba. If there are varieties of apples so hardy as to thrive in places where the thermometer seldom falls lower than 40° below zero, they certainly

would do well in certain localities here. For where such fruits as the grape, plum, cherry, raspberry, strawberry, gooseberry, currant, etc., grow abundantly in a wild state, apples of such hardy varieties would stand a fair chance of succeeding. The trouble is to get a few trees for trial. I don't think our Government would have spent \$100 to more advantage for many years, than they would do if they sent a few trees to trustworthy persons in different favorable localities. I believe they would thrive, but unfortunately have not the means at disposal to make the experiment.—R. C. B., Stodderville, Man.

Pea Straw for Horses and Cattle.—1. I intend sowing about twenty acres of new land with peas. What ration will be the most proper, using the pea straw as bulky food for horses, cattle and sheep? 2. In recommending roots, say which would be best, mangels or turnips, with carrots, for horses.—W. J. T., Manitowaning, Ont.

[1. All depends upon the other foods fed with the peas. Peas are highly concentrated and should be fed with bulky foods. The grain part of the ration should not consist entirely of peas; it would be better for you to sell a portion of your peas and buy oats or bran, if you can get them at reasonable prices. However, if you feed nothing with the pea straw except peas, give six to eight pounds a day to each animal, with about half a bushel of roots, for fattening purposes, or for milk. If the pea straw is poor, on account of being cut late, or being too long exposed to the weather, and if the animal fed weighs over 1,000 lbs., you may feed one or two lbs. more peas. We would advise you to cut some of the peas just after they are in full blossom, if you can get good weather for curing them; this makes good food for horses and sheep—better than the average quality of hay. Except for fattening or milking purposes, animals will thrive on this straw with little or no grain fed with it. Peas and oats sown together and cut green make an excellent food for winter. 2. Mangels contain more sugar than turnips, but turnips have more nitrogenous or flesh-forming substances, so that turnips should be fed with the bulkier foods, and mangels with the more concentrated rations.]

Feeding Working Horses—Manure for Onions.—Would you kindly tell me in your answer correspondence, what is the best grain to feed with cut oat sheaves for working horses, or would bran, shorts, or oil cake meal be better than any of the grains? 2. What kind of artificial manure to use for onions; the land I wish to grow them on is a clay loam, and was highly manured with rich stable manure last year.—C. I. S., Columbus P. O.

[1. Cut oat sheaves are too dry when fed alone. Bran or shorts are excellent additions to the rations. A few carrots or apples may also be added with profit, and a small quantity of oil meal for a change will never be amiss, especially when the bowels require relaxing, but hard feed should not be given with the cut oat sheaves. Don't give the bran or shorts in the form of slops, but mix them with the cut stuff? 2. Read our article on onion culture.]

Turnips for Stock.—Another of our Model Farm lecturers at Woodstock stated that it did not pay to grow turnips; they contained ninety percent of water, etc. The farmer who grows turnips and raises stock, or feeds beef for the English market with the turnips and coarse grains he grows, fills his yards with rich manure, and his pocket with the needful. It is well known by all practical stock breeders that our stock must have a change of food in order to keep them in good health, and to obtain the best production of flesh and milk. Turnips are the English farmer's sheet anchor. Our turnips have averaged 600 bush. per acre; we value them at five cents per bush. for feeding beef; there is no other crop we grow that will average \$30 per acre.—W. C. S., New Hamburg, Ont.

[Turnips, when judiciously fed, are worth three times five cents per bushel, and have a worth beyond their nutritive value. Turnips are the cheapest succulent food which the farmers can raise.]

"New Canadian" Wheat. I send you by parcel post, to-day, ten heads of the so called "New Canadian" wheat. I just saw your answer to my question in ADVOCATE that came to hand last night. Would like to have wheat identified, if possible, and would also like to know where I could get a clean seed of it.—W. S., Bay View.

[If any of our readers know anything about the variety of wheat called "New Canadian," they would greatly oblige by informing us.]

Pin Worms.—Could you advise me of a cure for pin worms in horses and the probable cause of them? I have tried hardwood ashes, but it does not seem to kill them.—R. N. E., Kingsbury, Que.

[Apply a solution of quassa chips, and give the animal a laxative.]

Flour for Cows—Snow Water for Stock.—I have a quantity of low grade flour which I wish to feed to my cow. Could you tell me in what shape it would be best to feed it? I don't want to increase the quantity of milk, as she gives more than enough already. I want to keep her in condition. She is a 3-year-old Durham, and, I think, in calf. She is fed on hay. 2.—Will snow water have any injurious effects on a mare in foal? She is not worked, and is fed on hay. She is in good condition. Should the water be given cold or with the chill off?—F. G. A., Humboldt N. W. T.

[Flour, or any fine meal, should never be fed by itself, as it balls in the stomach, nor should it be fed in the form of slops. Mix it thoroughly with bran, coarse meal, or cut hay. In fact all meals should be mixed with cut feed. Don't feed bran if you wish to diminish the flow of milk. 2.—Water from clean snow is much purer than the average water given to stock. The water should neither be cold nor warm.]

Black Muck and Lime Composts—Lime for Vegetable Soils—Draining Muck Land—Reducing Bones.—1. Please inform me through your columns the most profitable way of using salt black muck and lime, whether together or separate. If together, should the lime be slaked before mixing? The muck is not quite as salt as marsh mud. Is lime useful on black soil where there is no clay to mix with it? If so, how should it be applied? 2.—Should black mud be ditched or left in a wet state where it has a natural chance to drain and is not swampy? It brings fair crops of hay in damp seasons, but poor crops in dry seasons. 3.—What way can bones be turned into fertilizers to the best advantage?—G. W. B., Petticoilac, Westmoreland Co., N. B.

[1.—Black muck may be successfully composted with lime, putting a dressing of slaked lime between the layers of muck and keeping the heap moist. The lime helps to decompose the organic matter. However, this method is only profitable on a small scale for special purposes. Such compost should not be put on vegetable soils. Lime may be spread on land rich in vegetable matter; but such soils do not require muck. Spread the muck on clay or sandy soils, just as you would apply barnyard manure, and plow it under. 2.—All depends upon the character of the subsoil. If the water is removed by natural drainage within 24 to 36 hours after heavy rains, the land does not require draining. 3.—See our issue of March, 1885, page 74.]

Manitoba Wheats—Must Red Fyfe go?—The proposition made some days ago at the meeting of the Manitoba Board of Agriculture to do away with Red Fyfe and substitute therefor some other variety such as White Fyfe, Golden Drop or White Russian, does not meet with general favor. The chief objection to Red Fyfe is that it is not early enough, and therefore it catches the frosts which are inevitable in the Northwest during the first week in September, and, as we have seen for the last three seasons, somewhat earlier. Certainly the attention of Northwest grain raisers is properly bestowed when it is given to a solution of the problem of getting a variety of wheat that will not only mature early, but that will keep up the reputation the Northwest has already achieved for raising hard wheat, unexcelled in any other part of the world. So long as the markets of the world continue to be inundated with soft wheat, such as we have seen produced on the Pacific Coast and in more southern latitudes, the Northwest varieties must hold a first place. Another objection raised against Red Fyfe is that it is not as productive as White Fyfe, and under certain conditions the former would not ripen, but it has been clearly shown that such conditions would be unfavorable to the maturity of any variety, and therefore, until a variety is found that is free from these objections, Red Fyfe is the safest and best yet in use. It was shown to the satisfaction of the Board that Golden Drop is much earlier than either varieties of Fyfe, but it was admitted that it was more liable to smut than either. The experiments now in progress amongst a considerable number of Northwest farmers in order to discover a variety of wheat that will exceed any known variety, must, sooner or later, eventuate in a variety that is an improvement in all respects, for if these conditions cannot be reached, the efforts will have been in vain. Some of these experiments are being conducted with much scientific knowledge; while, in the majority of cases, they are but the crude and ill-digested essays of settlers who know little or nothing of the scientific features of experimental farming; but a variety may be stumbled on just as the "Goose" wheat of Dakota was found. A wild goose was shot two or three years ago in the Turtle Mountain District, Dakota, and in its crop was found a few kernels of wheat of a variety which Judge Bennett, of Fargo, declares is something not only new, but the best variety yet. The contents of the goose's little granary were sowed, and from these has sprung a variety of wheat that bids fair to take the lead in northern Dakota and Minnesota. Undoubtedly one of the necessary features that will have to be observed by Manitoba and Northwest farmers is that the farmers will have to get up earlier in the morning and take more advantage of this than they do. It is a matter of observation that those who have been

good farmers in Ontario are indifferent farmers in Manitoba and the Northwest. This is in most instances due to the boom craze which was sweeping in its course, "taking in" a great area, and affecting farmer and city dweller alike during its reignancy. Its effects are still lingering, and it will only be when the farmers have "settled down" to real work that these effects will disappear. At best the summer seasons are very short in the Northwest, and as this fact appears to have been lately recognized more expedition is beginning to show itself. How to escape the early frosts is one of the problems, and more expedition is the solution. True, an earlier variety of wheat than both Fyfes or the Golden Drop may be found, possessing the other good qualities of plumpness and hardness, but it is yet an unknown quantity, though it would be assuming too much to say that it is incapable of solution. Some years ago the well known Squaw Corn was introduced into the eastern country from Montana as a variety that would mature in six weeks. It undoubtedly does mature in this short time, but the corn is as hard as flint, so hard, indeed, that a "racer" becomes toothless if he is fed on it. It has not been inexpressively termed "flint" corn from its adamant quality; and there is a legend that in Montana, where it originated, the settlers use it to cut glass and iron. The re-occurrence of early frost may continue to be a marked feature in the climate of the Northwest, though these frosts were unknown prior to '83, and for this adverse climatic change the settler must be prepared. He must take advantage of time more than he has been doing. He must subscribe to agricultural journals and peruse them attentively. He must follow the example of his Dakota neighbor in this respect—he must read more than he does. He will thus combine science and practice, and so be enabled to keep abreast of the times. A very large proportion of the Northwest settlers are untried and inexperienced, so that there is greater need on their part to study the literature of their calling. They are told a great many useful things by wise ones, who among other things, advise them to go into mixed farming, forgetting that it takes money to act upon the advice. It takes money to purchase stock, and the money—"aye, there's the rub!" but the settler is doing this as fast as he can, in many instances faster than he can afford, for in these days the settler, like other people, is too ready to rush into difficulties by pursuing will-o'-the-wisps. One experiment he may pursue without investing any capital, that is, he may be more spry, get around more rapidly than he does, and by taking advantage of time escape the ill-effects which the regular frosts are sure to bestow on his crops if he continues to be as tardy in the future as he was in the past, and as he still is in the present.—G. B. E., Winnipeg, Man.

Treatment of Clay Land.—I have a piece of heavy clay land on which I wish to grow hay. It is so hard ground at present, but does not bring more than half a crop. By plowing and sowing with oats, I can get a good crop of green feed without manure. Which of the commercial fertilizers would you advise me to use in order to get a crop of hay in after years? What quantity per acre, how applied, and probable cost? My land is somewhat late on account of springy land of my neighbor's lying higher than mine. Would it be a good plan to dig an open ditch on the line and another down across my place.—W. G. C., Queen's Co., N. B.

[Fertilizers will produce little or no effect, especially in a wet season, until your land is thoroughly drained. An open ditch would only benefit the land near it; you should tile drain the field. Read our articles on "Farm Drainage." You should only sow shallow rooted crops until the land is drained. By draining you will require few or no fertilizers for several years. For prices of the different constituents of fertilizers see our February issue, page 38.]

Muck—Wood Furnaces—Transplanting Maples.—1. Seeing in a back number of the ADVOCATE that there is a difference in black muck with regard to its value as manure, I would like to know, through your valuable paper, where I could get it properly analyzed to see if it is the right sort or not for putting on sand or clay knolls? 2. Where could I get mineral water analyzed? We have a spring of it on our farm, and would like to know what is in it, as the cattle like it and get fat drinking it. 3. What is your opinion with regard to wood furnaces for farm dwellings. 4. Is it better to transplant ash-leaved maples in the spring or fall? We have about 500 one-year-olds.—D. B., Warkworth, Ont.

[1. All mucks are rich in nitrogen, but the percentages vary considerably in the different kinds. You cannot get it analyzed except by paying a heavy charge to some expert analyst; but if our Government did its duty to the farmers, it should do all sorts of analyzing free of charge. Any kind of muck is good for sandy or clayey soils. 2. Write to the Minister of Agriculture, Ottawa, and ask him if he will get it analyzed by the public analyst. It is nonsense to talk about cattle getting fat on mineral water. 3. We think wood furnaces would be rather expensive for heating farm dwellings, except in large dwellings where the whole house is required to be kept constantly heated. 4. There is a dispute about the best time for transplanting trees, some advocating the fall, others the spring. Much depends upon the nature of the season. Transplant when you have the most time, spring or fall.]

The Household.

Hot Water Remedies.

Hall's *Journal of Health* publishes some interesting facts relative to hot water as a remedial agent. It says:

There is no remedy of such general application, and none so easily attainable, as water; and yet nine persons out of ten will pass by it in an emergency to seek for something of far less efficiency.

There are but few cases of illness where water should not occupy the highest place as a remedial agent.

A strip of flannel or a napkin folded lengthwise and dipped in hot water and wrung out, and then applied around the neck of a child that has the croup, will usually bring relief in ten minutes.

A towel folded several times and dipped in hot water and quickly wrung and applied over the seat of pain in toothache or neuralgia, will generally afford prompt relief. This treatment in colic works like magic. I have seen cases that have resisted other treatment for hours yield to this in ten minutes. There is nothing that so promptly cuts short a congestion of the lungs, sore throat or rheumatism as hot water, when applied promptly and thoroughly.

Pieces of cotton batting dipped in hot water and kept applied to old sores or new cuts, bruises and sprains, is the treatment now generally adopted in hospitals. I have seen a sprained ankle cured in an hour by showering it with hot water poured from a height of three feet.

Tepid water acts promptly as an emetic, and hot water taken freely half an hour before bedtime is the best of cathartics in the case of constipation, while it has a most soothing effect on the stomach and bowels. This treatment continued a few months, with proper attention to diet, will cure any curable case of dyspepsia.

