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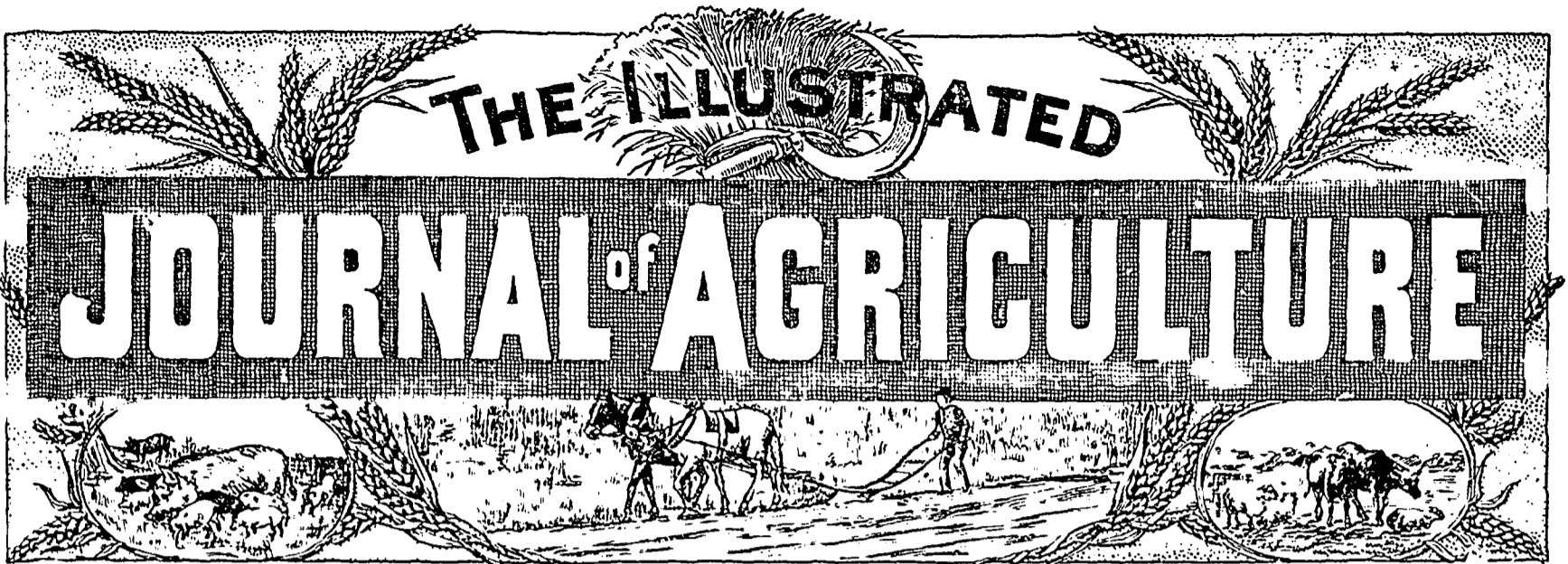
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# THE ILLUSTRATED JOURNAL of AGRICULTURE



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MONTREAL, MAY 1, 1894.

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All matters relating to the reading columns of the Journal must be addressed to Arthur R. Jenner Fust, Editor of the JOURNAL OF AGRICULTURE, 4 Lincoln Avenue, Montreal. For subscriptions and advertisements address the Publishers.

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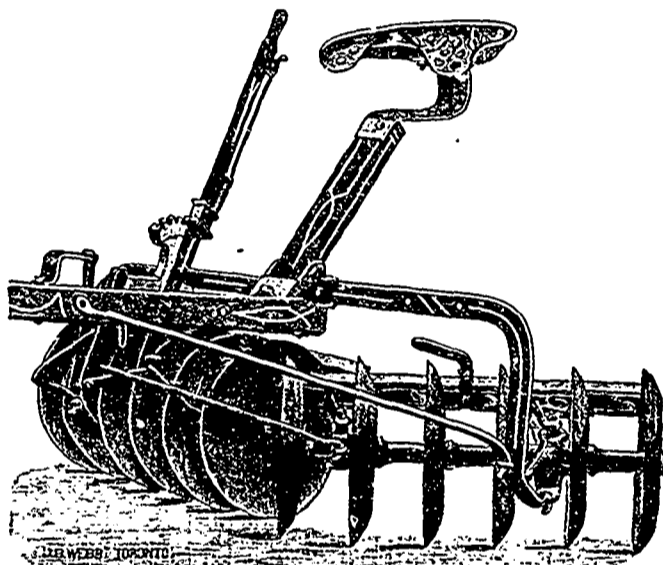
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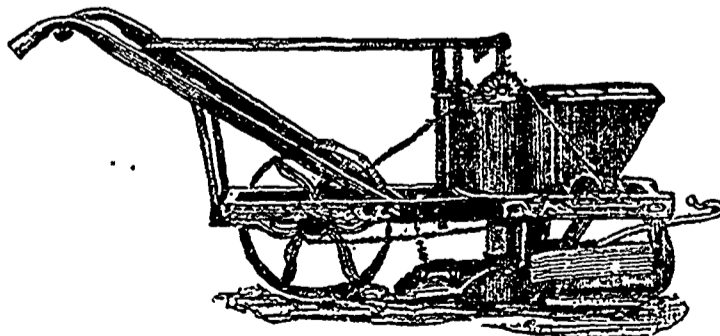
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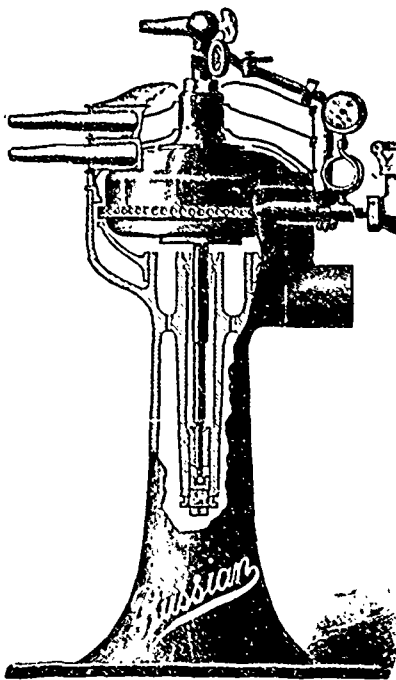
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For Farmers. 3-94-31

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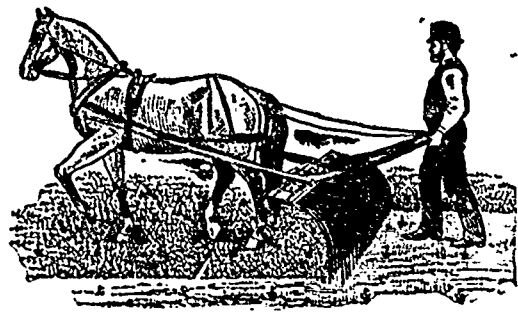
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4-91-21

**THE ZEPHANIAH BREED WEEDER AND CULTIVATOR**

We to-day present to our readers an illustration of one style of **The Zephaniah Breed Weeders and Cultivators**, which are creating so much interest in the minds of the farming world. They are the result of eight years of experiments by Mr. Breed, who is a well-known farmer among the hills of New Hampshire, and it seems as near perfect in its work as a machine can be. We are assured not only by the manufacturers of these tools, but by those who used them last year (which was their first up in the market) that by using them according to directions the owner has no need to hand-hoe his crops at all, but that the crops are finer than those grown in any other way, and the fields are kept entirely free from weeds, or so nearly so that a single handful cannot be found on an acre late in the season.



One reliable gentleman informs us that with one of these he took the entire care of two acres of corn planted on sod land in just eight hours' time between planting and cutting time. And he adds that he had a fine crop and scarcely a weed could be found the last of the season.

That they are a perfect success is shown by the fact that they met with a large sale last year in every state east of the Mississippi river, and north of Mason and Dixon's line, also in eight other states and in Canada. They were warranted in every case to give perfect satisfaction, or the purchase money would be refunded, but as yet the Company has not been asked to refund one cent for any reason whatsoever.

They are adapted for the cultivation of all farm hood crops, including all the vegetables. This statement may sound strange, but the circular gives ample proof of its correctness.

We believe that in the use of this tool every farmer will find that which he has so long wished but hardly hoped for, entire relief from the drudgery and hard work consequent upon growing hood crops. The manufacturers, **The Zephaniah Breed Weeders and Cultivators Co., No. 26, Merchants Row, Boston, Mass.**, issue a copiously illustrated and very interesting circular, which they will be pleased to send to all those who will send them their names. In it are found strong testimonials from gentlemen with a reputation in their own states if not throughout the nation. All speak of this implement in the highest terms of praise as follows:—

"Wouldn't part with it for \$25, if we couldn't get another."  
ADAMS BROS., Jeffrey, N.H.  
"It has been a prize to me. Saved at least \$50 this year."  
R. L. WARREN, Dalton, Mass.  
"Would not be without one if had to pay \$500 for it."  
C. P. FAIRSWORTH, So. Lincoln, Mass.  
"Am enabled to raise twice the amount of field crops with less help than formerly."  
A. B. PIERPONT, Waterbury, Conn.

"It paid for itself in one day cultivating beans."  
CLARK ALLEN, Medina, N.Y.  
"It did away entirely with hand-hoeing when used in time."  
N. E. DIAMANT, Cedarville, N.J.  
"For destroying weeds and stirring the soil your Weeder is the most valuable tool I have ever seen. It will do the work of 20 men and do it better. It is the best tool made."  
D. E. MOINTYRE, Cadillac, Mich.

In conclusion we feel like urging upon our readers to avail themselves of the use of this implement and thus rid themselves of such a vast amount of hard work as has heretofore been expended upon hood crops and which is now rendered entirely unnecessary. These tools are made in a variety of bulky, walking and Hand Machines, and the prices are very reasonable when compared with the great good they accomplish.