Headache almost always yields to the simultaneous application of hot water to the feet and back of the neck.

It is an excellent plan to record facts like these in a note book, which should be always at hand when wanted. In the anxiety caused by accidents or sudden illness in the family, one becomes confused and is not apt to remember quickly what should be done; hence there may be prolonged and unnecessary suffering before proper remedies are applied.

Useful to Know.

Milk will usually remove ink stains.

Linseed oil will remove rust from a stovepipe.

Borax water whitens and softens the hands.

Ammonia water is the best for cleansing brushes.

To freshen velvet hold the wrong side over boiling water.

Wet mildewed fabrics with lemon juice and lay them in the sun.

One use to be made of a colored table-cloth which is too much faded to look well on the table, is to turn it into a crumb-cloth. Starch it as stiff as possible, iron it nicely, keeping the edges straight. Instead of tacking it to the carpet, pin it in place; then it will be little trouble to take it up when it needs washing. It will keep clean a long time.

Family Circle.

SPRING-TIME: A PAINTER'S STORY

"Where did you get that model from?" We were standing, my host and I, before a picture in his drawing-room. It was a fairly large picture, labelled "Spring-time," a scene somewhere in the heart of the Kentish woods. A mossy footpath through the coppice led up to the brow of a slight hill, and there, among the budding hazels and the dappled stems of the silver birch, a young girl of about seventeen stood gazing dreamily forth over the misty valley that spread out at her feet. Her hands were clasped behind her, and held a dainty posy of wood violets and primroses, freshly gathered; while by her side and holding to her apron-string stood a little chubby-faced boy—like her, gazing steadfastly into the scene beyond, but with a nearer and more practical vision.

The maiden's face was lovely with an ideal beauty. Waves of pale but sun-bright, golden hair flowed from her brows like an aureole, her skin was very pale and delicate, but suffused on the cheeks with a faint rose flush like the pink of a new-blown wind-flower; dark lashes dropped over a pair of deep violet eyes of limpid purity, and a smile beamed on her ripe half-parted lips. She reminded one somehow of the early dawn with its golden promise in the eastern sky, or of the spring-time with its dewy freshness, the carolling of its feathered songsters, and the sweet smell of its tender flowers. The primrose had lent some of its yellow to her tresses, the petals of the wood anemone suffused her cheek, and the wondrous blue of her half-hidden eyes seemed to have been distilled from the shade-loving violet. Her very dress, of some white gossamer material trimmed with dusky green, was in harmony with the snowy clouds and bursting leaves of spring.

It was a strange, poetical, fascinating picture. There was a strangeness in the wistful beauty of the girl's face which you could never fathom, gaze as you would; and there was a strangeness, too, in the unseen valley as it lay before her veiled in the mists of morning. The strangeness of the new, remotely-spreading prospect, and the unknown life before her, were blended into one.

"Where did you get that model from?" I asked. My host was an artist of middle age who had made his mark. I was merely a young beginner whom he had taken a fancy to, and made a friend of, partly for my father's sake. We were alone in the room, for my patron was a lone man and we had simply dined together.

After I had put my question he was silent for a few moments. Then he said very gravely—

"Well, I will tell you where I got that model. Let it be a secret between you and me. In my young days I was, you know, not at all a wealthy man. Like so many young artists, I was poor and penniless, living in my painting-room itself, and dining out at a cafe; but I was hard-working, eager to get on, aspiring to be a great painter. To keep soul and body together, I painted "pot-boilers" for the dealers, innumerable mossy birds' nests with blue eggs in them, artistically, but I'm afraid not very naturally, posed beside a sprig of may-blossom or a flowering primrose. Whenever I wanted a new hat or a new pair of boots, I painted a "bird-nest," and the dealer always took it at the same price—two pounds ten. But all the while I was bent on painting a picture for the Academy. Not a little, unambitious effort, a head of game lying on a marble slab, a bunch of fruit, or the corner of some old brick house by a canal, to show that I could use the brush, and get, perhaps, a lofty place in some obscure corner. No! I was bent on painting a striking picture which would create a sensation and be the making of me. If a young artist is to break the chains of his drudgery and free himself from the slave's lot, he must paint a picture that shall tell.

I had chosen the subject "Spring-time," perhaps because I was bred in the country, and often, in my lonely "diggings" at night, I looked back on the old times when I was a little urchin and used to roam the woods in early spring with my little sister, to pluck the first primroses that grew beside the waterfall on the old mill-stream. I forget now how the idea arose, but it grew in my mind by degrees, and gradually took form as time went on. Sometimes I got a hint from a book, or another picture, or a walk in the fields; and one day I happened to go into a small newspaper shop in the village of Hornsey, not far from where I lived, to buy a paper, when I saw what I had been unconsciously seeking. I saw my model.

For some time I had formed the intention of putting a young girl of budding womanhood into my picture; but my conception of her was yet vague and shadowy. Now, however, I had found the very being, and my mind was made up. I took an early opportunity of revisiting the shop, and entering into a friendly conversation with the girl. I found out that her father was dead and that the shop belonged to her widowed mother, who lived over it, that she and her elder sister kept it, and that they were not very well off. I ordered my newspaper from the shop and frequently bought odds and ends there; then, after our acquaintance had ripened more, I ventured to broach the subject of the picture. Would she be willing to sit to me for her likeness?

She blushed and smiled in a pleased manner when I asked her, and I saw that the opposition, if any, would not come from her. Her vanity was flattered; she would be painted in a picture, and written about in the newspapers, and everybody would come to see and admire her face. Yet, after the first gratification was over a modest doubt showed

itself in her eyes. She said she would consult her mother and let me know to-morrow.

Next day I called for my answer and saw the old lady herself. Mrs. Maynard was a very respectable elderly woman, with a grave, maternal face, and yellowish-white hair. There was an exceptional refinement about her features and manners, and I saw that she scanned me particularly and with a somewhat anxious air. The scrutiny evidently resulted in my favor, for, after questioning me as to the nature of the sitting, the time, the privacy, and the remuneration, she turned about to her daughter with a relaxing smile and said—

"Well, Lily, if you would like to go, you can." Lily's face beamed up with radiant joy—her moods were instant and swift as lightning. "Oh, yes, mamma, I should," she responded eagerly.

So it was settled, and Lily became my model. She used to come every other afternoon and sit till dusk. By degrees, her sweet, ever-changing expression and naive girlishness bewitched me. Perhaps, too, I invested her with some of the ideal qualities I was striving to put upon my canvas. Day after day as she sat there before me, I discovered new beauties in her glorious face, with its golden aureole and wistful eyes. It seemed to grow into my life and blend itself with the highest part of me, my imagination. Little Lily, the shop-girl, became my romance.

For a long time I did not discover this, even to myself. We seemed to be very good friends. She would stand patiently before me, sometimes lost in a dreamy trance, sometimes turning up her eyes at me with a roguish look which made me laugh and cry out—

"Why, what's the matter with you, Lily?"

"Nothing," she would reply. "Why do you ask?"

"You look at me so comically."

"I look comical!—thank you—you are very complimentary."

"Now give us your dreamy expression again."

"My dreamy expression—have I a dreamy expression?"

"Yes, you know you have—ethereal and dreamy."

"Ethereal and dreamy. Well now—and comical!"

"Yes, and comical—when you like."

"Then I must be a queer creature."

"That you are, you witch," I could not help answering. But my work recalled me to myself.

She came punctually at the hour, and left as punctually. Our intercourse was confined to gossip and good-natured chaff within the studio, until I altered the composition of my picture for a better inspiration that had come to me, and, finding that my time was limited, arranged for her to stay with me after dark. Then I got into the habit of escorting her home through Hornsey Churchyard.

It was then I began to find out that Lily loved me. In the studio she was always cheerful, but never showed any signs of tender feeling excepting (as I remembered afterwards) when I went near her to adjust her dress and put her in the proper pose. Then she blushed with self-consciousness, and smiled with ill-concealed pleasure at my touch. Dear child, I think I see her now! On our walks home, however, I gathered from many slight tokens, obvious to the lover, that she cared for me. Her very bounding spirits, and coy laughter, and quaint repartee were evidence of it.

One evening we had a quarrel. We always spoke to one another without ceremony, and I sometimes took a wicked pleasure in teasing her. That night it had begun to snow, and the flakes fell thick around us, as I sheltered her with my umbrella from the blast as we went along the lanes.

"Now don't you think I deserve something for seeing you through the snow to-night?" I said.

"You are well enough 'paid' for it," she replied.

"How so?" I asked.

"In seeing me."

"Oh! indeed?" I answered, rather taken aback.

"I'm sure I don't want you," said Lily.

"I think you are very impudent to say so," I remarked after a pause of several minutes, during which we walked on side by side through the falling flakes.

"I don't like to be called impudent, Mr. Morley," she said. "If I am impudent, I don't think people ought to tell me so."

"People should be told their faults," I observed, feeling that a great gulf had opened at my feet, and that the future was charged with some vague and dreadful catastrophe.

"That depends," said she, and no more was said. We walked on in silence until we came to the door of her home, when she bowed stiffly, and, without putting out her hand, said, "Good night, Mr. Morley," in a cold, freezing tone. I lifted my hat and went homeward, ill at heart and revolving many things. The next day she was punctual at my studio, but would not shake hands as usual. The poor child was dying to see me and make the quarrel up, but she had her injured dignity to preserve. Her face wore an offended look and her lips were firmly set, but a few words of apology from me melted all her indignation away in a moment as the hoar-frost is licked up by the rising sun. She fairly beamed with bashful delight when I spoke to her, and was happier than ever.

I was quite convinced then that Lily loved me, and the knowledge made me uneasy, for I had not thought seriously of getting married. I knew that marriage meant bondage for me, perpetual slavery to the dealer and the publisher—unless, indeed, my picture should emancipate me, and that remained to be seen. Indeed, I was uncertain whether I should ever marry, whether I ought not to devote myself exclusively to my art, and live for that. Then again Lily was uneducated. She had received little schooling and no accomplishments. She was not fit to be the wife of a successful artist, and that I meant to be. These thoughts gave me many a gloomy hour and I often wished I had never seen her

But still I worked on at my picture, and her presence cheered me in spite of myself. Her sprightly laugh and quaint sayings drove away the shadows from my brow each day she came.

The winter passed and the spring came on with its balmy gales and opening buds. My picture was all but finished, and I required Lily as a model no longer. I had made up my mind to part from her. Well I remember that last day. She came as usual at two o'clock, but her face was very pale and set, and she hardly spoke a word all the afternoon. I only needed her for a few hours to touch up some points in her figure, and in the twilight I saw her home across the churchyard. We scarcely exchanged a word—our hearts were so full. All expectancy seemed to have died out of Lily's face, and there was a hopeless expression in her eyes which touched me to the quick. More than once I was on the verge of taking her to my heart and vowing that I would never part from her, but I felt the act would be selling me to ruin, and I kept the words back. At length we came to the wicket leading from the churchyard into the lane, and here she stopped and said with a tremor in her voice: "Do not come any farther, Mr. Morley."

"Lily," I pleaded, "my dear child, let me go home with you."

"No," she said; "it's better not," and she held out her hand.

I remember the scene as well as if it happened yesterday—the overarching elms of the old churchyard, the budding quickset of the hedgerows, the rotted sycamore leaves lying at the borders of the path, the cawing of the homeward-bound rooks, and the red sunlight from the glowing west, which kindled the ivy on the grey church-tower.

I took her hand in one of mine and with the other I drew her to my bosom. Long I pressed her there, for there was not a soul passing, and her tears fell silently on my shoulder, where she sobbed in peace.

"My darling," I said, "we have learned to love one another, but love is not enough. Forgive me" (for I felt a sense of guilt at leaving her, which I can scarcely even now justify), "forgive me. I will never forget you."

For a while longer we stood there, I do not know how long. Once or twice she made a feeble effort to escape, but I could not bear to let her go. There was a fatal bliss in her embrace which I could not relinquish.

At last the clock of the church struck seven, and Lily struggled to be free. I released her from my arms, and dried her tears with my handkerchief. Then I helped her over the stile—and she was gone. I watched her as she hurried away, like a poor wounded bird, and never shall I forget the unutterably mournful expression of her face as she turned to take a last look at me before disappearing round a bend in the lane.

Lily was gone. For weeks the thought haunted me, and all the sunshine seemed to die out of the world. My picture was my only hope and consolation: my hope, for I fondly thought it would prove successful; my consolation, for it preserved to me the living image of poor Lily, who had become sacred to me now I had resigned her. I was free, I might be famous, but I had bought my fame and freedom at a terrible cost, a price I often thought too dear.

My picture was hung, and praised by all the critics, admired by all the public. Lily's beauty was the theme of many remarks, not only from the crowd but from my brother-artists, who often asked me where I got the model, and where she could be found. There was a fortune in her.

But I jealously guarded that secret in my breast. Lily was mine, and for me alone. I was offered a high price for the picture, but I would not sell that first copy. I painted another from it, and sold that. My career was opened, but in the midst of my triumph came a heavy blow. One day a letter came from Lily's mother telling me that she was very ill and wished to see me. I went to the little shop that morning, and was shown by Mrs. Maynard to her bedroom. It was a small and plainly-papered room, scantily furnished, with an iron bed in the middle of it. As soon as I entered I caught the poor child's eyes eagerly fixed upon me with a thirsting look. Her face was wasted and pinched, and her bright gold hair was hid away behind her sleeping-cap, but the old delighted look beamed all over her face at seeing me. I took her thin, frail hand in mine and pressed it tenderly.

"See," she said, "I've got all the papers here with the notices of our picture" (we had always called it "our" picture), and she laid her other hand on a mass of newspaper cuttings lying on the coverlet before her. "I read them every day."

Then she told me about her illness, how the doctors could not find the seat of it, and of her longing to see me which would not be satisfied until I had come. And I told her of my success, and the new pictures I meditated, and what I hoped to do. Mrs. Maynard stayed with us in the room, and after promising to come again, I said good-bye. But it was for the last time. Lily, my pale, sweet primrose, died soon after, and I cannot but think that she sent for me that day to take a last farewell. There was something in the lingering pressure of her hand that might have told me that.

I have never married. My art has been my wife, and she has smiled upon me as you see. "Spring-time" was my first work and the dearest. You asked me where I got my model from, and I have told you.

Plaster of Paris ornaments may be cleaned by covering them with a thick layer of starch, letting it dry thoroughly and then brushing with a stiff brush.

Minnie May's Department.

MY DEAR NIECES.—With April's sunshine comes the first real dawning of springtime, furs begin to disappear, and it is high time for us to think over our preparations for spring and summer, which will follow, alas! too rapidly.

There are partly worn gowns to be brushed, ripped, may be, and thoroughly freshened, and better to be up and doing before the dreamy days really do come, when one wants to enjoy every breath of air and ray of sunshine available, without thinking of such commonplace matters as dress-making.

To meet the natural demand there is a large assortment of most attractive novelties, in fabrics, picturesque combinations, choice colors, and new trimmings shown, in fact, judging from the hints that April has thus early let loose, all and everything will be worn, and almost any style, so that individual taste has plenty of play; but with so much to choose from it is quite possible to choose wrongly, for to dress well now-a-days, it is essential to thoroughly understand the combination of colors, for to harmonize and assort the different or contrasting colors and materials, is in itself an art. For instance, the corsage must not be of one and the skirts of another, but the two harmonizing throughout the entire costume.

Walking costumes are still of the greatest simplicity. One of the latest styles is the jacket-bodice fastened with one button only at the waist line, and open with revers over a close-fitting vest; a short tunic is draped and fastened up with a large metal buckle over a close-pleated underskirt. Pleated skirts are particularly suited for the walking dress, and a pleated panel of a different material from the rest of the skirt may be inserted among the pleats on the left side, as if the panel is plain the skirt is of striped or figured goods, or vice versa. The fabric of the panel is also used for vest or plastron, and for collars and cuffs, unless they are of velvet to match. An overskirt of the same material as the pleated skirt and without trimming is draped behind, and has the appearance of an extension of the basque or corsage.

Among the fashionable colors for the coming season are blue, in pale and dark shades, tobacco and nut brown, beige and drab, and all shades of grayish-blue and greens.

Stripes are very fashionable this spring, and are combined, more or less, with plain materials. Thus a striped skirt is slit open at the side, the front part is looped up over the hips, showing a plain skirt, and the back falls loose in ample pleats. The striped bodice opens with revers over a plain vest matching the skirt.

This style of dress is very pretty in fancy striped woolen material over self-colored silk. The collar and sleeve-facings are of the silk.

In some new spring toilets, stripes are imitated by numerous rows of braid put at regular intervals. For instance, the skirt is trimmed with as many as twenty-five rows of narrow braid. The bodice is a tight-fitting jacket, the back and front of which are closely striped with similar braid all except the middle part. The braid is generally selected one shade darker than the material. Sometimes

the arrangement is reversed and the braid put on the middle of the front and back only lengthwise, so as to form a sort of plastron.

Draped skirts are less seen than in winter, and instead, are either gathered or pleated in various ways.

Combinations of two materials are also very prettily arranged in cotton goods, and afford many good devices for remodelling partly worn summer dresses. For instance, the basque and foot pleatings may be of plain pink gingham, with skirt, revers, collar and cuffs of embroidered or figured gingham. A blue gingham dress may have a basque and overskirt of striped blue and white, or blue and red, while the pleats down one side or else the kilt skirt may be of plain blue gingham.

Long draperies permanently sewed to the foundation skirt are used for dresses that do not require washing, but the home dressmaker is advised to make separate skirts, or at least to use the least intricate patterns with straight breadths that may be caught up by buttons or tapes, drawing strings or ribbon bows. Two or three wide pleats down the left side are held in place by cross tapes tacked underneath, and the front breadths next these are drawn across to the right side and caught up in folds by buttons and loops. The back breadths are straight and gathered to the belt.

Regular apron overskirts will be worn with short or long fronts, as the wearer chooses, in the same shapes so long used; these are merely hemmed, or else edged with embroidery or lace.

Gathered basques are liked for light colored batistes, embroidered muslins and gingham. If this is colored and quite transparent, as muslin or mull, the basque should be made double, that is, lined with the same, in order that the waist may be the same shade as the skirts, which are of course double. If the basque is of opaque stuff, as gingham or cambric, it is made without a lining, and is worn over a white corset cover, and the same is true of the embroidered fabrics that come in open designs, in stripes, and in all over patterns. The fullness is confined alone to the front of the basque, and is made in various ways; the simplest plan being to add two or three inches extra width to the fronts when cutting by any basque patterns, and gathering this fullness at the neck, the waist line and at the end of the basque. In other basques three pleats or folds, each an inch wide, are laid at the neck, pressed flatly down the fronts and shirred across at the waist-line. Still others have this effect given by straight scarfs of the material set on down each side of the buttons and button-holes. The backs of such basques are plain and smoothly fitted, or with some postilion pleats, or else bunched up in soft drapery on the tournure. Small pea-shaped tinted pearl buttons fasten the basque down the front. A high standing collar stitched on edge finishes the neck.

These basques can be made more elaborate by adding revers of embroidery each side of the gathered vest.

Round waists gathered to a belt and yoke waists are also in vogue for thin dresses, and these are recommended to a home dressmaker, because they are easily fitted, and as they need not be lined, are also easily washed. These are especially pretty for young girls, with a ribbon bow on the shoulders and rather a wide belt.

Rows of insertion and lengthwise tucks make these waists very dressy, but are quite pretty enough for general wear when made without trimming, being finished by a neat high collar of the material, or an embroidered scalloped band may be used for collar and cuffs.

Laces and embroideries are undoubtedly the most favored trimmings of the season, as may

beige, are preferred, or else composed of the same material as the dress. These wraps are easily made, take little cloth, and a very small amount of trimming. Some are being trimmed around the neck, sleeves and down the fronts only. Others are simply hem-stitched at the edge, with a pretty clasp fastening the neck.

In capotes, the latest models are still the

high on top of the head in coils; otherwise we advise our girls to wear hats.

A very pretty capote or bonnet not to match any particular costume, is of dark gray straw, trimmed with coral-pink ottoman ribbon and a grey bird with a coral beak. Another is of beige straw, trimmed with brown rep ribbon and a cluster of red poppies and wheat-ears.



Fashions for 1886.

be judged by the profusion of all kinds that appear in the stores. They are shown in all widths, from wide flounces to narrow frills. The embroideries will be used on gingham, cambrics, etc., while on thinner goods, and noticeably on sateens, laces of all kinds will abound.

The short jacket and small wrappings of all serviceable shapes, as *visite pelerine*, etc., are increasing in favor. They are made of light cloth, figured, dotted, invisibly plaided or striped; the natural wool tints, as gray and

peaked border and small straight crown, with all the trimming consisting generally of a crest of flowers; feathers or pompon of cock's plumes are massed in front. Capotes are also made to match many of the costumes, especially when the latter is of silk, surah, or some light material. Very pretty black lace capotes have a pleated border and are trimmed with a spray of flowers fastened on with a bow of ribbon.

The bonnets have small crowns very much cut up at the back to show all the back hair; these are not suitable unless the hair is done up

The border is peaked and lined with poppy-red silk, the strings are brown and fastened with gold pins.

Some bonnets are made of light coarse straw, loosely plaited with fine strips of velvet of all colors, and there are capotes with the crowns forming a network of black, garnet and other beads. Many bonnets will be worn without strings. Hats are of various and more or less fanciful shapes, but the high crown prevails. The long graceful ostrich feathers are being used again to trim these hats.

Girls' hats are of rough and ready straw in alternate rows of color, tall crown and brims trimmed up into a point in the front and back, lined with silk or velvet; the trimming is simple—an aigrette of loops of ribbon or smooth feathers placed directly in front.

The long glove is still as fashionable as ever, generally of unglazed kid.

Parasols continue to be covered or trimmed with lace.

Half-inch velvet ribbon is again tied around the neck above the collar, ending in a tiny bow on one side.

Pretty aprons for school wear are made of black silk worked in silk, or of fine black alpaca decorated with crewels. MINNIE MAY.

Work Basket.

CROCHET LACE.—Fine thread for underwear, wool for flannel. Make a chain of 19 stitches.

1st Row.—Three treble crochet in eleventh chain stitch; 2 chain, 3 treble in next stitch, 3 chain, 1 double crochet, (d. c.) in fourth stitch, 3 ch., miss three stitches, 3 treble in next, 2 ch., 3 treble in last.

2nd Row.—Turn work; 2 ch., 3 treble in first loop, 2 ch., 3 treble in same loop, 3 ch., 1 d. c. in d. c. of last row, 3 ch., 3 treble in loop between the trebles, 2 ch., 3 treble in same loop, 2 ch., miss 2 stitches, 1 treble in next.

3rd Row.—Turn work; 5 ch., 3 treble in first loop between trebles, 2 ch., 3 treble in same loop, 7 ch., 3 treble in second loop between trebles, 2 ch., 3 treble in same loop.

4th Row.—Turn work; 5 ch., 3 treble in first loop, 2 ch., 3 treble in same loop, 3 ch., 1 d. c. in centre of seven chain of last row, 3 ch., 3 treble in second loop between trebles, 2 ch., 3 treble in same loop, 2 ch., miss 2 stitches, 1 treble in next.

5th Row.—Turn work; 5 ch., 3 treble in first loop, 2 ch., 3 treble in same loop, 3 ch., 1 d. c. in the d. c. of last row, 3 ch., 3 treble in second loop between trebles, 2 ch., 3 treble in same loop, 1 ch., 14 treble in the loop formed by the 5 ch. of last row, 1 ch., 1 d. c. in the chain before the 3 trebles of second row, turn and work 3 ch., 1 d. c. into every other treble 6 times, 2 ch.

6th Row.—Three treble into first loop between trebles, 2 ch., 3 treble into same loop, 7 ch., 3 treble in second loop, 2 ch., 3 treble in same loop, 2 ch., miss 2 ch., 1 treble into next stitch, repeat from 4th row.

PICTURE FRAMES.—A good deal of attention has been given to the artistic framing of pictures recently, and very novel effects may be produced which make a handsome subject of the simplest engraving or colored photograph. For a large picture, a cheap and unique frame may be manufactured of an ordinary pine frame, over which is tacked, crossing at the corners, three rows of small rope—the usual clothes-line grass rope being the proper kind. Tack or secure the ends on the back of the frames, so that when the picture is fastened within, heavy brown paper or muslin may be pasted over as soon as finished. After the ropes are on, stain the whole in imitation of ash or oak; then, with gilding, bronze or the blue, rose and copper tints that may be bought, touch the rope lightly over, either at intervals or entirely. A mat of coffee-sacking gilded or some of the rich Japanese papers that may be

bought reasonably, would harmonize well with such a frame. Old frames covered with velvet of any rich shade, with a mat of Madras drawn full over pasteboard, come out quite handsome. Another effect may be made by fastening small leather straps, tinted or gilded across the corners. Bunches of fruit on dark walnut, ash or oak frames—that is, a single bunch at the upper right hand corner, with a bow of ribbon—have taken the place of flowers. An old frame may be made new by covering it with a puffing of tinsel gauze—ordinary tartan would do—and a pretty mat within.

Instead of the plush and leather standing frames for photographs, very artistic ones can be made of two pieces of water-color paper pasted together, and one side cut with openings for the cards. They are to be made like the panels of a screen and shaped with some kind of points at the bottom so as to stand when joined. This joining of, say, a couple or three panels, is done with filocelle fastened through eyelets pierced at the top and bottom. A bright gold or dark red ribbon, tied in a double-looped bow, is pretty. When the frame is made it may be tinted a delicate shade with water color and ornamented with stray blossoms or bits of creepers, or a little sentiment worked out in quaint lettering. It would be better to cut the exact pattern of each panel in brown paper, so as to leave the opening for the cards properly, before attempting to make it up in the water-color paper. It works out very nicely and is a dainty conceit for a gift. —[The Home Artist.

Answers to Inquirers.

KATE M.—If you want your plants to thrive, wash the dust off the leaves every week or two with a soft cloth or small sponge, and add a little ammonia occasionally to the water you pour about the roots.

ANNA THOMPSON and others are thankful for information concerning A. L. O. E.

E. ROACH.—It depends upon the time the ceremony is to take place; if at a morning wedding the bridegroom and ushers wear full morning dress, that is, black frock coat, what is known as "Prince Albert," or a cut-away, light necktie, and light trousers. The bridegroom wears white gloves. The ushers wear gloves of some delicate color. But at an evening wedding the bridegroom and ushers wear full evening dress, black trousers, vest and coat, familiarly known as "swallow-tail-coat."

A SUBSCRIBER.—We advise you, the same as we did "A Subscriber" in our last month's issue, to try a weak solution of carbolic acid to destroy the green bug on your house roses. A tablespoonful to a pail of soft water.

L. S.—1. "Mirage," or the delusive appearance of water, so frequent in deserts, is owing to the reflection of light between two strata of air of different densities, occasioned by the radiation of heat from the arid soil. It is very common on the extensive plains in Asia and Africa, and especially in upper Egypt; villages on small eminences above the plain appear as if they were built on islands in the middle of a lake, when the dry sandy ground is heated by the mid-day sun. Sometimes objects appear double, and occasionally several images appear above one another, some direct, and some inverted; this is particularly the case in high latitudes, where the icy sea cools the stratum of

air resting on it. 2. Try to remove the smoke from your porcelain lampshade with wood ashes, sifted fine so as not to scratch the surface; dampen the ashes. Salt or soda applied with a damp cloth will often remove stains from china and porcelain.

LOREY AND NELL.—Your questions about A. L. O. E. have been kindly answered by some of our readers, as follows. The initials stand for "A Lady of England," whose real name is Miss Tucker; she is now working in India as a Zenana Missionary.

MRS. Wm. F. BETTS.—We are always glad of any contributions which will be new and of interest to our readers.

Recipes.

DELICIOUS LEMON JELLY CAKE.—One good cup of sugar, half cup butter, one cup milk, three eggs, three cups flour, about tablespoon of baking powder.

FOR THE JELLY.—Grate the rind of three small or two large lemons, and add the juice of the same with one cup sugar, one egg, half cup water, and one teaspoon of flour or corn starch; mix with a little water and boil till it thickens; then place between the layers of the cake.