**PLANTS**

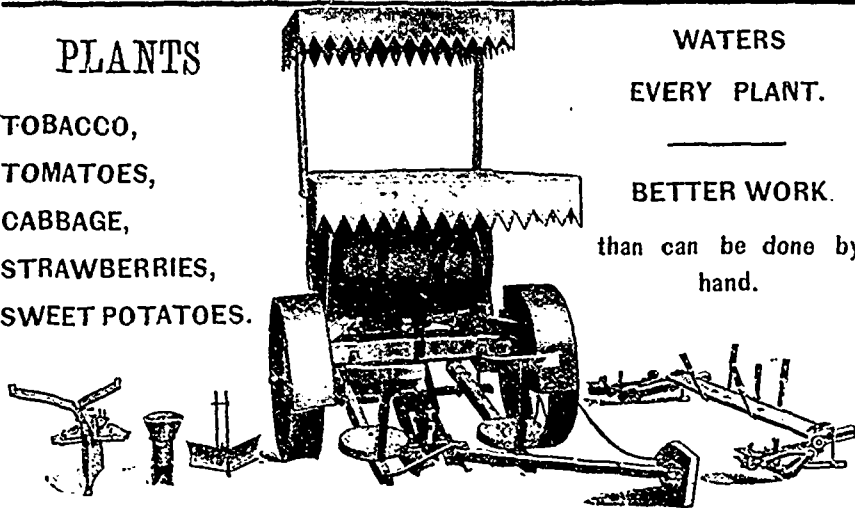
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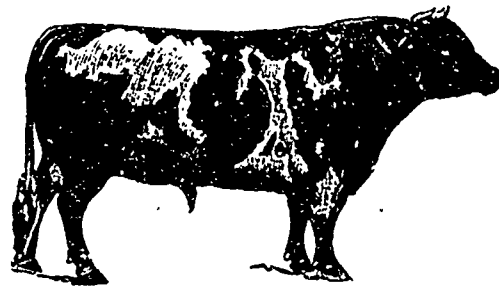
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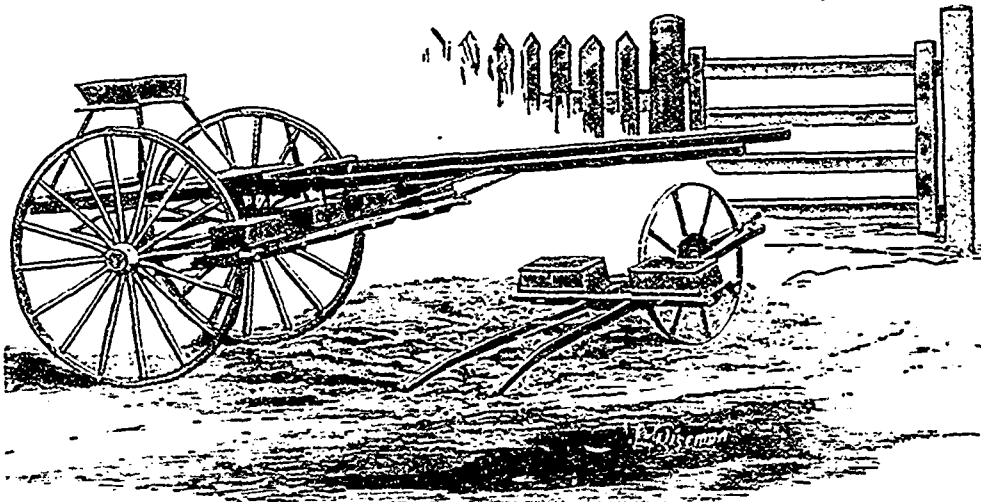
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The above cut represents our patent poison Distributor for Spreading Paris Green and Plaster on the potato bug. It is made to use by Hand or Horse Power. The Hand Machine is intended to take two drills at a time, and the Horse Machine four drills. So that the labor is reduced to a small affair. It has been ten years in use, and has given good satisfaction. It saves your green, and therefore your money.

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4-94-121 Woodside Farm, Howick, P.O., Quebec

THE ILLUSTRATED  
Journal of Agriculture

Montreal, May 1, 1894.

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THE COMPTON MODEL-FARM.

We hear from the Department of Agriculture that a Model-farm has just been established, at Compton, for the Eastern-Townships. We know every acre of that lovely district, and congratulate the government upon the place they have selected. There have now elapsed 22 years since the proposal was first made by the inhabitants of the township, to start an experiment-farm, or rather a school of agriculture there, but, somehow or other, the scheme did not go into action.

Ah! the lovely opportunities of showing what an irrigated meadow is worth. Scores of pellucid brooks, with exquisitely flavoured trout small trout in them, find their way from the hill-sides down to the Coaticoke river, and where the trout are red-fleshed, the water is always good for irrigation. In fact, we ourselves made one tiny meadow, near the old Poor-house, in 1872, and the produce was quite satisfactory, considering how very short a time it had been watered.

There are three members of the syndicate governing the Model-farm, of whom Mr. McIntosh, the member for Compton, represents the government. Mr. H. O. Smith, too, is one of the founders of the establishment; his Herefords every one has seen at the Provincial Exhibition, and the report of the judges of the "Agricultural Merit" competition of 1892, shows that his cultivation is on a par with his management of stock.

There will be a model-creamery, and all the necessary buildings are already there, or will be erected very shortly: pupils will be received as soon as the season begins.

Notes by the Way.

Spring.—Although, while we are writing, April 4th, the morning readings of the thermometer vary from 12° to 16°, and the ice is almost as firm at the crossing at Sorel and Three-Rivers as it was in February, by the time this reaches our readers it is to be hoped they will all be hard at work in their fields. Let us therefore consider what will be the work in the first month of spring.

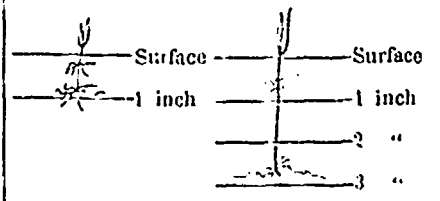
Sowing grain &c.—Pease will, of course, be the first crop committed to the ground. No fear of being too early with pulse. If sown at a proper depth, say, from 2½ to 3 inches, it takes a rattling hard frost to injure them. In England, we have seen them, when sown in the fall, stand from 15° to 20° without the slightest injury.

Pease should be sown with a drill, if there is one on the farm, and pretty thick too. Ten pecks of seed to the imperial acre is about the quantity, and where the land is very rich and

pease are in habit of growing too much haulm, thereby ripening late, we should not be afraid of sowing three bushels; the crowding of the plants checks the too great growth of haulm. If drilled at 2 feet apart and horse-hood, the land will be wonderfully improved, and the yield increased. We hardly dare suggest the hand-hoeing of this crop, but at the distance we propose, an active man can edge-hoe an acre a day, by taking each row between his feet and merely hoeing that inch or two of land that the horse-hoe has not touched on each side of the drill.

As soon as the pease are up, a good harrowing should be given across the rows. Of course, when drilled in, the main harrowing would precede that implement, and a couple of strokes after sowing will be sufficient. Harrowing is too often supposed to be executed for the sole purpose of covering the seed; but its secondary purpose is to make the work of the furrow slice homogeneous, so that the roots of the plants may find their way about all over the land without extra trouble. As for the benefit to be derived by the succeeding crop of grain in the following season from genuine, sound cultivation of the pulse-crop, that must be seen to be believed. By all means, plaster your pease.

Wheat sowing.—We were rather surprised to see a generally well informed paper in the States recommend shallow sowing of wheat: not more than one inch deep! We have grown as large crops of this grain as most people, and we prefer to sow ours three inches deep. As we have explained before in this periodical, wheat has two sets of roots, the coronal that form on the stem, and the germinal that form on or at the seed: as in the engraving.



ROOTS OF THE WHEAT-PLANT.

Now, any one can see that if the seed be only deposited one inch below the surface, the two sets of roots will be so close together that they will get into each other's way. Again, when the storms that so frequently occur in July fall upon a heavy crop of wheat, the extra strength of resistance by the lower or germinal roots being so deeply situated, must tend to enable the wheat to bear up against the levelling power of the rain and wind. Therefore, by all means sow your wheat deep.

For spring-wheat, from 7 to 9 pecks to the acre of seed according to the condition of the land, will be sufficient. The cultivation, by harrow, should continue until all the land treads equally underfoot: The roller, we should prefer using after the grain is up, and if a heavy fall of rain comes after rolling, a couple of strokes of the harrow will break the crust that almost invariably forms, when sunshine succeeds rain, on all but the lightest soils. The roller for wheat, can hardly be too heavy.

Barley.—The preparation of the land before sowing is the same for all grain-crops. But such a delicate feeder as barley needs special care. As a leading English authority says, if there is any doubt as to the adaptability, the condition as regards manure, or the tilth of the soil for the crop, it would be wise to relinquish it in favour of oats. Here, where the best malting

samples only fetch a few cents a bushel more than grinding barley, we need not be so particular, but the difference of price in England is enormous, good grinding stuff selling to day for 50 cents and first-rate malting barley for \$1.26 a bushel!

The finest samples of barley are, almost invariably, produced from early-sown crops, but bulk of yield and quality are not invariable complements of each other, and as we grow the main of our barley for pig and cattle-food, yield is what we must look to. However, there seems a prospect of our 6-rowed stuff getting into the States again, in which case, as the American maltsters understand their business, it will be worth our while to cater for them accordingly.

What odd ideas some people have about the malting business. It was stated, the other day, that the Americans wanted our barley "to mix with their own"! As no mixed barleys grow equally on the floors, they are never ready at the same time for the kiln.

Barley, above all other grain should be sown on an autumn-ploughing—a stale furrow, we call it. The previous crop, of roots or fodder-crops, that have been well worked, and heavily manured, prepare the land for barley, without leaving it too rich. The harrow first, and then the grubber, should bring the soil into perfect tilth, the point of all others to be aimed at. Seeding, from 10 to 12 pecks, according to season and the sort sown; the larger quantity for 2-rowed sown late. A light roller should be used for this plant, and care be taken not to roll when a white-frost is on the blade. If grass-seeds are to be sown, roll after the seeding.

Oats.—We strongly recommend every farmer in the province to sow at least a part of his oat-shift with Black-Tartars. Prepare the land as well as possible, as well in fact as you have time to do it. Three and a half bushels an acre on good, well worked land, and two pecks more on badly ploughed land in rough condition, will be found about the right quantities of seed. Harrow and roll as for barley. The oat is a grosser feeder than barley, and will yield immense crops when the conditions are suitable. Our farm-tutor, Wm. Rigdon, grew in Sussex, England, 140 bushels an acre of White-Tartars! These yield more to the acre than the Black-Tartars, but are not so heavy. We know of a field, in Norfolk, Eng., of 30 acres that produced 3,600 bushels! We, ourselves, never grew more than 114 bushels to the acre, and that was in Kent, where the climate is too dry for the crop to come to perfection; for it is as easy in Scotland to grow oats weighing 42 lbs. a bushel, as it is to grow them to weigh 38 lbs. in Kent.

The new oat, "Banner," we have never seen, but we hear great things of it. It will be largely grown this year, and our readers shall hear all about it after harvest.

Green-fodder: among which we reckon as the most valuable, a mixture of oats, pease, and vetches. This should be sown as early as possible, at the rate of 2 bushels of oats, 1 of pease, and 1 of vetches to the acre, so as to come into use as soon as the pastures begin to fail. The time when this fodder is at it best is when the pease and vetches are in bloom

Rape may be sown at any time, from the first of May to the last of August. It may be given to the cows,



but is more specially adapted to sheep. Sow broadcast about six pounds of seed to the acre on land prepared as for turnips, with a few cwts of bone-dust, or a mixture of 100 lbs. of nitrate of soda and 300 lbs. of mineral superphosphate, and cover the seed with a chain or bush-harrow, followed by the roller. Feed off with sheep.

**Lucerne-seed** is difficult to get good and new. If it can be trusted, 20 lbs. are enough for an acre, but we should be inclined to allow 25 lbs. As to the too frequent repetition of clover on the same land, we learn, from the "Philadelphia Ledger," "that at nearly all the institutes of Eastern Pennsylvania there has come the complaint from individuals that clover will not grow for them, and of clover-sick soils. As we have stated times out of number, we know thousands upon thousands of acres of the best land in East-England on which red-clover will not come at all if sown more frequently than once in eight years; and the land in question is farmed by some of the best farmers in the universe: the Webbs, Jonases, Claydens, and others, whose reputation is world wide.

Seeds may be sown either with the grain or after it is up, according to the season. Why seeds do best with barley nobody knows, but they do. Fourteen pounds of red clover above, or seven pounds, if timothy is added, makes a good seeding. Try a couple of bushels of orchard-grass with eight pounds of red-clover, and a lb. of white.