HOMINY CROQUETTES.—To one cup of cold boiled hominy add a tablespoonful of melted butter, and stir hard, moistening by degrees with a cupful of milk and beating to a soft light paste. Put in a teaspoonful of white sugar, and last a well beaten egg. Roll into oval balls with floured hands, dip in beaten egg, then in cracker crumbs and fry in hot lard.

TO FRY APPLES.—Take good cooking apples, cut in halves, put them in a hot spider in which a good-sized lump of butter has been placed, put considerable sugar over them, and pour over a very little hot water—it will not take much as they cook quickly; cover the spider, and when done and browned nicely, arrange on a plate and you have a dish "to set before the king."—E. W.

ECONOMY CAKES.—Rusked bread, or that which is old and sour, can be made into very nice fritters. The bread should be cut in small pieces, and soaked in cold water till very soft. Drain off the water and mash the bread fine. To three pints of bread thus prepared, add two eggs, 4 tablespoons of flour, a little salt, 1 teaspoon of soda in a cup of milk, which must be stirred into the bread, and a little more milk added, until thin enough to fry.

FARMERS' COOKIES.—One coffee cup butter, one of thick sour cream, two of white sugar, three eggs, one small teaspoonful of soda, one nutmeg or one tablespoonful of lemon extract; do not roll too thin; bake in a quick oven; for extra occasions, when you get them rolled out, cover lightly with granulated sugar, roll it in, and when baked, cool separately, and you have cookies you need not fear to have criticised.

STEAMED LEG OF MUTTON.—Steam a leg of mutton until tender, then place in a roasting-pan, salt and dredge well with flour and set in a hot oven until nicely browned; the water that remains in the bottom of the steamer may be used for soup, as follows: Take the water that remains in the steamer after the mutton is cooked; there should be about three quarts; add half cup English split peas, nicely washed, one small onion, and cook gently three hours, adding a little more water if it cooks away much; before taking from the fire add salt and pepper to taste. Half a teaspoonful of Worcester-shire sauce gives a very nice flavor.

Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES,—What a budget of letters I received last month, to be sure; just imagine—there were over five hundred competitors for the prizes offered for writing in April number; and here I've got letters and writing of all kinds, shapes and sizes, common and uncommon, characteristic and otherwise; some so small as to be almost illegible, and some the object of which seemed to be to see how much space each word could cover; in fact I have been almost buried in samples of penmanship. But after the most severe criticism the prizes have been awarded as follows: 1st class, prize, a silver bracelet, to Miss Mary P. Scott, Cote St. Michel, P. Q.; 2nd class, prize a pair of silver ear-rings, to Miss Ella McDonald, Thornbury, Ont., and 3rd class, prize a beautiful pocket-knife, to James E. Foster, Clarksburg, Ont.

It is impossible for me to describe the writing of any of these lucky prize winners. Writing is one of those things that must be seen to be admired.

Miss Scott writes an even, easy, graceful, pretty hand, forms her letters beautifully, and allows just proper space between each word; a fault I find with a great many is the connecting of the words all together. Miss Ella McDonald, a child under fourteen, also writes a very pretty hand indeed, whilst James Foster's writing is really wonderful for his age (15); he has excellent command of his pen, and writes a splendid hand for all purposes. While there were a great many others, very, very good, I would specially mention that of Bessie Blasdell, Goodland, Lapeer Co., Mich., a child of eight years, who writes so neatly and so nicely that it would be a credit to a child of ten or twelve. Miss Laura Whyte, of Maller-ton, P. Q., sends some very fine writing, which can scarcely be distinguished from copper-plate. Of the many faults with some of your writing I shall mention a few: some make the strokes and loops so long as to be out of all proportion; others write far too slanting, which is never pretty, and then a cramped hand is very ugly, some shade too heavily, and others write too faint. The prettiest writing for all occasions is an even, neat, legible hand. If the following letter was badly written, as we suppose it was, it must have been a rare specimen, and I am sure there is not one of my nephews and nieces but what could correct it. A young teacher, at the close of his first term of school, taught in the backwoods, asked the chairman of the school-board for a letter of recommendation, thinking it might be useful to him in securing another school. The chairman cheerfully complied with the request, and the teacher left the district with the following very flattering letter in his possession. We give it as it was written:

"This is to Notifi All Conserved, that the bearer has taught our skool four muntths to the Satisfacshun of all. And that so fer as we no he is A perfect jentleman, which has been sence coming into our midst, an' that no fault has bin found with his skool-keeping which has bin orderly and whitich the children has bin learned as Much as by any Previous Teecher who has taughted in this District. Any skool-board on the hunt of a reliable an' competent teacher, will do well to Hire him, as he is a

good Teecher, and a first-class jentleman, all of whitich i testify to of my own free will."

ZACHARIAH BINNS.

Now, I want you all to try and see how much you can improve this letter, and I will give exactly the same prizes as last month—1st class, for young ladies, a silver bracelet; 2nd class, girls under fourteen, a pair of silver ear-rings, and 3rd class, boys under seventeen, a splendid pocket knife. You can change the words and express it in as nice a manner as possible, still it must contain the same meaning; mind the spelling and punctuation as well as the writing, but, as the prize is not given for writing this time, you all have a chance. Place at the top of your letter which class you are competing in, and have your communication in by the 25th April. Of course, I will trust to your honesty that it will be your own work without the least assistance from any one. A one cent stamp will carry your letter if you write "Printers' MSS." on the outside; do not seal, but turn in the lapel on the back of the envelope. Instead of Zachariah Binns, give your own name and P. O. at the end of the letter, and don't forget the puzzles, especially you who are working for the prizes to be given at midsummer. UNCLE TOM.

Puzzles.

1—PICTORIAL REBUS.



2—REVERSIBLE NUMERICAL ENIGMA.

- My 1, 2, 3, is a sailor.
My 4, 5, 6, is the juice of pines.
My 6, 5, 4, is a well known troublesome animal.
My 3, 2, 1, is a rodent quadruped of the genus Mus.
And my whole is concrete salt.

FAIR BROTHER.

3—MONUMENT.

DIAGRAM.

- 1—In "Uncle Tom."
2—A small cake.
3—To worship.
4—A messenger.
5—Spacious.
6—To esteem.
7—To entertain.
8—A loose garment.
9—To bury.
10—A large body of water.
11—A relation.
12—Astride.
13—View or aspect of a country.

My primals are, containing remarks or observations, and my centrals are something our country is proud of. FAIR BROTHER.

4—DROP VOWEL PUZZLE.

Th-s-h-h-t-h-t-s-p-r-ls
Th-h-v-n-h-h-t-s-st-rs
B-t-my-h-r-t-h-t-s-m-d-n
My-h-r-t-h-t-s-l-v-

ELEANOR FARLINGER.

No. 5.

Change gave to sold in four moves.
Change cold to warm in four moves.
Change work to play in seven moves. SARAH J. PICKETT.

6—ANAGRAM.

Ghhout bsoelrt xreslpp toy
Trehdsniea nad zov oyu
Dgtraeni ryou sagreop ni merbos yarar
Of nikhrs boka thiw rretro si rysuel na croer
Orf nehwh shete'r a liwl ts'ahre a yaw. T. E. TOMKINS.

No. 7.

My first is "mightier than the sword."
My second is "the noblest work of God."
My third is one of the most useful productions of my second.
My whole is a useful accomplishment, very interesting just now to the readers of the FARMER'S ADVOCATE. SARAH J. PICKETT.

8—SQUARE WORD.

A girl's name; an object of worship; space a girl's name. MAGGIE WHITFORD.

9—DROP CROSS-WORD ENIGMA.

In paint, not in grease; in aunt, not in niece; in England, not in Rome; in spire, not in dome; in typical, not in real. Two flowers we now reveal. ADA ARMAND.

Answers to March Puzzles.

- 1—Words of kindness, words of warning, Deem not ever spoke in vain; Even to those thy counsel scorning Oft shall they return again.
2—We complain of the times, But they never will mend, Till we live up to the rule To earn more than we spend.
3—Sponge.
4—News.
5—Where none admire 'tis useless to excel.
6—O, A N T, A L T A R, O N T A R I O, T A R D O, R I O, O.
7—Wrath, cause, sable, fear.
8—Horse-shoe.

Names of those who have Sent Correct Answers to March Puzzles.

Joseph Allen, Lillie Stovin, Jeannie Allan, Bessie J. Johnson, Eleanor Farlinger, Nancy Warren, Eleanor H. Ferguson, Mary Kalar, Sarah H. Pickett, Minnie Flayter, Maggie Whiteford, Addie Wetmore, Maud Bennett, E. A. Skinner, Henry Weeber, James E. Foster, Beatrice Gunn, Willie Webster, Martha E. Jackson, Anita S. Cole, H. E. T. M. Roberts, Alice Smith, Patrick L. Shortall, Robert Wilson, Annie Burnley, George Tait, Belle Allison, Gussie F. Crawford, Minnie Stafford, Ella Jordan, Maggella Jordan, Nellie Thompson, Adela La Pierre, Cinderella, Bittenhouse, Ida Halliday, Mattie Rogers, B. P. Hogan, Will Thirwall, Becca Lowry, Jessie Thompson, Lillie Silcox, Madeline Laws, A. Manning, B. Forbes, Lizzie C. Watt, Fair Brother, T. E. Tomkins, Frank L. Milner, Emma Deunee, Mary Turnbull, Mary Silcox, Walter J. Stretton, Fannie S. Sears, Frank Baldooh, Mary Morrison, Sarah Laine, Frank Blahney, Herbert A. Johnston, May Coulson, Minnie Bauer, Bertha G. Lent, Mary Brown.

Not "Such a Lot."

When relationships often become too complicated for mature minds to follow, what wonder that a child should refuse to believe that one man can be at once several men? "Mamma," said little Mary, "is Uncle Ned Arthur's uncle, too?" "No," said her mother, "he is Arthur's father." "Well, is he your uncle?" "No, he is my brother. He is Fred's uncle, and yours, and Cousin Lizzie's." "Now," said Mary, shaking her small head very positively, "I know Uncle Ned isn't such a lot as that."—[Everett Free Press.

The Christening.

No, I won't forgive our parson—not down to my dyin' day; He'd orter waited a minnit; that's what I'll allers say. But to christen my boy, my baby, with such an ortful name— Why, where's the use o' talkin'? I tell you he was to blame.

You see it happened in this way: There was father an' Uncle Si An' mother, an' each one wantin' a finger in the pie— Each with a name for baby, as ef I hadn't no voice, But the more they talked an' argied, the more I stuck to my choice.

"Semanthy"—this was father—"you'd best take pattern by mother, For she named thirteen children 'thout any such fuss or bother, As soon as she diskivered that family names was too few,

Why, she just fell back on the Bible, as perfessers air bound to do.

"Semanthy"—this was Reuben—"most any one else could see That, bein' as I'm his father, he orter be named for me. You say my name's old-fashioned; well, I'm old-fashioned too, Yet 'twarn't so long ago, nuther, that both of us suited you."

Then there was Uncle Silas: "Semanthy, I tell ye what— Just name him Silas. I'll give him that hundred-acre lot— I'll make out the deed to-morrer—an' then when I've gone to my rest, There'll be a trifle o' money to help him feather his nest.

But the worst of all was mother. She says, so meek an' mild: "I'd love to call him Jotham, after my oldest child; He died on his second birthday. The others are grown-up men, But Jotham is still my baby! he has never grown since then. His hair was soft an' curlin', eyes blue as blue could be, An' this boy of yours, Semanthy, jest brings him back to me."

Well, it warn't no easy matter to keep on saying No, An' disapp'intin' every one. Poor Rube he fretted so, When I told him the name I'd chosen, that he fairly made me cry. For I'd planned to name the darling Augustus Percival Guy. Ah! that was a name worth hearin', so 'ristocratic 'nd grand! He might 'a held up his head then with the proudest in the land. But now—Well, 'tisn't no wonder, when I look at that blessed child An' think of the name he's come to, that I can't be reconciled.

At last I coaxed up Reuben, an' a Sabbath mornin' came When I took my boy to meetin' to git his Christian name. Jest as proud as a peacock I stood awaiting there; I couldn't hardly listen to the readin' nor the prayer, For of half a dozen babies mine was the finest of all; An' they had sech common names, too. But pride must have a fall.

"What will ye call him?" says Parson Brown, bendin' his head to hear. Then I handed a bit of paper up, with the names writ full an' clear, But Uncle Si, 'stead of passin' it, jest reads it over slow, With sech a wond'rin', puzzled face, as ef he didn't know. The child was beginnin' to fidget, an' Rube was gittin' red, So I kinder scowled at Uncle Si, and then I shook my head. "The name?" says Parson Brown again; "I'm feared I haven't caught it." "Jee-hoshaphat!" says Uncle Si, out loud, before he thought it.

The parson—he's near sighted—he couldn't understand, Though I p'inted to the paper in Uncle Silas' hand. But that word did the business; an' tefore I got my breath The boy was named JEHOSHAPHAT. I felt a'most like death. I couldn't keep from cryin' as I hurried down the aisle, An' I fairly hated Widdow Green when I see her kinder smile. I've never, never called him by that name, an' never will, I can't forgive old Parson Brown, though I bear him no ill will.

E. T. Corbett, Harper's.

VALUABLE PREMIUMS.

We are always anxious to introduce to our subscribers any valuable kind of Grain or Vegetables, and were the first in Canada to introduce the Early Rose Potato, for which we paid \$3.00 per lb.

We now call your attention to the BRONZE KING, see illustration and description on page 100. This is a most promising variety, and our subscribers should not fail to procure some. We have secured a small quantity to give as Premiums.

For each NEW subscriber's name, accompanied with \$1.00, we will send you one pound of this valuable Potato.

No. of New Subscribers.	Value.
1	Two strong plants of Black Walnut trees, cut back. The most valuable timber tree we can grow; see cut and description in Feb. issue, p. 34.
1	Four small plants Black Walnut.
1	Two plants largest variety of Sweet Chestnut, see page 355, Decr.
1	Two Catalpa speciosa; see page 332, November issue.
2	One Niagara Grape vine; one-year old plant. See vol. 20, p. 81.
3	One do.; two-year old plant.
2	One Empire State Grape vine; one-year old. See page 2, vol. 21.
1	One of each of the following varieties of Grapes, the hardest and best approved for general cultivation: Clinton, Hartford Prolific, Delaware One two-year old do.
3	These are the two most valuable new Grapes that are offered this season, having a great reputation.
1	Two small plants Ampelopsis Vetchii, or Japan Ivy; see p. 353, vol. 20.
1	One strong plant do.

A very few of these plants have as yet been introduced into Canada, and the price charged by some dealers has been from 75c. to \$1.50. Most of the above list is best adapted to Western Ontario.

Another Swindle.

A correspondent writes us to say that he had thought in the lightning rod men, the corn-sheller man, and others of the same ilk, the dodges to swindle the farmer had been exhausted. But we were mistaken. "The preacher dodge," says the Newton, Iowa, Journal, "is the latest one. These assume 'the livery of heaven to serve the devil in,' as follows: A chap in clerical broad cloth and white choker enters a farm house and asks for lodging or dinner as the case may be. During his stay he announces himself as a traveling Bible distributor, in the service of a religious institution, and he generally goes so far as to present to the family a handsome Bible, from a well-filled valise. He is careful to say that his society requires distributing members to pay their own way, and exhibits vouchers for money so expended. After partaking of the good folks' hospitality, he prepares to leave, and asks for a bill. He is generally told that no charges are made, but he calls attention to 'the rules,' and insists on paying twenty-five cents per meal. Then he mildly requires a receipt on his blank, 'as a voucher, you know,' and gets the farmer to sign it. In ninety days there is a notice from a neighboring bank to the pious farmer asking him to call and pay the note for \$156.25, which it bought and which has the farmer's signature."

The ADVOCATE still takes the lead. It's just the paper farmers need; It gives them news that's mostly true. A thing few papers try to do. The ADVOCATE, a monthly sheet, For good sound sense it's hard to beat: It's editorials they are rare And all its work is done with care. Let us stand by it to a man And give it all the aid we can, And if we do we may be sure The ADVOCATE will stand secure

—Robert Wilson.

Notices.

The Northern Pacific Railroad Company issue several illustrated pamphlets and sectional land maps for free distribution, which contain valuable information concerning the rich agricultural and grazing country traversed by the line through Minnesota, Dakota, Montana, Idaho, Washington and Oregon. The publications contain a synopsis of the United States land laws by which Government lands can be secured free under the homestead-pre-emption and timber culture acts, and the terms of sale of railroad lands, and much other information. They are mailed free to any address by addressing Chas. B. Lamborn, Land Commissioner, St. Paul, Minn. Mention "Farmer's Advocate."

Those of our readers who are intending to purchase a stallion should examine the stock at the Island Home Stud Farm. Here will be found a collection of some of the best and smoothest animals ever imported into this country, and varying in ages from yearlings to six year olds, and including blacks, browns and greys, grey of course being the prevailing color. Messrs Savage & Farnum also have a fine lot of grades which they do not catalogue, and also a fine lot of grade mares with foal to full blood Percheron horses. The facilities for shipping at Island Home are excellent, both by steamboat and railroad. Visitors may go direct to the farm via Canada Southern division of the Michigan Central Railroad to Grosse Ile station, or by way of Detroit and take steamer 10 miles down the river.

See Notices and Stock Notes, p. 126.

NEW ADVERTISEMENTS.

ADVERTISING RATES.

The regular rate for ordinary advertisements is 25c. per line, nonpariel, or \$3 per inch. No advertisement inserted for less than \$1. Special contracts for definite time and space made on application.

Advertisements unaccompanied by specific instructions inserted until ordered out, and charged at regular rates.

The FARMER'S ADVOCATE is the unrivalled advertising medium to reach the farmers of Canada, exceeding in circulation the combined issues of all the other agricultural publications in the Dominion. Send for an advertising circular and an estimate.

Important Auction Sale

WITHOUT RESERVE ON

Wednesday and Thursday, April 28 and 29, 1886

of the entire herd of the late R. B. IRELAND, at his late residence, Nelson, four miles from Burlington Station, G. T. R., and the North and Northwestern R.R., and two miles from St. Ann's Station, on N. & N. W. R. R., consisting of

60 Pure-bred Bates Shorthorn Cattle

(47 females and 13 males) all of which are entered for registration in the Dominion Shorthorn Herd Book; also a number of

LEICESTER SHEEP, FARM HORSES, IMPLEMENTS, &c

—ALSO A—

100-ACRE FARM AND SAW MILL.

Conveyances will meet each train on the days of sale. Sale to commence each day at 12 o'clock noon. Six months credit will be given on all sums over \$10 for stock and implements. Terms of sale for farm made known at time of sale. Catalogues will be sent on application to John Ireland, Copetown P. O., or to

MRS. A. IRELAND, Executrix.
GEO. IRELAND, Executors.
E. E. IRELAND,
Nelson P. O., Ont.

244-a



FOR DESTROYING TICKS AND VERMIN ON Sheep, Cattle and Horses, Leicester's Tick and Vermin Destroyer is well worth the price, yea, double the price. It was first used in England with wonderful success, and has now been introduced into Canada, and is sold at 30 and 60 cents a box: one small box is sufficient to treat 20 sheep. It effectually destroys Ticks, Lice, Worms or Grub, to which sheep, horses or cattle are subject, and enables the animal to thrive. It is used as a wash. Sold by Druggists. G. C. BRIGGS & SONS, Agents, Hamilton, Ontario

TREES Shrubs, Bushes, Vines, Roses, Plants, Bulbs, &c. Fruit and Ornamental. Great variety; superior quality; lowest prices. Special terms for large orders. Send list of what you want to be priced. 244-a
WILSON'S NURSERIES, CHATHAM, ONT.

PEDIGREE AND RECORD OF SMUGGLER

THE PROPERTY OF
T. & A. B. SNIDER,
 GERMAN MILLS, ONT.

The mahogany bay Stallion SMUGGLER, foaled 1880, bred by Mr. Crow, of Kentucky, got by Smuggler; sired by Blanco, 1st dam by Herod's Tuckahoe, 2nd dam by imported Tom. HEROD'S TUCKAHOE by Tuckahoe, dam by imported Wild Herod. Tuckahoe by Ball's Florizel; dam by imported Alderman. Tuckahoe was full brother to the dam of Boston. BLANCO by Iron's Cadmus; 1st dam by Irwin's Tuckahoe; 2nd dam by Oscar; 3rd dam by Old Consul. Irwin's Tuckahoe by Herod's Tuckahoe (See Herod's Tuckahoe above); 1st dam Old Vine, by imported Diomed; 2nd dam by imported Mufti. IRON'S CADMUS by Beach's Cadmus, 1st dam by Brunswick, 2nd dam by Blackburn's Whip; Brunswick by Sumpter, dam Mary Bedford, by Duke of Bedford; Sumpter by Sir Archy, dam by imported Robin Red Breast; Sir Archy by imported Diomed, dam imported Castanira, by Rockingham; Blackburn's Whip by imported Whip, dam Speckleback, by Meades Celer. Beach's Cadmus by American Eclipse; 1st dam Die Vernon, by Florizel; 2nd dam by Oscar, and tracing to imported mare Selma, by Godolphin Arabian, his 9th dam. AMERICAN ECLIPSE by Duroc; 1st dam Miller's Damsel, by imported Messenger; 2nd dam imported mare Pot-8-os. DUROC by imported Diomed; dam Amanda.

The dam of Smuggler first above referred to was got by Starlight, at one time called Garvine; Starlight by Darby, bred by Hunt Bros., of Lexington, Kentucky; Darby got by Mambrino Pacham, son of Mambrino Chief, dam Puggie, by Brignoli, of Mambrino Chief. 2nd dam Bertha, by Berthune; 3rd dam by Scotch Highlander. 4th dam Brown's Highlander; 5th dam Mary Hunt, by Bertram. SALIE MESSENGER, the dam of Starlight, was bred by John Payne, of Fayette Co., Ky., and got by Starlight, son of Blood's Black Hawk, and his dam was got by son of Downing's Bay Messenger.

Record of Smuggler, second above referred to, against the record of all trotting stallions:—The fastest first heat time, 2.15 $\frac{1}{4}$; fastest second heat time, 2.17; fastest third heat time, 2.16 $\frac{3}{4}$; fastest fourth heat time, 2.19 $\frac{1}{4}$; fastest fifth heat time, 2.17 $\frac{1}{4}$. Smuggler's performance against mares and geldings, Cleveland, Ohio, July 27th, 1876:—Smuggler, 2, 5, 1, 1, 1; Goldsmith Maid, 1, 1, 2, 2, 2; Lucille Golddust, 3, 2, 3, 3, 3; Judge Fullerton, 4, 3, 4, 4, 4; Bodine, 5, 4, 5, 5, 5. Time, 2.15 $\frac{1}{4}$, 2.17 $\frac{1}{4}$, 2.16 $\frac{3}{4}$, 2.19 $\frac{1}{4}$, 2.17 $\frac{1}{4}$.

Hartford, Conn., Aug. 31, 1876:—Goldsmith Maid, 2, 2, 0, 1, 1, 1; Smuggler, 1, 1, 0, 2, 2, 2; Judge Fullerton, 3, 3, 3, 3, 3, r.o.; Bodine, 4, 4, 4, 4, 4, r.o. Time, 2.15 $\frac{1}{4}$, 2.17, 2.16 $\frac{3}{4}$, 2.17 $\frac{1}{4}$, 2.19 $\frac{1}{4}$.

Record of Starlight, sire of Smuggler's dam, 2.23 $\frac{1}{4}$. Record of full sister, Lady Thorn 2nd, 2.29 $\frac{1}{4}$.

For the above facts see Wallace's Trotting Register and Breeder's Trotting Stud Book.

This horse SMUGGLER stands sixteen hands three inches high; weight, in good condition, 1,400 lbs.; has proved a successful breeder, and his stock are of good size and splendid style and action.

For particulars address

T. & A. B. SNIDER,
 GERMAN MILLS, ONT.



STUMP MACHINES! STONE MACHINES! SPINNING WHEELS!

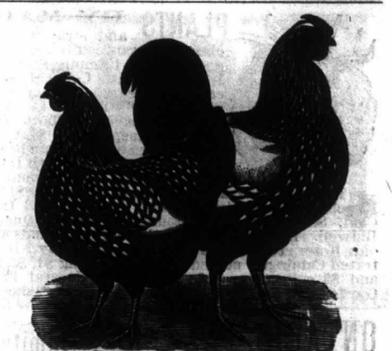
We manufacture four different sizes of Stump and Stone Machines, also Bryce's Pat. Spinning Wheel. This Wheel fastens to any ordinary table; can be worked sitting or standing; for speed and ease beats them all. Sent to any part of the Dominion on receipt of price, \$5.00. Every wheel guaranteed to give satisfaction. Sent for Illustrated Circular. Agents wanted. Address

J. W. ANDERSON, BARRIE, ONT.

Seed Potatoes THE BRONZE KING

I beg to inform the public that I have propagated a potato which has been thoroughly tested, and has proved itself to be far superior to all others known. It is a cross from the **Early Rose** and **Garnet Chili**. I had it tested last season in several sections and on different soils by reliable parties. It was not affected by the rot in a single instance, while other varieties planted by its side were badly affected. This is the first season any have been offered for sale. It is a handsome potato, and of excellent quality.

Only a Limited Quantity for Sale.
 PRICE—50c. per lb.; 3 pounds per mail, \$1.00; \$3.00 per peck; \$5.00 per half bushel.
 ADDRESS—**E. W. CHAMBERS,**
 WOODSTOCK ONT.



1st Prize at New York, 1886.
PRIZE WYANDOTTES
 Plymouth Rocks and Pekin Ducks.
PRIZE WINNERS Wherever Exhibited.
Fowls and Eggs For Sale.
 Send for Illustrated Catalogue and Price-List.
A. C. HAWKINS, Lancaster, Mass.

NEW ENGLAND BREEDERS SPRING SALE. HOLSTEINS AT AUCTION!
APRIL 14 & 15th, 1886.
 125 Head of registered Cattle. Contributed from the best NEW ENGLAND HERDS. Houghton Farm, Putney, Vt., H. O. Warner & Son, New Milford, Conn., Geo. L. Wells, Wethersfield, Conn., E. M. Washburn, Lenox Furnace, Mass., S. L. Warner, Lanesville, Conn.
AT GREENFIELD MASS.
 CATALOGUES OF FRED'K L. HOUGHTON, PUTNEY, VT.

THE CHATHAM FANNING MILL.
1330 MILLS SOLD IN 1885
BE SURE AND SEE 1886 IMPROVEMENTS BEFORE BUYING.

 The most Reliable Fanning Mill in Canada for all kinds of grain. Sold on liberal terms and delivered freight paid to any station in Canada. Send for circular and prices.
MANSON CAMPBELL, Chatham, Ont.

WORTMAN & WARD'S

Revolving Barrel Churn.

was awarded the **Silver Medal** at the Dominion Exhibition at Ottawa, 1884; and **First Prize** over all competitors at the Industrial Exhibition in Toronto, 1884 and 1885.
AGENTS WANTED IN EVERY TOWN IN THE DOMINION
 For Price List and Terms address
WORTMAN & WARD,
 LONDON, Ont.

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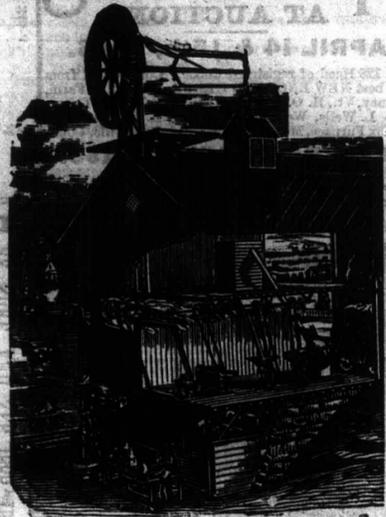
HAY ELEVATORS and CARRIERS AND HORSE HAY FORKS.

These implements are now well known throughout the Dominion, thousands are in successful operation and giving the best satisfaction. We have our agents in nearly every township, men who are well known and whom you can trust. Don't buy until you have seen them.
 For circulars and other information address
WORTMAN & WARD,
 London, Ont.