**Pastures.**—Feed your pastures regularly, that is, do not let them grass get ragged and run up to seed in patches. If you have 12 acres in a piece, try and divide it into three parts, and change the cattle every ten days. Knock the droppings about twice a week with a rough stick, like a hockey-stick, not only to kill the eggs of the horn-fly, but to spread the dung and prevent the coarse rubbish that always grows when the clover is undisturbed. Don't turn out too early: nipping the first shoot of grass in its infancy indisputably diminishes by one-third the total yield of the whole season.

So careful are the great English graziers in the management of their fattening pastures, then when the last fat beasts have been drawn off for market, they turn in a lot of rough, half-fed stots to what they call "clean-up," i. e., to graze off all the rough patches that the more dainty bullocks have neglected. All pastures should be fed down close once in the season: say, in September.

Meadows should be bush- or chain-harrowed and rolled, with a heavy roller, as soon as dry enough. It is not waste of time

Cows should be kept in a night until the season is well advanced. Avoid sudden changes from dry to watery food. In very few seasons is the grass fit for cattle till the 20th May, in these parts. In very rainy seasons, when the grass scours cows, give some dry, astringent food once a day. Pease meal is good for them when thus affected. Neither feeding-cattle nor milch cows pay well in wet summers.

Sheep want a good deal of care just now. The washing and shearing of the ewes should not be postponed too

long, as the fly strikes sheep more freely when their hind-quarters are encumbered by tags of wool foul with dung. Cut and dock the lambs at a fortnight old

**Swine.**—The young pigs of April will be crying out for skim milk or whey after weaning. Here again a little pease-meal with bran or middlings will be useful if you want to turn out nice, neat hogs in October.

**The Central Syndicate.**—This association is doing a good work for farmers in general, if we, one of the Directors, may be allowed to say so. Up to March the 23rd, it has taken orders for 51,319 pounds of seed-grain, &c. Many useful implements such as chaff-cutters, improved harrows, grubbers, and others of the kind have been supplied to customers.

**Potash.**—Where farmyard manure is not wanting, we have always found the application of potash in any form inefficient. Ordinary dung, as it reaches the land, contains about 14 lbs. of potash to the ton. Kainit, the cheapest available form of potash-manure, contains in a ton about 260 lbs. As it takes a long time to act, any potash manure used should be applied in the fall. Wood-ashes, besides potash, contain a fair percentage of phosphoric acid, which accounts for their effect on the turnip. Why, on earth, are the large exports of ashes to the U.S. allowed by our farmers? The ammoniacal liquor of our gas-works, too, is sent to New York, there to be reduced to the form of sulphate of ammonia!

**Potato-planting.**—Mr. Terry, the great authority, in the States, on potato-growing, seems to have given up the use of the machine and reverted to the old-fashioned plan of dropping the sets by hand. At least, so he says in his new brochure on the subject. He seems to find that the machine packs the ground too much, and that upwards of 6 per cent of sets are missed. Now, we must be allowed to say that if the machine is used when the land is in proper order, the "packing" cannot be injurious, and as for miss-plants, a very close attention to the working of the machine (the *Aspinwall*) at the Dawes farm at Lachine enables us to say that it must be due—if it occur—to carelessness on the part of the man.

**Spurry.**—This plant, the *spergula arvensis* of botanists, was brought prominently before the English public, some four or five years ago, by, if we remember the agent of Lord Walsingham, a large Norfolk breeder of Southdowns. Since then, we have heard nothing about it until last month, when we met with the following paragraph in the "Farm and Home": "Spurry for sandy lands has been advocated by the Mich. exp. sta., Agricultural College, Mich. From the favorable report of the station I sent last spring for a bushel of seed and raised two crops from the same piece of ground. I let the first crop seed and harrowed the stubble for a heavy second crop, it requiring only six weeks to mature and four weeks to turn on to for pasture. The matured straw I threshed this winter and fed out to the cows. They would leave the best of hay for the spurry straw, with an increase of milk and butter. Horses will not eat it, but cattle, sheep and poultry eat it greed-

ily, and for fertilising purposes it is better than the clovers.—William K. Stafford, Manistee Co., Mich.

As for the statement that "for fertilising purposes it is better than the clovers," that is, well, what the Turks call *bosch*, but such land as the inferior parts of Sorol, and that wretchedly poor strip along the St. Lawrence from Sorol towards Lanoraie, ought to rejoice in such a *trouvaille*, if it is anything like what Mr. Stafford reports it to be.

**Average Crops in some of the States of the Union were as follows:**

Potatoes in 15 States from	
Maine to California.....	85 bushels;
Wheat .....	11 do
Corn from Mass. to S. Carolina.....	25 do

The English papers, not knowing that the old Winchester bushel is still in use in the States, are surprised to find that the weight of the struck bushel of wheat there is, this year, only 57½ lbs.

**Beef-cattle for the English market.**

—Heretofore we have been able to reap a fair return upon thin and half fat cattle, but so long as the present restriction remains in force it will be simply ruinous to ship any cattle except those in prime condition. The well known feeder and exporter, Mr. Thos. McMillan, at a farmers' institute, gave the following description of what a model export steer should be:

"Apart from the Polled Angus, of which there are very few in this country, the Durham grade generally commands a first place in the butcher's eye. It is a well-known fact that the Durhams have been more largely used for the improvement of other cattle than any other breed, and I think that, so far as experience has gone, it has borne out the wisdom of such a course of breeding, as the Durhams seem better adapted for this purpose than any other breed, owing no doubt to their better ability to transmit their own qualities to their offspring. In breeding and raising beef animals for the British market, they should be of good quality, with soft skins, and as evenly fleshed as possible. The main points are a good straight broad back, well-sprung and deep in the rib, well filled behind the shoulders, good hams and brisket, short legs, a fine, clean-cut neck and head, with nice and well-set horns. In fact, our advices from the British market are constantly calling for a primo article. During the time this trade has been in existence, our beef cattle have gained a most desirable reputation in the British market, and it is the plain duty of every Canadian farmer to endeavor by a system of selection and judicious feeding, not only to hold that reputation, but to continue to improve it."—*Advocate*.

**Lathyrus silvestris, Wagneri.**—We learn from England that this new fodder plant, a flat pea, is taking well there. Mr. Clotten has laid down some thirty acres of it in different countries, all of which did well last season, in spite of the drought. A large landowner, name not mentioned, is laying down 200 acres this spring

**Beef in England.**—The general feeling in England as to the most saleable style of bullock is that a good two-year old beast, of a breed that combines size and quality, will fetch the top of the market. Young bullocks of

fashionable breeds are said to be slight in flesh—i. e. lean-meat—and old high bred animals are wasteful and never pay the butcher.

**Live to dead weight.**—The probable proportion of live weight to dead weight, depends greatly on three points: age, sex, and breed. As some of our readers may remember, one beast at the show of Smithfield Club, last December gave 77% of carcass to live weight; but generally speaking, 60% is a fair yield. Fat bulls, again, generally weigh less than they ought to, if judged by measurement. Pigs, of course, from the soundness of their food—mostly grain—dress from 78% to 86% of their live weight, and very heavy pigs even more. Fat lambs, in the wool, that will dress 40 lbs., would probably show from 51% to 55% net to gross, and a good ripe sheep of say 80 lbs. net, would give 57% to 60% of its live weight. An old rule about sheep, in the South of England, used to be that a good sheep ought to give "a Smithfield stone for a horseman's stone;" i. e., that 14 lbs of live weight should give 8 lbs of carcass, or in other words that a fat sheep weighing 100 lbs. alive, should give 57 lbs. of carcass.

**Points for rejection of horses.**—The English government has the following set of rules for those who select horses for cavalry service; the one called "Points for Rejection," but will answer equally well as points for selection:

Reject a horse whose forelegs are not straight; it will not stand wear. Stand behind the horse as it walks away from you, and you will be able to notice these defects, if they exist.

Reject a horse that is light below the knee, especially if immediately below the knee; the conformation is essentially weak; or a horse with long, or short, or upright pasterns; long pasterns are subject to sprains; short or upright pasterns make a horse unpleasant to ride, and, on account of extra concussions, are apt to cause ossific deposits; or a horse with toes turned in or out. The twist generally occurs at the fetlock. Toes turned out are more objectionable than toes turned in. When toes turn out, the fetlocks are generally turned in, and animals so formed are very apt to cut or brush. Both, however, are weak formations.

Reject a horse whose hind legs are too far behind; good propelling power will be wanting, and disease as a result may be expected in the hocks. And a horse which goes either very wide or very close behind, and one with very straight or very bent hook, the former cause undue concussion; the latter are apt to give way.

Reject a horse that is "split up"—that is, shows much daylight between the thighs; propelling power comes from behind, and must be deficient in horse without due muscular development between the thighs.

Reject a horse with flat or over large feet, or with very small feet; medium sized are best; also, a horse with one foot smaller than another.

The best hunter we ever had, turned his toes in, and in consequence, was always wanting to tumble on his nose on the road, though with hounds he was as safe as a earhorse, and never gave me a single fall, though I rode him in a very rough country. Ed.

**Milking-Shortorns.**—A man writes to the Country Gentleman: "Can you inform me where I can buy milking shortorns? I want them from mil-

and butter strains and not for beef; and for beef when they are no good for milk and butter."

What the above querist wants is the real English Dairy-Shorthorn, plenty of which are to be found at Darlington; Durham; Lincoln; Wisbech; and numerous other markets and fairs in England. The price varies from \$100 to \$120, each, for the cows, and good bulls 15 months old, of a milking strain of *pedigreed* shorthorns can be picked up for from \$120 to \$150, at the sales of superfluous stock.

The editor of the *Country Gentleman*, after referring the correspondent to Mr. Morse, who has some of the cattle referred to for sale, observes that "It is remarkable that so few breeders of dairy-shorthorns seem to want to find customers for them." If there are any real dairy-shorthorns in the States, they certainly did not make their appearance at the Chicago competition, for a more miserable showing than that made by the shorthorns there we never heard of.

**Model-farms.**—Mr. Macpherson, of Lancaster, in a speech delivered during the last winter, proposed the establishment of small model farms in every county; perhaps, one for each township. Now, it seems, from what the Hon. Louis Beaubien said in a speech in the House, shortly to be published in both languages, that the best farms selected by the judges of Agricultural Merit are to be looked upon as the models for the neighbourhood in which they are situated. The Judges are to spend a considerable time on each of these farms; to explain to the occupants the reason why certain practices are wrong, why others are right, and, generally, to give such advice as may lead to the improvement of the system of cultivation pursued on each of the holdings submitted to their inspection.

**Diarrhoea in calves.**—This complaint frequently arises from giving milk to the calves when too low in temperature: 96° is about right. Another cause is mixing ground oats *unsifted*, with the milk they get, out *meal*, is one thing, ground oats another. The husk of the oat excites a peristaltic effect on the bowels, which turns sooner or later into diarrhoea. As we have often said: crushed linseed—i. e., flaxseed broken—with a little pease meal when the calf is, say, three weeks old, is about the best stuff to mix with milk for calf-feeding.

Mr. Gould, the well known dairy man, advises, in the case of diarrhoea in calves, the giving of two teaspoonfuls of rennet extract in milk. This is quite a new remedy, as far as we know, and deserves a trial.

**Horse-beans.**—The *Farmer's Advocate*, in a late issue, states that "the English beans have proved a failure in Ontario." If such is the case, there is no earthly reason why pease should not be mixed with the silage-corn and sunflower heads, instead of the beans, as recommended by Prof. Robertson. If beans are sown, with a view to the ripening of the seed, in this country, our experience leads us to believe that they should be drilled in before the first of May.