PLANTS BY MAIL and strictly first-class. Guaranteed to arrive in good order. 1 Empire State, or 1 Niagara with Co. seal, \$1.50 each; two years; one year, \$1.00 each; 2 Fay's Prolific Currant, \$1.00; 10 each Marlboro and Cuthbert Raspberries, \$1.00; 15 each Gregg and Souhegan Raspberries, \$1.00; 4 Laoretii Dewberries, \$1.00. **STRAWBERRIES** 25 Perry, or 50 of any two kinds below, for \$1.00; Rochester, Jas. Vick, Wilson, Crescent, Old Iron, Sharpless, New Dominion, Jersey Queen, Bidwell. Berries of all descriptions, new kinds and old; Roses, etc. Plants by mail a specialty. Illustrated Catalogue mailed free, containing \$1, \$2, \$3, and \$5 collections. **A. G. KULL**, Central Fruit Gardens, St Catharines, Ont. 242-c

ONTARIO PUMP CO., (Limited)
TORONTO, ONT.,
 MANUFACTURERS OF
WIND MILLS,
FEED GRINDERS,
HAYING TOOLS

AND A FULL LINE OF
Railway, Town, Farm and Ornamental Water Supply Material.



Geared Windmills, for driving Machinery, Pumping Water, &c., from 1 to 40 horse-power. 243-y

FOR
Fruit Packages
—AND—
BASKETS

Of every description and of the best quality, send to THE

OAKVILLE BASKET FACTORY!

- Strawberry and Raspberry Baskets.
- Cherry, Peach, Plum and Grape Baskets.
- Clothes Baskets. Butcher's Baskets.
- 1, 2 and 3 Bushel Baskets.
- Satchel and Market Baskets.
- Gardener's Plant Boxes.
- Grocers' Butter Dishes, &c., &c., &c.

W. B. CHISHOLM, - Oakville.
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VIRGINIA FARMS & MILLS
 For Sale & Exchange.
FREE Catalogue.
R. B. CHAFFIN & CO., Richmond, Va.

VIRGINIA FARMS—Mild climate, cheap homes. Northern Colony. A. O. BLISS, Centerville, Va. 230-y

Brockville Chemical & Superphosphate Co.
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BROCKVILLE, ONT.,
 MANUFACTURERS OF
SUPERPHOSPHATES
 and Artificial Manures,
Oil of Vitriol, Muriatic and Nitric Acids
 Write for prices and particulars. 243-c

FARMS FOR SALE
IN MICHIGAN.

New Price List just issued for Free Distribution. Over 200 of the finest farms in the State fully described. Also a map of Michigan, showing railroads, towns, cities, etc.
GEO. W. SHOVER,
 REAL ESTATE & LOAN AGENT.
 108 Griswold St., Detroit, Mich. 242-b

BUCHANAN'S
Improved, Doubling-Acting



PITCHING MACHINE
 FOR UNLOADING HAY AND ALL KINDS OF LOOSE GRAIN.

This machine can be used in barns, sheds or on stacks. It can be used to unload to either side of the barn floor without being turned around on the track, thus saving the trouble and annoyance experienced in climbing to the top of the barn to make the change. This is a special feature in my double-acting carrier, for which I hold letters patent for the Dominion, and hereby caution the public against buying from any others than me or my authorized agents, any infringement, as I will hold all persons using imitations liable for damages. This machine has never been beaten, either on a fair ground or in the barn, although it has been submitted to any test that the opposing makers could suggest, and proved to be a much better machine in the barn at work than on the fair ground empty. We will send this machine to any responsible farmer on trial, and guarantee satisfaction or no sale. Agents wanted in a great many parts of the Dominion, where I still have no agents established. Liberal discount to good agents, no others need apply, as we will not deal with any but good responsible men. Send for circulars and prices.



THE COMMON-SENSE SHEAF LIFTER

Works in connection with the Hay Carrier, and is the most complete apparatus ever offered to the public for unloading sheaves. No tearing the sheaves apart nor musing the load; leaves the sheaves on the mow in as nice a shape as they lay on the load. Price of Sheaf Lifter, \$5.00. Satisfaction guaranteed.

M. T. BUCHANAN,
 Manufacturer, Ingersoll
 243-d

Advertise your Stock in the Farmer's Advocate.

Best Advertising Medium in America.

SPRING PLANTING!
Toronto Nurseries.

200 ACRES.
 We again offer for sale a first-class, well-assorted stock of
Fruit Trees, Small Fruit Plants,
Hardy Grape Vines, &c.,
Ornamental Trees, Flowering Shrubs,
Roses, Climbing Plants, &c.,
 all the best old and new varieties.

SPECIALTIES:
PLUM TREES ON HARDY CANADIAN STOCK,

INCLUDING
Moore's Arctic, Godefrich & Evans',
Fay's Prolific Currant,
Industry Gooseberry,
Niagara, Empire State, GRAPES
 and other new
Marlboro', Nemaha and other new Raspberries,
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Yellow "Gravolus."
Prunus Pissardi, Variegated Dogwood,
Street Trees of large size,
EVERGREENS, especially Norway Spruce,
 9 inches to 4 feet high.
 We pack our stock to carry safely anywhere. Descriptive priced Catalogues mailed free to all applicants. Correspondence solicited.
GEO. LESLIE & SON,
 TORONTO NURSERIES,
 LESLIE P. O., ONT.
 243-c

GRAPE VINES! 100 varieties! Best quality! Low prices! One each, Empire State, Niagara, Golden Pocklington, Lady and Delaware, postpaid for \$2. Also, Worden, Elvira, Iona, Ives, Catawba, Brighton, Vergennes, Early Victor, Moore's Early, Rogers' Hybrid, &c. \$2.000 No. 1 Concord, \$2 per 100; \$12 per 1,000. Raspberries and other small fruits. Catalogue free.
GEO. W. CAMPBELL, Delaware, Ohio. 243-b

IMPORTANT TO FRUIT GROWERS

500,000 Plants of all the Leading Varieties of Small Fruits.
Also Fruit and Ornamental Trees.
 Send for Catalogue. Send in a list of what you want to plant for prices.

Niagara Grape a Specialty.
 Address **A. M. SMITH,**
 Dominion Fruit Gardens,
 ST. CATHARINES, ONT.
 243-b

UNPRECEDENTED OFFER.

SHADE TREES FREE OF CHARGE

Under certain condition to parties agreeing to plant under the provisions of the Ontario Tree Planting Act of 1883. This offer is good only for the Spring of 1886.

ALSO FOR SALE AT REASONABLE PRICES
FRUIT, NUT AND EVERGREEN
TREES, GRAPE VINES, ETC.

For particulars address
ALLEN MOYER,
 244-a Nurseryman, St. Catharines, Ont.

GRAPE VINES!

Apple, Pear, Cherry, Plum, Mulberry and Evergreen Trees, at Wholesale Prices in small quantities. Also Strawberry, Raspberry, Gooseberry, Blackberry, Currant, Roses, fine Shrubbery and Bulbs.
1,000,000 of Grape Vines of Niagara, Empire State, Lady, Delaware and all other new and old sorts. Concord 1 year from \$10. to \$15. per 1,000; 2 years, \$15 to \$20. Address **Bloomington, Ill., DR. H. SCHROEDER.**

THE NEW EARLY WHITE GRAPE, EMPIRE STATE

NOW OFFERED WITHOUT RESTRICTIONS AS TO PROPAGATION.
Price, \$2.00 each; \$20.00 per Dozen.

As early as the Hartford or Moore's Early; equal in quality to Brighton or Delaware; an iron-clad in hardiness; does not mildew or rot, and in vigor of growth surpasses all other sorts. Has been tested in all parts of the United States and in Canada. Send for circulars.

PRATT BROS., Nurserymen,
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SEDGWICK STEEL WIRE FENCE



Is the best general purpose wire fence in use. It is a strong net-work without barbs. Don't injure stock. It will turn dogs, pigs, sheep and poultry, as well as horses and cattle. The best fence for Farms, Gardens, Stock Ranges and Railroads. Very neat, pretty styles for Lawns, Parks, School-lots and Cemeteries. Covered with rust-proof paint, or made of galvanized wire, as preferred. It will last a life-time. It is better than boards or barbed wire in every respect. Give it a fair trial; it will wear itself into favor. The Sedgwick Gates made of wrought-iron pipe and steel wire, defy all competition in lightness, neatness, strength and durability. We make the best, cheapest and easiest working all-iron automatic or self-opening gate, and the neatest cheap iron fences now made. The best Wire Stricker, Chain Filers and Post Augers. For prices and particulars ask Hardware Dealers, or address, mentioning paper.

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HALF A MILLION GARDENS ARE ANNUALLY SUPPLIED WITH

SEEDS *Peter Henderson's* **PLANTS**

Our Seed Warehouses, the largest in New York, are fitted up with every appliance for the prompt and careful filling of orders.

Our Green-house Establishment at Jersey City is the most extensive in America. Annual Sales, 3 1/2 Million Plants.

Our Catalogue for 1886, of 140 pages, containing colored plates, descriptions and illustrations of the NEWEST, BEST and RAREST SEEDS and PLANTS, will be mailed on receipt of 6 cts. (in stamps) to cover postage.

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Off with the tariff on seeds! Relief for the people!

GREAT SUCCESS TO SEED TRADE
OUR NEW DEPARTURE IN THE SEED TRADE

SEEDS AT YOUR DOOR AT WHOLESALE PRICES.

In order to sell our seed crop—1886—direct to the planter, we make the following PROPOSITION: **60 CENTS** in postage stamps or money, we will send by mail post-paid, **19 PACKETS** each, of the following new and improved seeds:—Bentley's Early Blood Turnip Root, the earliest and "BEST OF ALL" BEANS most remarkable snap best for table use. **19 PACKETS** for **60 CENTS**; **TWO COLLECTIONS** for **\$1.10**; **FOUR** for **\$2.00**.

THE SPANISH NECTAR a new muskmelon from the south of Spain. First premium at Penna. State Fair. Pronounced the best-flavored muskmelon in the world. **New Red Roma Onion** from Italy. Grows large onions from seed first year. **Tennessee Sweet Potato** Pumpkin, none better for pies or custards. **Abbott's Improved Sugar Corn**, Ruby King Pepper, the largest and finest sweet pepper ever seen. **Improved Long Scarlet Radish**, best for early use. **Half-long Strasburg Radish**, good for spring or summer. **New Brazilian Sugar Squash**, sweetest and best-flavored for summer or winter. **Livingston's Favorite Tomato**, large, smooth as an apple; productive; solid. **Early White Egg Turnip**, sweetest and best for table use. In all **19 PACKETS** for **60 CENTS**; **TWO COLLECTIONS** for **\$1.10**; **FOUR** for **\$2.00**.

ANOTHER PROPOSITION: To adorn your homes and make life pleasant, as we grow flower seeds by the pound, bushel, and by the acre, to give our lady friends the benefit of the wholesale trade, we will send by mail **18 PACKETS** for **30 CENTS**. **Chrysanthemum** (Paris Daisy), very fine. **Mignonette**, sweet scented. **Double Rose-flowered Portulaca**, nearly all double; all bright colors. **Fanone**, neat strain. **Petunia**, large-flowering; **Palax**, **Drumstick**, all bright colors. **Verbena**, ten beautiful colors. **Zinnia**, large, double, bright colors. **One fine Ornamental Grass**. **One splendid Climbing Plant**. **One beautiful Evening Flower**. In all, **18 PACKETS** for **30 CENTS**; **TWO COLLECTIONS** for **50 CENTS**. **Directions for cultivating on each packet.** **ONE COLLECTION OF FLOWER SEEDS AND ONE OF VEGETABLE SEEDS FOR 50 CENTS, OR TWO OF EACH FOR \$1.50.** Our beautiful illustrated Catalogue accompanies each order. **No changes.** Address: **SAMUEL WILSON SEED GROWER, MECHANICVILLE, SUCKS COUNTY, PENNSYLVANIA.**

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RENNIE'S SEEDS ARE THE BEST
Illustrated Catalogue for 1886
Containing description and prices of the choicest
FIELD, GARDEN & FLOWER SEEDS
Mailed free. Every Farmer and Gardener should have a copy before ordering seeds for the coming season. Handsomest catalogue published in Canada.

WM. RENNIE TORONTO

SUCCESS IN GARDENING

Depends on the Quality of the Seeds sown.

IF YOU SOW WILLIAM EVANS' SEEDS

You will insure an abundant yield. Don't buy Commissioned Seeds. Send for my Illustrated Catalogue, and if my Seeds are not kept in your town, send your order direct and get your Seeds by return mail.

Choice samples of Timothy and Clover Seed, Seed Wheat, Barley, Oats, Peas, Taxes, etc.

ALWAYS ON HAND.

WM. EVANS,

Established 1855. 243-b MONTREAL.

FOR SALE.

FRUIT AND ORNAMENTAL TREES.

Apples, \$15.00 per 100; Pears, \$25.00 to \$35.00 per 100; Plums, \$25.00 to \$35.00 per 100; Norway Spruce, \$5.00 to \$35.00 per 100; Austrian Pine, \$20.00 per 100; Roses, \$10.00 per 100; Grape Vines at all prices.

GEORGE ARNOLD, Prop.,

241-f PARIS NURSERIES

359 VARIETIES OF FRUIT TREES, VINES, PLANTS, ETC.

Apple, Pear, Peach, Cherry, Plum, Quince, Strawberry, Raspberry, Blackberry, Currant, Grape, Gooseberry, &c. Send for Catalogue **J. S. COLLIER, Moorestown, N. J.**

SMALL FRUITS

Jewell, Woodruff No. 1, May King, Atlantic, Prince of Berries and other new and old Strawberries. Try the new **Black Raspberry, HILBORN**, large, hardy and productive. **Gregg, Tyler, Souhegan, Shaffers, Marlboro, Nemaha, Caroline** and other standard Raspberries grown in large quantities. **Fay's Prolific and Baby Castle Currant**, **Gooseberries, Grapes**, and other Small Fruits.

SEND FOR PRICE LIST.

FIRST-CLASS PLANTS—LOW PRICES
W. W. HILBORN,

237-b ARKONA, ONT., CANADA

BUSINESS COLLEGE
IN CONNECTION WITH
WOODSTOCK COLLEGE
WOODSTOCK, ONT.

The College has been thoroughly re-organized and placed in the hands of a most able staff of teachers (including two who have been principals of similar and successful institutions). Course most thorough and practical. Fees very moderate. For full information, address—

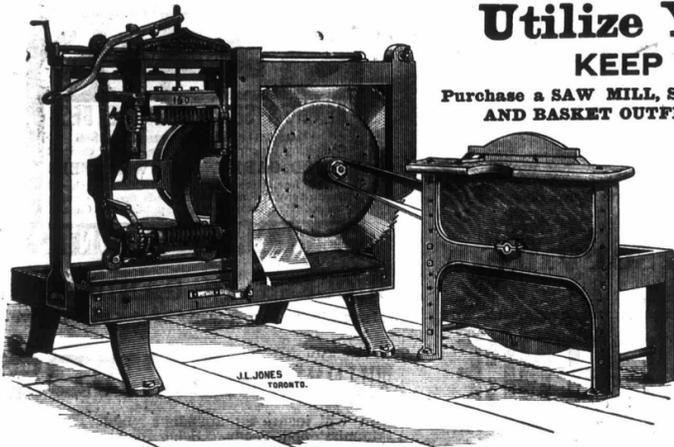
N. WOLVERTON, B. A.,

243-b Principal Woodstock College.

DR. W. E. WAUGH, Office—the late Dr. Anderson's, Ridout-St., LONDON, ONT. 241-7

Utilize Your Surplus Power!
KEEP YOUR ENGINE AT WORK.

Purchase a **SAW MILL, SHINGLE MACHINE, CHOPPING MILL, or a CHEESE BOX AND BASKET OUTFIT.** Saw-irons from \$350.00 up, suitable for any power. Send for Circulars stating power and capacity desired.



Lever-feed self-acting Shingle Mill, in great demand, the favorite machine with mill men, threshers and farmers.



STANDARD CHOPPING MILLS,
USING BEST FRENCH BURR MILL-STONES. SIMPLE, EFFICIENT, PRACTICAL. CAN BE RUN BY ANY INTELLIGENT MAN, NO RENEWING PLATES AS IN IRON MILLS. GRINDERS WILL LAST A LIFE TIME.
DRIVEN BY 2 1/2 H.P.
12 INCH CAPACITY
15 BUSHELS PER HOUR
2 MILL-PICKS GIVEN WITH EACH
20 INCH CAPACITY
18 BUSHELS PER HOUR
CAN BE DRIVEN BY 16 H.P.

1250 Built

Many Improvements

FOR 1886.

DON'T BE MISLED

EXAMINE THE
CHAMPION

IT IS
THE BEST

**THE CELEBRATED
FIRE-PROOF CHAMPION**

The Pioneer Traction Engine of Canada.

The **FIRST** to be Built! The **GREATEST NUMBER** in the Field!

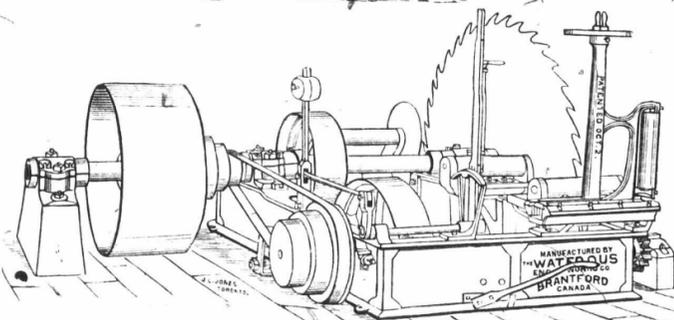
TRIED, TESTED for FIVE SEASONS.

Examine it thoroughly for 1886, before purchasing. Only Traction safe in going up or down steep hills. The only Traction whose boiler is relieved from extra strain of Traction attachment.

Easily Handled, Simple, Durable, Safe from Fire or Explosion. The Farmer's and Thresher's Favorite.



**1250
BUILT.**



This cut represents our No. E medium saw-irons; we build 3 sizes smaller, and 3 sizes larger.

READ THE FOLLOWING:

Jordan, Dec. 23rd, 1885.
I like the 12 H. P. Champion Traction Engine, 1,157, which I bought last season, very much. I unloaded it at station, filled it with water, and steamed it up home, and have never had the tongue on it since, although I have run it all the season through the very muddy roads of this fall. I have been up and down the mountain, which is something over 100 feet high, without the slightest trouble. I like the engine very much, and would prefer a Traction to a plain engine. I have two engines, the Traction and 12 H. P. Champion, number 248. I have run 248 for six seasons, with not over six dollars repairs, and this was for heater pipes burst by frost, and a new globe valve.—Sgd., SAMUEL HONSBARGER

Gourack, Guelph, 14th December, 1885.
I can say that my 20 inch Standard Chopper gives good satisfaction; also my 12 H. P. Traction Champion gives great satisfaction. I have not had one cent repairs on the engine, and I have travelled across roads where other engines had to have two teams on to cross over. I took the water tank along and traveled through mud through which the platform dragged. We crossed hilly roads that a horizontal boiler would not have been safe to cross for danger of bruising the tubes, as for about two miles we had only about 40 or 50 rod of level road. The most of the hills average from one to four foot of pitch in 12 feet.

Yours truly,
SOLOMON STROME.

WATEROUS ENGINE WORKS COMPANY, BRANTFORD and WINNIPEG.

SEND FOR CIRCULARS AND IMPROVEMENTS FOR 1886.

Hamilton Business College

Corner of King and James Streets, opposite Gore.

A first-class Business Training College, for Ladies and Gentlemen. For full particulars send for Circular.

M. L. RATTRAY, Chartered Accountant,
243-y

E. A. GEIGER, Chartered Accountant,
Vice-Principal.

L. D. Sawyer & Co., Hamilton, Ont.

MANUFACTURERS OF

"L. D. S." ENGINES,

Awarded FIRST PRIZE, 1885, at Provincial Fair, London;
Central Fair, Hamilton; and Northern Fair,
Walkerton.

"Grain Saver" AND "Peerless" SEPARATORS.

"Pitts" Horse-Powers, for 4, 6, 8, 10 and 12 Horses.

Tread Powers, for 1, 2 and 3 Horses.

Light Separators, for Tread and Sweep Powers.

Send for Illustrated Catalogue.

243-b



BRICK AND TILE MACHINERY



Address
J. W. PENFIELD & SON, Willoughby, O. P. O. Box 16.



FOREST TREES.

Catalpa Speciosa,
White Ash, European
Larch, Pines, Spruces,
Arbor Vitae, etc., etc.
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Seeds.

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DEDERICK'S HAY PRESSES.



Manufactory at 90 College Street, Montreal, P. Q.
Address for circular P. K. DEDERICK & CO., Albany, N. Y.

CREAM BY MACHINERY.

DeLAVAL'S CREAM SEPARATOR.

Frank Wilson, Esq.
Dear Sir,—I having bought and used the first Centrifugal Cream Separator in Ontario, take much pleasure in giving you the following facts:

I bought a Burmeister & Wain Machine, which is the same as the Danish Weston. It did good work for a time, but before the end of the first year it had cost me over \$300 two hundred dollars for repairs, and would not work satisfactorily, so I put in a DeLaval, and have given it a thorough trial, and find it does its work to perfection. I will recommend it to all, as any boy or girl can run it, and I must say that nothing short of a first-class machinist can manage the Burmeister & Wain.

I have seen the DeLaval running now the second year, and it has not cost me (\$2) two dollars for repairs the whole time, and is doing as perfect work as ever.

I also find that the DeLaval will work at its best by setting it level on any ordinary floor, and the Burmeister & Wain requires a solid stone foundation. The foundation for my Burmeister & Wain cost me over (\$50) fifty dollars.

I do the largest cream trade in Canada, as well as manufacture butter and cheese, and I can with the DeLaval Separator, make a better sample of cream for a city trade than can possibly be done with the Burmeister & Wain, and equally good for butter.

All parties wishing to buy Separators are invited to come to my place in the centre of the City of Hamilton, and see the Burmeister & Wain and the DeLaval working side by side, and draw their own conclusions.

Yours truly,
W. G. WALTON.

Wyoming, Ont., Oct. 5th, 1885.

Dear Sir,—My decision has been formed for some time past, and I can say after due consideration (having used the Burmeister & Wain machine for the past two years and the DeLaval for the past season) that the DeLaval is in many ways superior to the Burmeister & Wain, both in regard to speed in separating, durability, and simplicity. Space does not permit me to enumerate the advantages the DeLaval has over the Burmeister & Wain, suffice it to say that if I was going to start a butter factory I would put in the DeLaval Separator.

Yours truly,
ALEX. PREFONTAINE, Butter Maker.

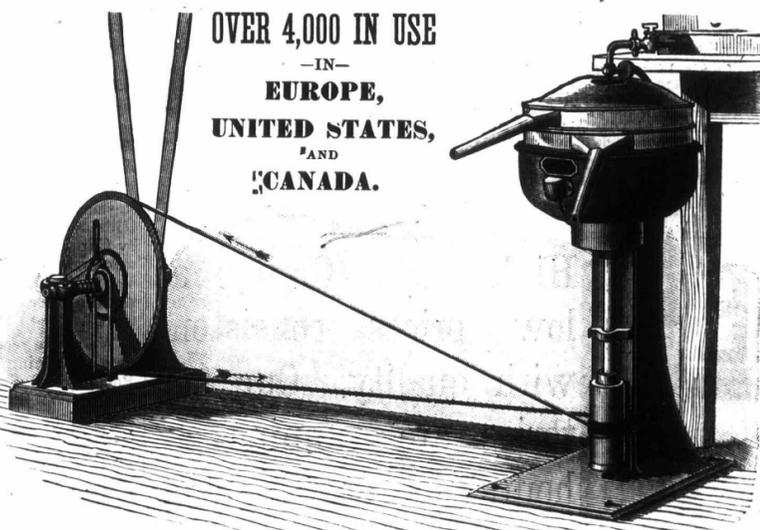
The Judges of the great English Dairy Fair, just held in London, have made a report of an exhaustive comparative test between the DeLAVAL and DANISH machines, resulting in favor of the DeLAVAL on every point covered by a Cream Separator. They give it the highest recommendation for superiority in construction, operation and results that any implement has ever received, and their endorsement clinches the evidence of the great merits and advantages of this most useful of all dairy appliances. They state that no butter-maker can afford to be without one. They say, also: "In regard to the essential points of construction, separation, temperature and quality of cream, and analysis of cream, the DeLaval was far ahead of its opponents, and quite deserved the GOLD MEDAL given by the Council. The power of raising the skim milk after separation to a lighter level seemed to entitle the large A Danish to a second prize, but the failure to separate the milk satisfactorily debarred the other Danish machine from any further recognition."

DeLAVAL CREAM SEPARATOR CO.

WM. CLIME, Jr., Agent, LISTOWEL, ONT.

244-b

FRANK WILSON, General Manager for Canada, 19 St. Peter Street, MONTREAL



OVER 4,000 IN USE
—IN—
EUROPE,
UNITED STATES,
AND
CANADA.

St. Lin, P. Q., Dec. 30, 1885.

Dear Sir.—After minute examination and repeated trials, I certify that the DeLaval Cream Separators work extremely well. They offer great advantages to the dairy interests by their economy, quality and increased quantity of butter produced, and the great advantage to farmers to have only to send their milk once a day to the factory. The process of working is very simple; however, it would be a good plan for anyone about to establish a creamery to serve a few days' apprenticeship to save himself unnecessary expense. I believe it essential to its proper working to procure a good engine and to have a competent man to set up and start the machine.

The following is the result I have obtained by using the DeLaval Cream Separators during one and a-half months, from 1st Sept. to Oct. 15th. I received 207,428 lbs. of milk, and have manufactured 9,643 lbs. of butter from it, which gives an average of

21½ lbs. milk to the pound of butter. I could not obtain this result by any other process. I invite any persons desirous of establishing a creamery to come and pass a few days at my factory, and I will give them all the information and lessons they want, free of charge.

E. DESMARAIS.

Wyoming, Ont., Oct. 10, 1885.

Dear Sir,—I have now used three DeLaval Cream Separators daily for five months. They are running nicer to-day than when we first started, give the highest satisfaction, and have not cost me one cent for repairs except to renew two small belts. After they are put in motion in the morning my daughter, aged 15 years can run them until we put through 4,000 lbs. milk; in fact, I think they will be hard to beat. Anyone intending to purchase a machine could not do better than buy a DeLaval. They make a thorough separation of cream from milk, and I also claim that is the only way to get pure butter, viz., by passing the milk through a separator, as it takes all foreign matter out of the milk which is retained in the bowl of the separator. I have no interest in the sale of machines.

JOHN HARTLEY.

PETER R. LAMB & CO.,

FERTILIZERS

TORONTO, CANADA.

SEND FOR CIRCULAR.

243 b



Subjects the soil to the action of a Steel Crusher and Leveler, and to the Cutting, Lifting, Turning Process of Double Gangs of Cast Steel Coulters. Immense cutting power. Crushing, Leveling and Pulverizing performed at the same time. Entire absence of Spikes or Spring Teeth avoids pulling up rubbish. Only Harrow that cuts over the entire surface of the ground. Sizes, 3 to 15 feet wide. With and without Sulky attachment. We deliver free at Distributing Depots.

Send for pamphlet containing thousands of testimonials from 48 States and Territories.

BRANCH OFFICE: **HARRISBURG, PENN.** MANUFACTORY & PRINCIPAL OFFICE: **NASH & BRO., MILLINGTON, NEW JERSEY.**

N.B.—"TILLAGE IS MANURE" and other Essays sent Free to parties who name this paper.

Stock Notes.

We beg to call attention to the sale of the late B. B. Ireland, of Nelson, P. O., in the county of Halton, which takes place on Wednesday and Thursday, 28th and 29th of April. Those desirous of procuring some good Shorthorns, Leicester sheep, etc., should not fail to attend. See advt. in this issue.