**Vetches (tares) for silage.**—Where maize does not do well, as in some parts of the North, vetches might be used for silage. Cut when in full bloom, they are a hearty food enough. The mixture recommended at p.—of this number—oats, pease, and vetches—ought to make capital silage. The

large Scotch tare or vetch, a free growing haulm producing plant would do best, as the *lentil* is not bulky enough.

**Oats.**—In the list of oats recommended by correspondents of the *Farmer's Advocate* we find, among many others, our friend Mr. Wm. Halo, of Sherbrooke, speaking in high terms of our favourite Black Tartars. Mr. Halo says, very truly, that the fine, heavy Scotch oats do not yield well here, but soon *run out*, the season not being long enough to ripen them. More than that, the climate is too dry for them. We have tried them in South-Eastern England, and the oats that when sent down from Aberdeen shire weighed 44 lbs. the *struck bushel*, never produced grain that weighed over 39 lbs.

**Four ways of preserving fodder-corn.**—Messrs. Cooke and Hills, of the Vermont Station, report that four ways were tried there, in 1892, of preserving fodder-corn:

**Synopsis.**—A comparison of ensiling and field curing corn with and without the ears, the ears being ground in the latter cases and fed with the stalks from which they were taken. The loss in keeping was nearly the same for the four methods. Each kind of fodder was fed *ad libitum* to twelve cows with grain and hay. The yields of milk and fat were practically the same, but more of the fodder was eaten when the ears were removed and ground, so that, calculated on the basis of one acre of corn, the whole silage gave the largest yield of products. The results were lower in each case where the ears were removed, ground, and fed with the stalks than when ensiled or field-cured with the stalks. The silage and corn fodder were alike in their effect on the composition of the milk.

**Butter.**—A great scarcity of butter in Montreal this March. Two Montreal men have been, we are told importing butter for New-York State, that cost, delivered, 28 cts. a pound, and poor stuff it was. We are now paying 32 cts. a pound for our family use—we ourselves never eat it. We think Mr. Andrew Daves was quite right the other day when he remarked to us that we were making quite enough cheese as present in the province, and it was high time we paid more attention to butter. (1)

**Manure.**—How people, good, practical farmers, do vary in their treatment of manure:

Q.—How can we best maintain the fertility of our farms?

Mr. Irwin—Have a good silo; plow and seed often and apply the manure early in the fall. Pile the manure and keep it till you want to use it. I don't want to draw manure when the snow is three or four feet deep.

A farmer—Manure is never again so valuable as when drawn as fast as made and applied to the land.

Mr. Smith—Too many Herkimer county farmers make the mistake of pitching their manure out of their stable windows and leaving it there all winter.

Mr. Converse—Experiments at Cornell University show a loss of only 8 o/o in manure drawn out and put on the land as fast as made; while the loss was from 20 to 40 o/o in

(1) April 2nd, a farmer called at our house with fresh butter for sale at *only* 30 cents a pound!—Ed.

that left in piles that had been drawn out three months. With the loss of all the liquids and from 20 to 40 o/o of the value of the solids, but little more than the skeleton is left to apply to the land.—*Hoards*.

Belleville, N. Y.

We do not suppose any one likes drawing out dung through four feet of snow, but surely every one ought to know that a dung-heap firmly made, by the pressure of horse and cart, or sleigh, will stand exposure during the winter without any great loss of valuable constituents.

**Clover-sickness again.**—Many, if not most, of the farmers in the Eastern States, says a correspondent of the *Country Gentleman*, complain that they can no longer get a good catch of clover. And we shall be in the same trouble if we persist in sowing clover too frequently.

**Fat in milk.**—The following may be taken, we suppose, as Mr. Hoard's thoroughly considered opinion on the question: can the percentage of butter in the milk of a cow be increased or diminished by the food given to her?

Chas. Rohde, of Dodge Co., asks: If in feeding a cow on marsh hay only, will she give as rich milk as if fed on timothy hay, ground oats and corn?

There are two sets of believers to this question. One that the relative percentage of fat in the milk remains about the same on all kinds of feed and that if you want richer milk you must get a richer cow to give it. Another that feed does make a decided difference in the percentage of fat. The first class have the advantage of nearly all the close practical experiments that have been made on the question, which in the main agree that the percentage of fat cannot be very materially changed by the feed. Good liberal feeding they say is profitable in that it holds the cow up to her best performance all the time. They also ask if we can feed a Holstein cow so as to make a Jersey of her or vice versa. Our own belief is made up somewhat of both, and was stated nearly twenty years ago as follows: (1) Every cow establishes for herself the relative proportion of the solids in her milk. This is the born talent or individuality that marks her as a better or poorer cow among her kind. (2) She may be fed and handled so as to bring her up to her maximum proportion of solids, or of butter fat. She may have a high or low maximum. Be that as it may, in health, she cannot be carried beyond that maximum. But poor feeding and especially bad treatment and care may carry her for a long time with the proportion or percentage of butter fat down to the minimum. Some one takes her and institutes wise liberal treatment and feeding and she responds up to the maximum limit of proportion and they say "see what feed has done." Very true in one sense, but would it have done it had not the cow this reserved margin born in her to respond with? This view teaches the value of first securing a cow, through breeding and training, that has as high a proportion or percentage of solids as possible; then to so feed and treat her as to enable her to work constantly up to the maximum born in her. Feed is the supporting factor. Breeding and training are the fashioning factors.

Our own opinion is still simply this: poor food will make a cow yield poor milk.

**Sowing fertilisers.**—In spreading fertilisers it is necessary to take care that they are in a perfectly pulverised state. A barrel, weighted with stones, is a good thing to reduce them with, on a barn-floor or other smooth surface. Then, mix them, particularly such as nitrate of soda, or sulphate of ammonia, with three their bulk of finely sifted earth: they will thus be more equally distributed.

GROWING ROOTS; BY THE EDITOR.

(Continued.)

SWEDES.

Why the swede should be called, by the French-Canadians, *Chou de Siam*, we never could find out. One thing we know, that they are right in calling it a cabbage (*chou*), for a cabbage it is and not a turnip. In France, if my memory serves me, it used to be called *Chou de Lapone*, i. e. Lapland cabbage; it has smooth leaves like a cabbage, and though commonly spoken of by English farmers as a "Swedish turnip," come old people there still call it a *rutabaga*. The full botanical name is *Brassica campestris*, *nappro-brassica*, *rutabaga*; *De Candolle*, which shows its origin, as *brassica*, in Latin, is a cabbage and *napo* is used by Pliny to designate a sort of turnip. Stephens, in his "Book of the Farm," gives *Navoni de Naponia*, as the Italian name, which is grammatically incorrect, probably owing to the ignorance of the American proof reader of my copy: the real Italian name is *Navone di Svezia*, i. e., turnip of Sweden.

**Origin.**—The swede was first introduced into Scotland, in 1871, by Mr. Knowles, who brought the seed from Göttenburg. Swedes are sent to table in Scotland, but never in England, which alone would show the superiority of the Scotch swede to the English. Just so, with the Quebec swede, which is far better for eating than any grown near Montreal; and yet the chemist seems unable to find any difference analytically, between a Kentish and an Aberdeen swede!

As will be seen by the illustrations, the swede is oblong in form; the colour is of a deepish yellow underground, and the upper part purple, or in some sorts, green. In selecting swedes for seed great care should be taken to reject all that have a depression round the neck. In this depression water will lodge and rot the whole bulb. As all defects in the parent stock are apt to crop out in the progeny, no irregularly shaped bulbs should be planted for seed.

As the swede, after storing loses water and becomes specifically heavier, it is more valuable, by measure, in spring than when first gathered. Johnston gives the percentage of nutriment in this root as 7.45; Sir Humphrey Davy, as only 6.40. But both these percentages are rather low, particularly the latter, Warrington, a most trustworthy modern, gives the percentage as 9.00.

In Southern England, we find it as easy to grow 20 tons of mangels to the acre as 14 tons of swedes; and the reason is that if swedes are sown with us before the tenth or fifteenth of June, they invariably mildew, when not only is the growth checked, but the whole bulb becomes stringy and harsh. Here, however, it is not so. No finer swedes are to be found in the world than those grown at Sorel, where, last October, we saw plenty of specimens, sown among the carrots, accidentally, on the 20th May, that weighed from 15 lbs. to 18 lbs., without the leaves, and cut through as

tender as a white-turnip. The main crop, 11 arpents, on the same farm, would not average 3 lbs. a bulb!

**Constituents**—According to Warington, the constituents of mangels and swedes, are as follows:

	Water.	Albuminoids.	Fat.	Soluble carbohydrates.	Fibre.	Ash.
Mangels.....	88.5	1.2	0.1	8.2	1.0	1.0
Swedes.....	89.3	1.5	0.2	7.3	1.1	0.6

These are the average results of a vast number of analyses.

It should be observed that the influence of very high manuring is to increase the percentage of water in roots. Very large mangels, for instance, often contain as much as 94% of water. No wonder the beet-sugar factories object to large roots.

A crop of 22 tons of mangels contains as much as 45% more nitrogen than a crop of 14 tons of swedes; more than three times as much potash, four times as much soda, five times as much magnesia, three times as much phosphoric acid, six times as much chlorine, and four times as much silica; and yet, as we said above, it is as easy in South-England to grow the one crop as the other! At Sorel, it is as easy to grow 30 tons of swedes as 18 tons of mangels; therefore, my friends have given up mangel growing; wisely, too. The varieties of the swede are numerous: Lawson, many years ago, gave the name of eighteen. Our favourite is the *Bangholm purple-top*. It crops well, is good in flavour, and is a first-rate keeper; *Skirving's Liverpool* we do not like; it yields well, but is inferior in quality; *Laing's* and the *Shamrock* are both good.

According to Sinclair, 1828 grains of large swedes contain 110 grains of nutritive matter, whereas the same weight of small ones only contain 99 grains; a good reason, if well founded, why farmers should try to grow big swedes. But, the fact is, that the calculation is only correct within certain limits; a large, overgrown swede, grown with a great dose of nitrogen, is watery; and a small swede grown on poor land with a small dose of manure, is stringy and worthless. The crop to aim at is a thickly set one of moderate sized bulbs, except in soil-like Sorel, where, from some unknown cause, a 12 lbs. swede is as tender and delicate as one of 3 lbs.

**Weight of crop.**—The following calculation will give some idea of the yield that should be derived from an acre of swedes well done by.

Taking the drills as 24 inches apart and the plants in the drills at 10 inches, there will be 26,136 on an acre; and supposing each bulb weighs 3 lbs., by no means a large swede, you arrive at a weight of, in round numbers, forty tons to the acre, or, if your customary acre is the French *arpent*, of nearly 36 tons. How very short of this do we generally fall! Why is it? Either we are very careless in our way of singling the crop, or our swedes are very small.

**Manure.**—The treatment, preparation, &c., of the land for the swede crop are about the same as for mangels, but the manure is not of the same kind. Mangels, we saw, require, specifically, nitrogen; swedes require, specifically, phosphoric acid. On an acre of moderately rich soil, spread 500 lbs. of superphosphate of

lime, containing 14% to 16% of available phosphoric acid, and no other fertilising matter, and, all other things being rightly managed, if you sow swedes, you will probably get a fair crop; of course the addition of a hundred lbs. or so of nitrate of soda, or sulphate of ammonia, will improve the yield. But, try an acre of mangels with the same dressing of superphosphate alone, and you will at once see that the demands of the appetites of the two plants differ materially.

*Ville's formula* for manure for swedes is as follows:

Superphosphate of lime.	528 lbs.	\$6 00
Nitrate of potash.....	176 "	9 00
Calcic sulphate (plaster).	352 "	0 65
	1056 "	\$15.65

Here, it seems to us, the quantity of superphosphate is excessive, that cheaper forms of both nitrogen and potash are obtainable, and that the plaster is, as a general rule unnecessary.

Try: 224 lbs. of superphosphate \$2.25  
150 " " nitrate of soda.. 4.50  
\$6 75



LAING'S SWEDE TURNIP.

We omit the potash, as, when a decent amount of dung is annually used on a farm, we have never seen any form of potash pay.

If you have dung ready for the swede crop, a half dressing of it with 224 lbs. of superphosphate, drilled in with the seed, will be a surer plan than trusting to artificials alone.

**Bone-dust** at the rate of 300 lbs. an acre, with 200 lbs. of superphosphate, and 100 lbs. of nitrate of soda would bring a good crop of swedes, without dung: the superphosphate and nitrate of soda to start the young plant into vigorous life, and the bone-dust to carry the vegetation along during the latter summer and the autumn.

When we speak of *superphosphate*, we mean mineral *phosphate* dissolved by sulphuric acid, and containing about 15% to 16% of available phosphoric acid. When a correspondent tells us he has used "so many pounds of phosphates" to the acre, he leaves us as ignorant of his meaning as ever. The nomenclature employed in the American agricultural papers is strangely loose.

When a mixture of dung and artificials is used for swedes sown on the raised drill, there being no artificial manure sower at hand, the best plan

is to harrow along the drills with a light harrow, then sow the artificials on the harrowed surface broadcast, split the drills, and sow the seed. This will bring the artificials nearer the seed than if they are sown on the manure, and yet not near enough to burn the roots of the young swede.

**Quantity of seed.**—Mr. Drummond, of *Petite Côte*, Montreal, one of the best farmers in the Dominion, sows 4 lbs. of swede seed to the imperial acre; but then the fly, it must be remembered, is very destructive in that district. We have always found 3 lbs. of fresh, sound seed enough, and at Sorel, where there is no fly to speak of, 2 lbs. will bring a full plant, much less trouble to single than where a greater quantity is used.

**Time of sowing.**—This depends greatly upon circumstances, but may be roughly put a from May 20th to the end of June. For weight of crop, take the former rate; for quality and quantity, the 10th or so of June; but very fair crops may be grown by sowing as late as the last of June.

**The fly,** or rather beetle, *haltica nemorum*, is so rife in some districts of the province, that it is impossible to depend upon a crop of swedes or of



SHAMROCK SWEDE TURNIP.

turnips unless the sowing is made either very early or very late. At Joliette, in 1869, we sowed white-turnips on Saturday, they were up enough to be visible on Tuesday evening, and by Wednesday night the fly had cleared them off! No dusting with flour of brinstone and finely sifted wood-ashes, a dressing that is generally effective, could have had any chance with such rapacious villains as these. The only things to be done are: to prepare the land thoroughly; manure it well; sow, early, plenty of seed; allow no *charlock*—wild mustard—to grow, and the plant may then have a chance to get away rapidly into the rough leaf, and escape this annoying little fiend. But, then, it is not safe, for at St. Hugu's in 1874, our swedes were attacked by three different lots of fly, each succeeding lot being larger, individually, than its predecessor.

**Storing** the crop may be done as before advised for mangels, only of course the tops of the swedes must of necessity be cut off. Part of an old scythe, set in a straight, smooth piece of wood, does this well. Do not allow the hands to strike the knife into the bulbs to save their backs: bleeding spoils all roots.

The tops are not good for much, except for sheep; they make cattle scour, unless a good deal of dry food is given with them. Brewers' grains, straw, and swede-tops, will make milk as poor as need be.

Talking of swede-tops, it is quite worth any one's while to let a few of the bulbs remain in a dark warm part of the collar; the shoots will of course be white, and if eaten with melted butter—not that poor thing called *sauce blanche*,—but real melted butter are hardly to be distinguished from that delicious winter vegetable *sea-kale*.

The bulbs, again, set out early in spring, will give what we call in England *greens*, a much better thing than cabbage. Are *coleworts*, called in London *collards*, overgrown here? They are planted out from the seed-bed, in late August, very thickly, and are the best form of all the *brassica* tribe.

**To melt butter,** which is rarely well done.—Mix, in the proportion of a teaspoonful of flour to four ounces of the best butter, on a plate. Put it into a small saucepan, with two or three tablespoonfuls of hot water, boil quickly a minute or so, shaking it all the time. Milk may be used instead of water, and requires less butter.

A tablespoon as used here, we should call a dessert-spoon *chez nous*, so allow a little more water than in the recipe.

## REVIEWS. (By the Editor.)

### The sugar-beet in Canada.

By *Le Cte des Etangs*.

Montreal, 1893.

The above work, written by the Comte des Etangs, has just reached us, and we must be allowed to say that, besides appreciating the valuable information it contains, we cannot help admiring the extremely orderly way in which that information is presented to the reader. It was long ago observed by one of great reputation in the scientific world, that however valuable the discoveries of the English in the realm of physics were, it was not until they had been, to use a vulgar expression, "licked into shape" by a Frenchman, that they were properly appreciated by the European public.

M. des Etangs has evidently made a deep study of his subject and seems to be deeply imbued with the idea that the cultivation of the sugar-beet will before long become a common practice all over the province of Quebec. (1) But it is not only the growing of the beet that he treats in this publication. The Count is a devout believer in the necessity of thoroughly developing the crop-producing capabilities of the soil by means of the searching powers of the modern implements, the scarifiers, subsoil-ploughs, &c., as well as of aiding the scanty supplies of our farmyard dung, by the various fertilisers now so easily obtainable. (2)

The book is, unfortunately for some of our readers, published in the French language; but it is worth its trifling cost, only for the engravings of the different farm-implements it contains, some of which we hope to be allowed to transfer to our pages at a future opportunity.

(1) M. Seraphin Guevremont wrote me word that he is going to grow several acres of sugar beets this season.—Ed.

(2) Sad to say, nitrate of soda has risen to such a price in Europe, that we fear it will be too dear for use here.—Ed.



**LECTURE ON AGRICULTURE.**

By Sir A. Cotton, Madras Engineers.

Dorking, R. J. Clark, 1893.

Sir A. Cotton thinks we farmers know nothing at all of our business, and, which is more, he says so in pretty plain terms:

"This is exactly the case of agriculture to this day in England. The whole body of those employed on the land know nothing upon earth about vegetation."

The author has no farm, no landed property in any shape—except a garden—and he gravely proposes that farmers should spend \$500 on an acre of land in breaking it up three feet deep! Land treated in this way, he proclaims, would yield if sown to wheat, about 150 bushels an acre, besides 10 tons of straw! But we forget the manure; 30 tons of dung are to be applied to each acre in wheat, and that yearly: the General does not say whence this is to be derived. The balance sheet is a curiosity. Total cost £23. 15; total returns, £54. 0., profit, £25. 5. In the cost, the breaking up, cost of land, &c., are all reckoned at interests of 3% and 4%, including the "working capital" of £30 an acre, but the writer does not say whence the capital is to come.

Poor Alderman Mechi was silly enough, when he deserted his trade of cutler, to try to teach English farmers how to farm, but this excellent engineer is a long way ahead of him.

Did any one of our readers ever see 83 bushels of wheat and three tons of straw on an acre of land? We have heard of such a crop, but thought familiar with the best farmed and richest land in England, we never yet saw 70 bushels. Conceive then, if you can, a standing crop of double the latter yield!

**Poultry-Yard.**

REMINISCENCES OF A TRIP WESTWARD—SOME INSTITUTE MEETINGS AND THEIR LESSONS—POULTRY AND EGGS IN A MILD CLIMATE—CHANCES FOR THE PROVINCE OF QUEBEC.

(By A. G. Gilbert.)

Since I last had the pleasure of writing to your excellent Journal I have been in the garden of Ontario,—as that portion of the Province extending Eastward from Windsor and South of the line of the Grand Trunk Railway to Niagara Falls—is called.

My mission was to talk poultry to the farmers at different points in the districts named and so carry out the wishes of the Honorable the Minister of Agriculture for Canada. My first visit was to South Huron, a district rather more North than the one I have mentioned, but yet embracing a beautiful country, with cultivated farms, well built and comfortable dwelling houses and peopled by prosperous and progressive farmers. The same description will serve for all the country I went through. I do not mention the many large towns so numerous dotted over Western Ontario and which serve as grand market and distributing centres for the surrounding country, because it is not necessary to do so.

Leaving Toronto I wended my way to Wingham, a thriving well built enterprising little town with a large Opera House, commodious town hall and waterworks and electric light systems. From thence I made my way to Wensall, a village about 40 miles southward and there at Dachwood, a short distance away, proceedings of

the South Huron Farmers' Institute were held for two days, one day at each place.

**GOOD ATTENDANCE.**

You may speculate as to what this descriptive narrative has to do with poultry but I hope to show the connection before long. Meanwhile, allow me to remark that what first challenged my attention was the good attendance. There were three meetings held during the day viz. at 10.30 A. M.; 1.30 P. M. and in the evening at 7.30. As I witnessed the well attended sessions I could not but contrast the earnest interest evinced in the proceedings with that which would have been taken by the farmers 20 years ago. At that time it would have been well nigh impossible to have got so many farmers together to consider agricultural matters, but here they were dead in earnest in discussing improved dairy methods; improved methods of cultivation; stock raising and



LONG RED MANGEL.

feeding; the best breeds for milk or beef; poultry and pigs, and listening to addresses from practical men, well versed in all they had to say. You had not long to wait to find out that the growing wheat to make money out of selling on the market as in days gone by, was over, and grain must now be grown to put into stock.

**SOME ENCOURAGING STATEMENTS.**

And the following were some of the statements made and they will bear repetition in your columns for yours is essentially an agricultural paper and they cannot fail to be of interest, may-hap of education, to your agricultural readers, and it is well that they are in touch with the west:

First, an excellent address on the benefit of "a through training in the latest and best methods" in all branches of farm work was given by an old and experienced farmer Mr. Kernighan, of Colborne.

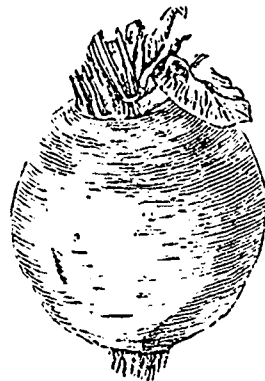
There followed a very interesting talk by Mr. J. A. Ruddick, of the Dominion Experimental creameries, on "Dairying." His opinion was that

farmers would be forced to take up winter dairying if they wished to make farming pay. It was the experience of farmers who had tried winter dairying that the skim milk did more than pay for the extra feed they had to give their cows, and that the cows gave more milk the following summer.

A very interesting discussion followed, in which Mr. Thos. Hannah gave instances of farmers who had increased their incomes from \$300 to \$700 a year, simply by giving intelligent attention to dairying and feeding their cows. This was in addition to the profit from their pigs and poultry and other stock and grain sold off the farm, to say nothing of the increase in the fertility of the soil.

Another veteran farmer said that last season he kept a strict account of the entire cost of producing and storing in the silo six acres of corn. The cost, including everything, was \$202. He got over 20 tons of ensilage per acre, thus making it cost at the rate of \$1.68½ per ton. Two and a half tons of ensilage are equal to a ton of hay. (1) Twenty tons to the acre is an amount of feed that can not be got in any other way. On ensilage there is a clear profit of \$6. per acre, while on wheat there is a loss of from \$4 to \$6 per acre.