Sir,—Enclosed please find list of recent sales from Bcw Park herd. We have still on hand several promising young bulls, which we offer at reasonable prices. A. Barber, Avon, N. Y., Waterloo Duke 17, Butterfly's Duchess 6, and Countess of Goodner 24; W. Smith, Port Dover, Ont., Major; W. Templer, Jerseyville, Ont., Waterloo Duke 16; B. F. Sumner and Son, Woodstock, Conn., Imp. Viscount Oxford 9; W. Renton, Manitoba, Orpheus 20; N. P. Clarke, St. Cloud, Minn., Waterloo 45, Imp., Belle Blanche, Imp. Lady Underley Barrington; F. Meritt, Charlotte, Mich., Waterloo Duke 18, Roan Duchess 30, and Roan Duchess 33.—JOHN HOPE, Brantford.

RESULTS FROM AN ADVERTISEMENT.—Sir,—Please find enclosed three dollars for advertising Jersey Cattle. I have sold nine head cows and heifers from the advertising in January. I received over one dozen enquiries about the stock, and I have been getting enquiries since.—THOS. FEE, Lindsay.

Our readers who have good stock for sale, should have their advertisement in the ADVOCATE. Although our rate is a little higher than some other papers, yet when circulation is considered, the ADVOCATE is the cheapest paper in Canada. Farmers and breeders always refer to our advertising columns before purchasing.

Notices.

Messrs. Nash and Brothers, of Millington, N. J. have recently added the sulky attachment to their celebrated pulverizing harrow. By this means the harrow can be taken from field to field similar to a seed drill, and in case of rubbish getting into the coulters, can be instantly raised, so as to allow it to pass out.

We are in receipt of a neatly bound volume on small fruits, 138 pages, edited by Wm. H. Hills, a practical horticulturist, and published by Cupples, Upham & Co., Boston, Mass. The work contains practical directions for cultivation, fertilizing, hybridizing, transplanting, pruning, marketing, etc., and is well illustrated.

We are in receipt of an elegantly bound volume containing the proceedings of the American Pomological Society, session of 1885. Mr. Charles W. Garfield, secretary of the society, and editor of *The Michigan Horticulturist*, Grand Rapids, Mich., who sends us the volume, deserves great credit for the masterly manner in which the work has been prepared. It contains a mass of the latest and most reliable information on fruit growing, destructive insects, parasites, etc., and is well worthy of a place in the library of every farmer and fruit grower.

We take great pleasure in announcing the honors won by Mr. E. Blackwell at the recent examinations of the Ontario Veterinary College, Toronto. In the junior class, consisting of 130 students, he won the highest honors in the form of a silver medal. He has been a student with Mr. J. H. Tennent, veterinary surgeon of this city, to whom a large portion of the credit is due. Mr. Blackwell is a farmer's boy of Middlesex county, and the judgment which he exhibits in the treatment of diseases placed in his charge will rank him amongst our luminaries in veterinary practice.

Catalogues Received.

The catalogue of A. G. Hull, St. Catharines, has been received, and contains a choice list of the leading fruits and plants.

The price list of Messrs. Smith and Van Duzer, of Winona, is at hand, and contains a good list of fruit trees and grape vines.

THE BELL ORGAN

High Grade Organs at low prices consistent with quality. Our factories are running 12 hours per day to keep up with orders, which are constantly increasing. Catalogues Free.

W. BELL & CO.,
Guelph, Ont.

BRANCHES AT

Hamilton, Ont.; St. Thomas, Ont.,
and London, Eng.

240 y

COGENT REASONS WHY THE CHATHAM WAGON

Adopted by the Government of

STANDARD



the Dominion of Canada as the

WAGON.

should command your preference:—

The intrinsic cost and value of it is at least \$10 more than any other wagon made in Canada, and any unprejudiced practical man will tell you so, and the thousands who now have them in use say so, because it is not only made from the best, carefully selected and thoroughly seasoned timber and best of iron, but the **skeins** used, made only by us, are superior to any skein made or used in Canada, and are constructed specially to receive our **Patent Climax Truss Rod**, which doubles the strength of the axle; the boxing of the hubs are **pressed**, not wedged in; a guarantee for a year accompanies each wagon, and notwithstanding this additional cost and superiority the **Chatham Wagon** can be purchased at no greater price than is charged for inferior wagons. **Bear in mind**, it is the running gear that carries your load, and no amount of fancy painting on the box will make an easy running and great Carrier of a poorly constructed wagon. **Liberal Terms to Parties Buying in Carload Lots. Correspondence Solicited.**

240-c

CHATHAM MANUFACTURING CO., Limited.



FAIR AND SQUARE DEALING.

Believing that if a man has dealt squarely with his fellow-men his patrons are his best advertisers, I invite all to make inquiry of the character of my seeds among over a million of Farmers, Gardeners and Planters who have used them during the past thirty years. Raising a large portion of the seed sold, (few seedsmen raise the seed they sell) I was the first seedsman in the United States to warrant (as per catalogue) their purity and freshness. My new Vegetable and Flower Seed Catalogue for 1886 will be sent **FREE** to all who write for it. Among an immense variety, my friends will find in it (and in none other) a new drumhead Cabbage, just about as early as Henderson's, but **nearly twice as large!** James J. H. Gregory, Marblehead, Mass.

The Light Running Bain Wagon



MANUFACTURERS OF

FARM, SPRING AND FREIGHT WAGONS.

Team and Freight Wagons are made with Steel Skeins when wanted.

Send for Circular and Prices to

BAIN WAGON COMPANY, WOODSTOCK, ONT.

N. B.—Every Wagon warranted.

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PERMANENT PASTURE

EVERY FARMER IN CANADA SHOULD HAVE A GOOD PERMANENT PASTURE, WHICH CAN ONLY BE SECURED BY SOWING A SUITABLE MIXTURE OF GRASSES IN PROPER PROPORTIONS.

RENNIE'S MIXTURES FOR PERMANENT PASTURE

have been prepared from prescriptions based on a practical experience of 16 years, and have given the most complete satisfaction to purchasers in former years. The Mixtures contain the best and most nutritious GRASSES and CLOVERS, and are specially prepared for **HIGH LANDS** and **LOW LANDS**. A full seeding of 30 lbs. supplied per acre. **PRICE**, per acre, \$4.50 (bags extra). For quantities of ten acres and upwards, **PRICE**, per acre, \$4.25. Special quotations for quantities of 100 acres or over.

Wm. Rennie's Illustrated Seed Catalogue for 1886

of FIELD, GARDEN and FLOWER SEEDS, will be mailed free to all intending purchasers on application. Address, **WILLIAM RENNIE, SEED GROWER, TORONTO, ONTARIO.**

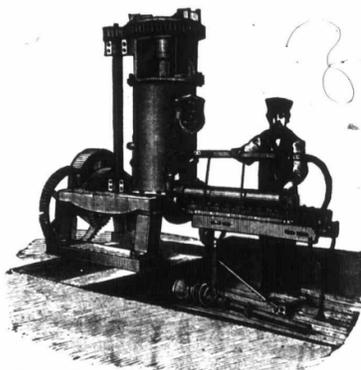


LOVETT'S GUIDE TO FRUIT CULTURE

Is a book of 70 Pages, with illuminated cover, embellished with nearly 200 engravings of Orchard and Small Fruits, Nuts, &c. gives honest descriptions of Golden Queen Raspberry, Lawson-Comet Pear, and over 100 varieties of other fruits, and instructions for planting, pruning, cultivation and management, with **Low Prices** for Trees and Plants. Also directions so clear that even a novice can readily determine what and how to order. Price, with colored plates, 10c., without plates, 5c. Price list of Trees and Plants **Free**. All who mention this paper will receive a copy of "Orchard and Garden" gratis. **J. T. LOVETT, Little Silver, N. J.**



DARVILL & CO'S



BRICK and TILE MACHINE

This is the most perfect Machine manufactured in Canada; manufactured with or without brick attachment. Highly recommended by all who have used them.

You will please refer to the following parties who are using it and purchased last season:—Chas. Pratt, London; Peter McIntosh, London; H. C. Rider, Nilestown; Robert Myers, Stratford; James Kerr, Ailsa Craig; R. D. McCormack, Watford; W. M. Dobey, Glencoe; John Hich, Strathburn; Alex. Stewart, James Nichols, Frome.

Send for Descriptive Circular. Address—

D. DARVILL & Co.,

LONDON, ONT.

243-a

THE GLOBE

Hand Grenade FIRE EXTINGUISHER CO.

ARE MANUFACTURING THE MOST PERFECT Fire Extinguishers in the market. It is the simplest, easiest, quickest, most efficient and

LEAST EXPENSIVE WAY OF PUTTING OUT FIRES KNOWN.

It is simply a glass bottle filled with a liquid that generates gases when broken into the fire, that kill it almost instantly.

Every factory, every mill, every business house, every home should be supplied with these goods. Price \$9 per dozen.

For further information, circulars, etc., address

GLOBE FIRE EXTINGUISHER CO.,

64 and 66 Dundas street, London, Ont.

CAUTION! There are some fraudulent companies endeavoring to palm off their goods as being same or similar to ours, etc. **We give warning** that all infringements on the patent will be prosecuted and all purchasers of the same are liable and unprotected. If you want Fire Extinguishers buy only the Globe; it's the best made and you are protected.

Correspondence invited.

242-b.

SCALES! SCALES!



The Platform of this Scale is 6 feet by 4 feet.
 No Farmer, Stock Raiser or Produce Dealer should be without one.
 It weighs Accurately from half pound to 4,000 pounds.

**DAIRY SCALES,
 SPECIAL FAMILY SCALES,
 COUNTER SCALES,
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 &C., &C.**

Quality, Accuracy and Beauty of workmanship unsurpassed.
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 HAMILTON, ONT. 243-y

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 ILLUSTRATED AND DESCRPTIVE AND PRICED
SEED ANNUAL
 FOR 1886.

Will be mailed FREE to all applicants, and to customers of last year without ordering it. It contains about 180 pages, 600 illustrations, prices, accurate descriptions and valuable directions for planting all varieties of VEGETABLE and FLOWER SEEDS, BULBS, etc. Invaluable to all, especially to Market Gardeners. Send for it.
 Windsor, Ontario.
D. M. FERRY & CO., Detroit, Michigan.

THORLEY FOOD
 MANUFACTURED BY
EMPIRE HORSE AND CATTLE FOOD CO., MITCHELL, ONT.

The only Food Co. in Canada ever awarded "A SILVER MEDAL" by the Provincial Association of Ontario.
 In constant use at the Model Farm since 1881—last shipment of 500 lbs. on 29th Sept., 1885. Used more extensively by leading feeders than any other preparation. Invaluable for horses, fattening cattle, milk cows, calves, sheep and pigs. Numerous testimonials from prominent breeders. We grind our own ingredients and guarantee their purity, which is done by no other Food Co. in Canada. If you cannot get our food from your dealers, send direct to the mill. Do not be deceived by dealers who may wish to sell you an inferior article. Price at the mill \$5.25 per 100 lbs., less quantities at higher rate. Cash must accompany all orders.
 We also manufacture an excellent Poultry Food.
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W. & F. P. CURRIE & CO.
 100 Grey Nun St., Montreal,

MANUFACTURERS OF
SOFA, CHAIR AND BED SPRINGS.
 A LARGE STOCK ALWAYS ON HAND.

IMPORTERS OF
 Drain Pipes, Vent Linings, Flue Covers, Fire Bricks, Fire Clay, Portland Cement, Roman Cement, Water Lime, Plaster of Paris, Borax, Whiting, China, Clay, etc. 241-y

Agricultural Savings & Loan Company
 LONDON, ONTARIO.

President—WM. GLASS, Sheriff Co. Middlesex.
 Vice-President—ADAM MURRAY, Co. Treasurer

Subscribed Capital,	\$600,000
Paid Up do.	575,000
Reserve Fund,	61,000
Total Assets,	1,339,000

The Company issues debentures for two or more years in sums of \$100 and upwards, bearing interest at highest current rates, payable half-yearly by coupons.
 Executors and Trustees are authorized by law to invest in debentures of this Company.
 For information apply to
JOHN A. ROE, Manager.
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Ontario Veterinary College
 TEMPERANCE STREET, TORONTO.

The most successful Veterinary Institution in America. All experienced Teachers. Fees, Fifty Dollars per Session. Session 1885-6 begins Oct. 21st. Apply to the principal, PROF. SMITH, V. S., Edin., TORONTO, CANADA. 237-y



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COMPETITION OPEN TO THE WORLD!
 NEW FACTORIES COMPLETED. CAPACITY 500 ORGANS PER MONTH.

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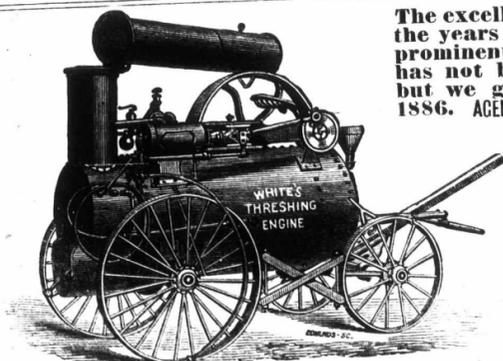
Received the Only Medal Awarded Cabinet Organs, Toronto Industrial Exhibition, 1882.

Awarded Silver Medal, Toronto Industrial Exhibition, 1881.

Awarded Three Diplomas and Two First Prizes, Dominion Exhibition, Montreal, 1882.

These, with many other Medals, Diplomas, Prizes, &c., place the "KARN ORGAN" ahead of all others. We call the attention of the public to the facts above. We manufacture Organs suitable in style for Churches, Parlors, Schools, Lodges, &c. Send for Circulars and Prices to

D. W. KARN & Co., WOODSTOCK, ONT.



The excellent record of this Engine as the years roll on has brought it so prominently in favor that the supply has not been equal to the demand, but we guarantee a full supply for 1886. AGENTS WANTED IN SOME LOCALITIES.

It is licensed by all Insurance Co's and has proved itself to be the most durable.

The Engine for the Northwest is made to burn either coal, wood or straw. Farmers, procure a Genuine White Threshing Engine at the Forest City Machine Works, London, Ont., Can. **GEORGE WHITE, Proprietor and Manager**
 H. B. WHITE, Supt. of Machinist Dept.
 A. W. WHITE, Supt. of Erecting Dept.
 HUB. J. WHITE, Secretary-Treasurer.
 F. J. WHITE, Assistant-Secretary.
 The engines may be seen at Van Tassal's foot bridge warehouse, Belleville. 243-y