The above will suffice to show the trend of discussion at the most of, if not



YELLOW GLOBE MANGEL.

all, the meetings in that district and in the others I subsequently visited.

**POULTRY.**

Coming now to poultry I found that in most cases no attention had been given to this department and that the fowls were allowed to live as best they could during the winter—comparatively mild it is true—to begin production in early spring when every person's hens were laying and prices were down to about their lowest in consequence.

But there were some exceptions and a notable one was Mr. S. J. Hogarth, President of an Association, who informed me that although he got only twenty cents per dozen for his eggs in the London, Ont., market during the past winter, he had found them pay him a very satisfactory margin of profit. The wholesale figure is named.

In the district surrounding the city of London, there are several poultry farms and the result can be seen in the large and fine birds exposed for sale on the market, or in the shops. So fine and large and well dressed were the turkeys, geese and chickens that a stranger could not fail to have his attention arrested. And yet, notwithstanding the abundant supply, prices were stiff and two dollars to two dollars and a quarter were asked for fine specimens of turkeys. Geese of choice

(1) That depends, of course, on the quality of the hay and the kind of stock it is used for.

appearance were worth from 65 to 85 cents and in the shops one dollar. Eggs and poultry in many cases were sold by weight.

The features presented by the egg-markets of Ontario are these. Where the winters are comparatively mild and eggs easy to obtain, because the laying stock can have a run out, eggs are from 18 to 25 cents per dozen, according to the size, and at wholesale figures, I am speaking of the new laid article.

Where the winters are colder, as in the eastern portion, and the laying stock have to be artificially housed and supplied with all the essentials, eggs are high in price because more difficult to procure. For instance, in Ottawa city, where now laid eggs will bring 30 to 35 cents per dozen from dealers, who will retail them immediately afterwards at 45 and 50 cents per dozen.

**THE PROVINCE OF QUEBEC.**

The lesson to be learned from the foregoing part of my rambling letter is that in the matter of obtaining high prices for poultry and now laid eggs (the latter in the winter season), the farmer of the Province of Quebec has a grand opportunity. He has only to become acquainted with the best methods of managing his poultry to get the best prices, in the largest market in the Dominion, viz. that of Montreal and, if you like, that of the grand old city of Quebec. Even where prices are low the superior article commands the top value. And that should be the aim of our farmers in other departments as well as in poultry and eggs: to produce nothing but the very best. It costs no more to feed the hen which lays the small egg than it does to feed the fowl which produces the big one. The same food, that will show little results in the chickens of some breeds will make a plump pair of chickens of eight pounds in four months and a half, if the proper breed to make market chickens is kept by the farmer. No denial can be given to that fact: there is always room at the top.

**Household-Matters.**

Driving in the country, I have often wondered why farm houses are built quite in the open, not a tree near, nothing but the bare house. How much more homelike it would be with a few trees planted about, and under their sheltering branches a good piece of grass, for the children to play on, a drying ground for the clothes, and a cheerful, and cool spot for the whole family to spend their leisure time. If you have not this charming resort, do not let this spring pass without a start. No one would choose the north side of the house, but on the contrary, the warmest spot. It takes a few years for young trees to grow to be of much shelter, but do not let that hinder the good work, choose a good, hardy tree, native to the soil, take it from the open, not in the middle of the bush, where it might be spindly, but short, with a good branching power; when planting do not grudge a good deep pit in which to plant, with plenty of the soil from where the tree grew. The usual handful of oats to cling round and bind the roots to the soil, more earth, stones to keep all firm, turf the last thing. A strong stake to support the young tree. If this is done, care being taken to have the pit dug before you get the tree to be planted, not letting it wilt, there is not much fear of its growing. In the lower part of the Province we



tried for several years, to get trees planted, but had, at last, to watch it done under our own direction; and what a task it was to get the working lad to do just as we wished: we could not leave him alone during the process. At any rate our planting was successful, we lost very few trees. Do not plant in a row, but dotted about, and you might mix in a few apple trees. Do not depend on one sort of tree for it is always easy to cut down superfluous growth. Like bushes make a nice shelter, and perfume, and if a pair of robins choose to build a nest there, you will have another charm added to your recreation ground.

### WASHING.

Save time, and labour by soaking the clothes in cold water all night, before washing day. If you have time to rub a little soap on the soiled parts so much the better, a little soft soap in the water, or any other little help, such as Pearline, care being taken not use too much, and to mix well with the water before soaking the linen. The next morning, wring out and soap the soiled parts, such as the collars, wristbands &c. and then put them on to boil, in cold water for  $\frac{1}{2}$  an hour counting the  $\frac{1}{2}$  hour from the time they begin to boil. If this is done carefully, your clothes will be just as clean as your neighbour's who perhaps spends half a day in rubbing. Now take them out of the boiler with as little water as you can, rinse them about well with plenty of water; then blue, and your washing is done. If you have a wringer, the labour will be very much easier and even the work would be shortened by a good little boy or girl turning it. Try this plan if you have never done so, and I am quite sure you will never go back to the old way. The writer's clothes have been done this way for years, and they are out on the line drying about 9 o'clock at the latest: result; the servant has just as much time for leisure as on other days. Having no home made soap we use the patent such as Digman's, or Sunlight,  $\frac{1}{2}$  a bar to a boiler of clothes. If a second boil has to be done servants are apt to leave the hot water from the first and fill up: this must not be, if you want good work. Every boilerful must have its own cold water. If you do it yourself you will easily see how necessary and easy it is to follow directions, also, how many an extra  $\frac{1}{2}$  hour you will have, to spend in the garden, and to cheer you up for the next work which is always ready for the thrifty house-wife.

This month is given a pattern of a very simple skirt to be worn with a blouse (1) waist, which might be made of any material to suit the means, or taste of the maker. The simple blouse-waist seems to be very popular, just now, it will take 3 yards of material one yard wide, and about  $2\frac{1}{2}$  yards of narrow stuff. The belt to be made of velvet or black silk. For the skirt you will want  $2\frac{1}{2}$  yards of goods 40 inches wide, to look well it must be lined throughout, take great care in cutting out, lay the stuff double. In cutting the front width cut off your length first, take a gore off the front width half way, and join it on the end the two selvages together, thus giving the required slope to the front width double the width, again to be sure you have both sides even, of

course you must iron out the seams, cut with just a little curve from the centre of the width. Now join the back width to the front. You will see that a dart must be made, in the front width to make it set well to the figure, they must never be large, so for a stout person two might be wanted that is to say 4 in all, 2 each side in front width and when putting on the band be sure and sew it quite easy not letting it gather, but fitting nicely to the figure, it should be quite smooth on the hips and by throwing the gathers well to the back you will get a nicely fitting skirt. A slit of about 9 inches at the back of skirt, a broad hem on the right, and a narrow one on the left side, with a few stitches to keep it from opening, a button and button hole and you will have a fashionable and simple skirt: with the braid of course it will look nicer. I hope you will not spare the trouble of plenty of tacking to make the lining set well. One secret of a well fitting garment is care in tacking the lining well to the stuff, and leaving it there till finished. A hem at the bottom with a braid to match and the skirt is finished. I may say the bell skirt has quite gone out of fashion.



### CARE OF CHILDRENS' BOOTS.

Spring time is very trying on mothers to keep the children from catching cold. One must be for ever on the watch to keep them from standing about in wet boots, and it is so hard to persuade them how dangerous it is for them, and when you do get the boots taken off they are often thrown down any where: no care, or thought of their being damp for the morning. Could the children only be made to see and feel next morning how much nicer they would be after filling them all night with oats and putting them just near enough to the stove not to burn and have nice soft, instead of hard boots to put on, and with ever so little grease rubbed on them, with warm dry socks. Wash the feet in tepid water, when cold and damp, and get them into a glow by constant rubbing with a coarse towel. Thus a bad cold may be staved off and comfort secured for the next day.

### A VEAL CURRY FROM COLD MEAT.

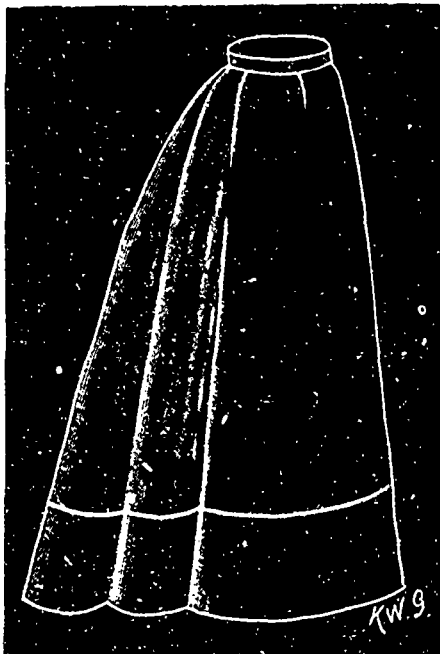
Cut all the meat up in small dice then put on the bones to boil with an onion, and any other flavouring you like best. If the bones are too few to make a rich gravy fry the

onion first. Should you be in a hurry, the fried onion with a cup of milk or cream added will be very good. Now pepper and salt your meat, and flour it a little; add a teaspoonful of curry-powder, put it with the meat to the gravy, keep it well stirred and take care not to let it boil. Having boiled a cup of rice nice and flakey, build a wall of it round your dish and pour into the middle your meat, this with a few poached eggs on the top (take care not to break the yolks,) will make a very pretty dish, without the eggs it is very good but as they help to give richness to the whole, have them if you can, serve very hot with a lemon for those who like it. If a lemon is cut in two it can be used according to the taste of the person eating.

### HOME-MADE BUNS.

Flour 2 pounds, into which rub  $\frac{1}{4}$  oz of butter,  $\frac{1}{2}$  a teaspoon of salt.

One pint and a half of warm milk, mix well with a little of the milk one cake of yeast or  $\frac{1}{2}$  a cup of home made yeast, which add to the other milk and mix all into a stiff batter, set to rise



in a warm place. When well risen, add  $\frac{1}{2}$  a pound of sugar,  $\frac{1}{2}$  a pound of currants well washed, picked, dried and floured.

Grate  $\frac{1}{2}$  a nutmeg, a pinch of powdered mace if you like it. Knead well into a soft dough, then cut into buns; make them up but do not work them too much and give plenty of room to rise in a buttered pan.

Brush over with a little butter, or milk and when well risen, bake in a moderate oven, they must be a nice light brown

### KINDNESS TO ANIMALS.

I wish to say a few words to the little boys who frequently drive in the country. I have seen a boy, just to show off I fear, when he sees any person coming begin to tug and pull at the reins to make poor Dobbin get on. Perhaps the poor old horse is tired, and would rather go along in his own way. As a rule, the horse is a willing toiler. Speak to and let him know you are near, give him an encouraging pat now and then, and could you convey a bit of sugar, or a carrot to his mouth, you would soon be on a friendly footing with him. Whatever you give must be held in the flat of the hand, for he might, in

his eagerness to get the tempting morsel, bite you and you might be angry and slap him, thus doing harm instead of good. Be kind boys to the faithful creature, on whom you depend for so many comforts. Think how you would like a five mile tramp on a hot day, how gladly you would change it for the slowest trot of your good old horse. The boy who will treat animals kindly is the more likely to grow up a good, and kind hearted man. I saw a boy one day, in the country whose patience was very much tried by a restive horse. I watched the two fully expecting to see the poor animal get a thrashing. Fortunately, kind feeling prevailed, and the boy got 10 cents from me. A more surprised boy, I have never seen, and until I told him it was for being kind to his horse, he did not know why I had given anything to him. I venture to say that same little boy will continue on the good road, as he will never feel sure that a 10c woman is not near. I am afraid he was in truth a very poor little boy, and few cents ever found their way to his pocket. E. J. F.

### FRYING AS IT SHOULD BE.

Probably no mode of cooking is oftener used for meats than frying, and yet, judging from the way it is done, it is also one of the least understood, for, like the famous little maiden—

“When it is good it is awfully good,  
And when it is bad it is horrid.”

Perhaps such failures are due to habit more than to ignorance, for she is indeed a courageous woman who, when driven from early morning until late at night—as so many farmers' wives are compelled, by the scarcity of help, to be—does not employ the easier because more familiar methods of cooking, though she knows they are less desirable.

There are two methods of frying, known in English as “dry frying” and “wet frying.” Dry frying (1) is the quicker, older and more common mode of frying food in shallow pan in a small quantity of fat, usually only enough of the latter to prevent food from adhering to the pan; and wet frying is the more modern way of immersing food in boiling fat. Aside from a few sorts of food, as bacon, liver, eggs and hashed vegetables, wet frying is by far the more satisfactory mode, for, contrary to the general opinion of inexperienced cooks—that is, of persons who are unskilled in this mode of cooking—the food is far less likely to be sodden and greasy. It is also the most economical mode, because the fat is more easily kept from burning, and if properly cared for, can be used continuously. However, food will not be sodden cooked by either method, if good fat is used, and the food properly prepared and fried. Lard, which is oftener used than any other fat, and is generally supposed to be the best, is more greasy than any other, and should never be used alone when it can be avoided. Cottonseed is better than lard, and kitchen fat—that is, the trimming of beef, mutton, pork and veal, fat from soups and boiled meats, chicken &c., carefully rendered and clarified—is far better than either. (2)

But good fat and dry fat do not by any means insure success; it must be smoking hot, and the food to be fried must also be perfectly dry. Wet food can by no possibility be given a dry crisp surface. If ogged and breaded,

(1) More properly, in good houses, sauté from the French *cuisine*.—Ed.  
(2) But good olive oil is the best of all.

(1) The Editor begs to say that the Montreal fashion of pronouncing the *ou* in this word as in this word *house*, is emphatically wrong. The word is French and remains so.

it should be allowed to lie 10 or 15 minutes before frying, but should be fried immediately after being dusted with flour, and if neither is done should be wiped dry. And yet fat should not really boil, for if brought to that degree of heat it is sure to burn. (1) The common practice of testing it with a piece of bread, and considering it hot enough when the bread browns quickly is probably as good a general rule as can be given—if one remembers that the smaller the article to be fried the hotter the fat should be.

A frying basket is very convenient, (2) but in using it should never be allowed to touch the bottom of the vessel. A fork should never be stuck in the lean part of meat, or into croquettes, fritters, &c. The frying pan should be perfectly smooth for omelets. In dry frying, the pan should be constantly shaken or jerked to keep the meat from sticking. (3)

Country Gentleman.

## Swine.

**Feeding experiments with pigs, C. A. GOESSMANN (Massachusetts State Sta. Report for 1892, pp. 145-16.)**—An account of two experiments in the series carried on at the station during several years. The eighteenth and nineteenth experiments are reported in Bulletin No. 47 of the station (E. S. R., vol. v. p. 74)

**Introduction (pp. 146).**—The results of fifteen different feeding experiments with young pigs, grades and thoroughbreds for the meat market, have already been published in our preceding annual reports. The results of two new experiments are reported on the present occasion.

We usually keep, the whole year around, one young pig for every cow in the dairy, to dispose of our skim milk. On the average, five lots of young pigs are prepared for the meat market every two years. The animals are usually bought when from 5 to 6 weeks old, and weigh from 25 to 30 pounds per head. They are fed until they reach a live weight of from 180 to 190 pounds, when they are sold to the butcher.

From 112 to 125 days are usually required to produce the desired live weight. Their daily gain in live weight has been from 1.4 to 1.5 pounds. During spring, summer, and autumn, one to two weeks' less time is needed than during the winter season to finish the operation. The shrinkage from live weight to dressed weight varies usually from 18 to 21 per cent.

Our daily supply of skim milk rarely exceeds 5 quarts per head of young pigs. We usually begin feeding from 2 to 3 ounces of corn meal with every quart of skim milk required at the time. As soon as the live weight has reached from 60 to 70 pounds per head we increase the corn meal to 4 ounces per quart of skim milk consumed.

The additional feed subsequently called for has usually been made of either a suitable mixture of several kinds of commercial feed stuffs, as wheat bran and Chicago gluten meal, or dried brewers' grain and gluten meal, or ground barley and Chicago maize feed; or some single feed stuff, as Buffalo gluten feed or Chicago maize

feed. The market cost of the various feed stuffs suitable for the purpose largely controls, for obvious reasons, their temporary selection.

During the present year (1892), Chicago maize feed and Buffalo gluten feed have been chosen for our observation. The market cost of the feed consumed per pound of dressed pork produced has varied during past years from 4.3 to 6.1 cents.

The available manurial refuse has amounted to two-fifths of the market cost of the feed consumed. Dressed pork has of late sold at from 6½ to 7½ cents per pound.

**Sixteenth feeding experiment with pigs (pp. 146-154).**—Six grade Chester White pigs, weighing about 40 pounds each, were fed for about 9 weeks beginning September 12, 1891, on skim milk and potatoes, the potatoes being boiled and mashed and fed at the rate of 1 pound to every quart of skim milk. In 69 days the pigs made an average gain of 46 pounds each, or 0.69 pound per day, at an average cost of 4.95 cents per pound of live weight gained.

They were then fed in separate pens, from December 1 to February 3, on skim milk, barley meal, wheat bran, and maize feed. At the termination of the feeding the pigs were slaughtered. The data for this part of the trial are tabulated for each pig, together with analyses of the materials fed, with reference to both food and fertilizing ingredients.

At the time of killing the pigs weighed from 171 to 194 pounds, live weight. The loss in weight by dressing ranged from 18.33 to 26.04 per cent. The net cost of food per pound of dressed weight gained, assuming 70 per cent of the manurial value to be recovered, ranged from 5.69 to 6.5 cents.

"The high cost of feed per pound of live weight gained in this experiment is due to two causes, namely, low rate of daily increase in live weight during the first half of the time occupied by the experiment, and the high market cost of the ground barley used in large quantities during the second half of the experiment."

**Seventeenth feeding experiment with pigs (pp. 155-162).**—Six grade Chester White pigs, averaging about 33 pounds each in weight at the beginning of the trial, were fed from March to July, 1892, on a ration of skim milk, corn meal, and gluten feed. The live weight gained during the one hundred and twenty-two days of feeding ranged from 149.5 to 165.75 pounds. The loss in weight by dressing ranged from 16.53 to 26.9 per cent.

"The daily gain in live weight averaged per head 1.56 pounds. The total cost of feed consumed per pound of dressed weight produced averaged 5.8 cents, while the net cost averaged 4.2 cents. The obtainable manurial refuse amounted to two-fifths of the market cost of the diet consumed. The dressed pork sold in our local markets at 6½ cents per pound.

**Feeding Pigs.**—We have 20 fine young shotes, 8 to 10 weeks, and feed them largely on milk and roots, beets, potatoes, &c., cooking the feed and giving as little grain as possible, and yet they are getting altogether too fat, instead of growing as they ought. They have a good pen and fresh sawdust every day, plenty of bedding, but no chance to run on the ground. F. E. C. West Cleveland, O. (F. E. C. would have been greatly the gainer if he had understood how to grow the muscle and frame of his young pigs when first weaned. The trouble is, he is feeding

mostly carbohydrates, which after sustaining the body heat, go to make fat. Let him at once get some fine bran and feed this in the milk. Bran (1) will furnish the material to grow the bones and frame, so that he will have a rangy body to put fat on. He must feed on corn meal, no potatoes—nothing that furnishes material especially to make fat. He can now greatly improve them, but it would have been better could he have done it earlier. Presuming that his milk is skim-milk, he should give each pig about half a pint of bran to each feed, stirring it into the milk, which is better warm. E. W. S.)

**Sows and Pigs.**—I wish ration for brood sows and suckling pigs, compounded from mangels, corn meal, oats, wheat bran, or linseed meal; also ration for developing bone and muscle in weaned pigs that are to be used for breeding purposes, from skim-milk and grain feed as above. C. F. B. Loville, N. Y. (Make the following combination for brood sows: 10 qts. skim milk, 12 lb. mangels, 2 lb. corr. meal, 2 lb. oats, 4 lb. wheat bran. As the mangels would be more effective when cooked and mashed, he may, at the same time, cook the oats, corn meal and wheat bran with the mangels, and let it be mixed all together, when it will be ready for feeding. B. makes a very important inquiry relating to developing bone and muscle in weaned pigs. This is very necessary to success in pig-raising and feeding. The principal agency in this development of bone and muscle, is wheat bran. No corn meal should be given to the young pig. About one pint of fine wheat bran should be mixed with the warm skim milk the pig eats per day. Skim milk itself is nitrogenous and muscle-forming, and the bran will furnish the bone material to enlarge the frame. As we have often said, bran contains five times as much material for development of bone as corn meal. As the pig is to be fattened, it must have a well developed frame to put fat on. The pig should be thus developed until about three months old, the feed being increased as the pig grows older. This is the proper way to feed a pig for breeding purposes. It would not be objectionable during the last few weeks of this development if one tenth corn meal were added. E. W. S.)

Country Gentleman.

### LEANER HOGS WANTED.

By Wm Davies, Toronto.

For the past few years we have, through the press, advised farmers to raise and feed more hogs, and to sell them alive. This advice has been acted on to a considerable extent, and farmers have not been slow to own the advice was good. Hog raising and feeding, as well as dairying, have been branches of agriculture that have not suffered during the depression that has overtaken almost every other. Then it is worthy of note that the two industries named above adapt themselves so well to each other—the swine thriving so admirably on the waste products of the dairy. Grain, even including wheat, has been so cheap of late that farmers have not needed any urging to convert the feed into fat hogs.

The last point is what we now wish to call the attention of farmers to. A very large proportion of the hogs now offered, dead and alive, are too fat, and packers, unless they are prepared to lose money faster than they ever made it are obliged to discriminate most

severely against fat hogs, no matter what weight.

We are now paying 60c. to 75c. per 100 lb. (1) for long, lean hogs from 150 to 220 lbs. This advantage, which amounts to a handsome profit the feeders will lose if they persist, as so many are now doing, in making such fat hogs.

Possibly the farmers have not yet experienced this sharp discrimination, but the drovers have, and unless they are prepared to play the role of philanthropist, the feeders, in turn, will speedily suffer.

Here, we want to point out very clearly that the mere fact that hogs are between the weights named does not bring them within the charmed circle unless they are long and lean.

Doubtless there are many who will think packers very "pernickitty," to which we reply: We would far rather handle the fat and heavy hogs if we could sell the product, but every dealer must buy what will suit his customers. We have a large retail and jobbing trade in the city. In addition to our export shipments, we send our manufacture to B. C. and even New York, and from every buyer comes the imperative demand—lean meat.

Nothing is easier then for farmers to produce such hogs. Yorkshires and Tamworths are scattered all over the province, Grades of either of the above are easily obtained, and if they are liberally and judiciously fed till 6 or 8 months old they will be the very "beau ideal" of bacon pigs, fit for local or export trade, and will bring the highest price.

There can be no conflict of opinion on the above between the export packer and the local man. The demand for lean bacon and ham is as urgent in one case as the other.

Cable advice reach us almost daily, "fat unsaleable," and this mail brings us the following from our English agent: "Buyers have got wonderfully fastidious about weights the last year or two, and in every section of the country where they used to work off heaps of fat they will not look at it now and consequently it is a terrible drug. It is most difficult to find buyers for it at any sort of price. We have held no to two or three parcels of fat bacon until we could hold on to them no longer, and had to let them go this week. Fat Danish is down at "mud" price almost, and Irish fat is very cheap."

We feel sure that this condition of the trade will become more marked, not only from year to year, but from day to day. We have lost many thousands of dollars in fat hogs since the last six months.

Farmers' Ad.

### OUR OWN HORSEHOE.

Without claiming absolute originality for the above implement we may honestly say that we have improved and, we hope, perfected it.

The tool is very simple in construction; the main thing to be attended to is to see that the twist given to the side-hoes brings them into the proper angle. The advantage of the curve in the stems is that it enables the implement to cut away the sides of the drills so as to leave only 2, or at most 3, inches to be dealt with by the hand-hoe. After the passage of the horse-hoe, the work of singling is reduced to a minimum.

The twist given to the side-hoes, in the engraving, not enough, but

(1) Fat cannot boil, at 212°, but the water in the fat can.—Ed.

(2) Especially for small fish, &c., like our English white-bait, i. e. the young herring.—Ed.

(3) Excellent all through.—Ed.

(1) And why not a few pease?—Ed.

(1) Extra, we suppose.—Ed.

a very little practice will show how much inclination is needed.

In the rear, under the *stills*, is the apparatus for increasing or limiting the expansion of the side hoes.

The implement will do good work where there are no large stones—at any width of drills from 20 inches to 40 inches. We first used an implement, constructed on almost the same lines as the one in the engraving, in the year 1847, and we have never seen any one that in practical working surpassed it.

Contrast the extreme simplicity of "our own" with the 12 hoes, or teeth of the Comet Jr.!

JENNER FOST.

## Fruit and Garden.

### THE HISTORY OF THE ROSE.

#### PROPAGATION & CULTURE OF ROSES

To enter fully into this subject would occupy a considerable volume. I therefore content myself by a brief outline of the most important processes for the guidance of my amateur readers.

The propagation of roses is effected by several means, first by raising them from seed for the purpose of obtaining new and improved varieties. This can only be successfully accomplished in countries where the summer is long enough, and the sun bright enough, to ripen the seed. It is therefore on the continent of Europe, where these conditions exist, that the most has been done in this direction, although some good seedlings have been raised in the United-States.

Propagation of the hardy varieties which succeed best on their own roots, especially the old moss-rose, is effected by "layers," that is to say, the young growing shoots are slightly cut and pegged down into the earth and covered to the depth of two or three inches. These receive support from the old plant through the small portion of the stem which has not been covered, until, during the later summer and autumn, they grow roots. The next spring they are cut away and planted in nursery rows where they make healthy and strong growth.

Layering is rather a slow way of increasing stock, but it is a very sure and safe one.

Hardy roses of some varieties can also be propagated outdoors by cuttings, but in many the certainty of rooting is doubtful. In this case, shoots, a foot or so long, are taken early in the summer and while they are yet in a growing state, the youngest wood at the top of the shoot being discarded, the remainder is stripped of its foliage the eyes cut out all but three or four at the top, and the bottom is cut smoothly with a sharp knife just below an eye or joint. A cool, shady spot in the garden being selected, a nick is made by a spade to a depth corresponding to the length of the cutting, which is placed in it down to the portion on which the foliage is left, and then the earth is made solid by tramping down with the foot. This is quite important, for if the air be admitted the cutting will die.

*Grafting.* Roses may be grafted, but unless it may be to rapidly increase some new or scarce variety, any other method of propagation is superior. To graft roses it is necessary that the stocks should be prepared, by placing them in pots and getting them well

established thereon, the previous season. Early in the spring the stocks so prepared must be placed in a gentle bottom heat, and when they show signs of beginning to grow, the scions of the choice varieties may be set upon them by the method called splice grafting, the scion very carefully tied on and covered entirely with grafting-mat, replacing the plants in the hot-bed as before. If all has been well-done they will unite and form plants very quickly.

(I would not recommend the *grafting* of roses on general principles, because experience teaches me that by this means the constitution of the young plant is weakened and it never recovers its vigour.)

I tried this once; when Mr. Lane's remarkable moss rose "Lanei" was introduced the price was 21s. each. I however purchased some, and having a quantity of stock, potted as described above, I grafted at the shoots I could and was enabled to sell young grafted plants the same summer at 5s. each, thus realising a handsome profit, but alas! not one of the plants so propagated over made so robust a specimen as those propagated by budding in the open air.

This experiment has always been a strong argument in my mind against the method adopted by more shrewd nursery men to produce roses of the hardy kinds, which they can offer at

close. Shutters are placed in the walls which enclose this space which can be opened as the temperature of the said space becomes too high or too low to correspond with that of the outside air.

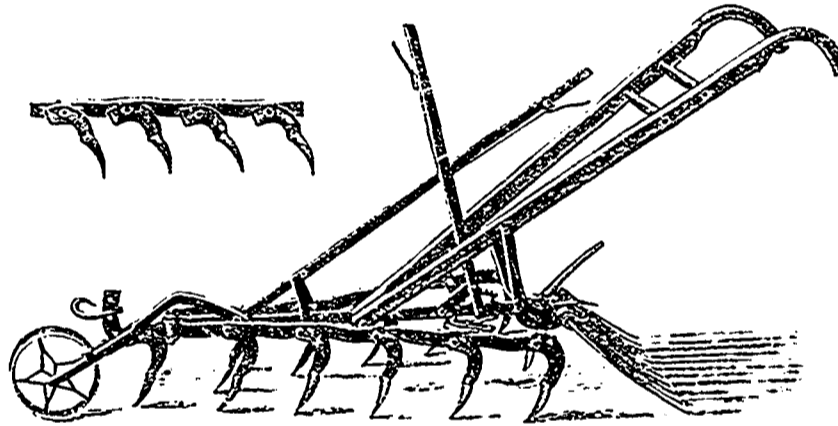
Care must be taken to regulate the moisture of the bed. Too much water will cause decay and too little will cause the cuttings to wither before they can root.

In about two weeks the cutting should have rooted sufficiently for removal into thumb-pots. The half-ripened young scions should be chosen, and the cuttings made about two inches long. Eternal vigilance and strict attention to every detail is necessary to success.

Most of the tea roses succeed best on their own roots, the principal exception being *Maréchal Niel*, which becomes more vigorous in growth and prolific in bloom when budded upon some vigorous growing stock.

But the most popular and common method of propagating roses is by budding, especially of the hybrid perfectals. These are budded in different parts of the world by the million and find ready sale.

The stocks used are, the wild dog-rose (*Rosa canina*) of Great Britain, and the *Manettii*. The Standard Roses of the old world but which unfortunately we cannot grow here with any certainty of success are al



PLANET JR. CULTIVATOR WITH 12 TEETH.

less than one quarter the usual price, and which are not worth even that. They are raised under glass, and grown by means of artificial heat until their stems are no thicker than straws. They are plants certainly, but with sadly enfeebled constitutions from the start, and are like the pedlars' razors, made to sell more than to cut. The purchasers of these are usually disappointed, they always have to wait long for any return in the shape of flowers, and in many cases their money is entirely thrown away. I would rather pay a legitimate price for a good, sound outdoor-grown, hardy rose bush, two years old, than the same money for a dozen of these, and should have quicker and more certain satisfaction.

These remarks do not apply with the same force to the tender species, because they are not placed in an abnormal condition by being propagated in heat.

Teas, Bourbons, Chinese, and noisette roses can be easily propagated from cuttings when the proper conditions are observed.

These are, that the temperature of the sand in which they are placed is about 12 degrees Fahrenheit higher than that of the atmosphere of the house, this is produced by hot water pipes or hot-air flues running under the beds and so enclosed from the house that the heat shall be confined to the area under the beds thus en-

budded upon the Dog rose.

In many parts of England the hedges are full of them and men are employed to collect them, with all the roots they can, in the fall of the year. These are selected into three lots, from one to four feet high and planted in their separate sizes: standards, half standards, and dwarf, in nursery rows. The following summer they send out young shoots near the top, and upon these the choice varieties are budded in the usual way. The footstalk of the leaves being left on to protect the embryo bud from the hot sun, this bud remains dormant until the summer following, when it starts into growth and makes a saleable plant in the autumn and spring. Many of the most floriferous ones producing fine flowers the same season. The old favourite *Géant des batailles* was remarkable for this, plants bearing better flowers from the bud the first season after they were budded than ever they did afterwards.

The *Manettii* stock is only used for dwarf roses, the variety being budded upon them close to the ground. Sorts budded upon them are greatly increased in vigour of growth and blooming qualities and are to be preferred generally to those on their own roots, but there is one evil connected with them that must be carefully guarded against, they throw up numerous suckers from the roots which, if not watched for and removed, soon kill out the variety

worked upon it. *Manettii*-worked roses never should be sold to amateurs without this caution being given, then if they neglect it they have no one to blame but themselves.

A friend, sometime since, asked me to go to see his rose-bed which he said contained some beautiful varieties at first, but that, that season, they were, mysteriously to him, all of one kind. I found, as I expected, that he had neglected, through lack of knowledge, to remove the suckers, and his roses were all *Manettii*. I would not by any means discourage the planting of roses thus budded because, in this climate, either these or those on their own roots are preferable to the dog-rose stock, that one not being hardy here.

#### CULTURE.

Although we can not expect the success attained in the old world in the cultivation of the "Queen of flowers" in our gardens, we may nevertheless by extra vigilance succeed in producing some very fine specimens, but to do this we must choose the hardiest on account of the severity of the winter, while the heat and dryness of the atmosphere in summer will of necessity render the flowers short lived and in a measure devoid of that freshness and delicacy of tint which characterise them when grown in a moister and cooler climate.

I would advise that roses be planted in beds or groups, and not in isolated positions because, in the first place, they will be more easily attended to in a mass than when planted in different places, and the contrast, or harmony, of their colours, will add to their beauty.

The site for the rose-bed should be where it will be a conspicuous object from the windows of the dwelling, where a free circulation of air can be insured, and where no large trees grow near enough to rob them of their due amount of nourishment by the extension of their roots.

If the lawn has an aspect facing the west or east it will be the best on which to place a rose-bed, as thus the intense rays of the summer sun will be, in some degree, avoided and the flowers will last the longer.

Roses thrive best on a strong (retentive of moisture) soil, but the land for the culture of a few roses in our gardens can be easily artificially prepared, that is to say, the soil can be removed and replaced by a proper compost. Draining is of course essential.

Taking a proportion of good garden soil we would make our compost heap by enriching it with partial decayed barn yard manure, not horse manure alone, but a mixture of that made by all the domestic animals. To this add leaf mould, or any decayed vegetable compost, adding a few crushed bones, and some charcoal. These ingredients should be thoroughly incorporated with each other and allowed to remain one winter, and in the spring it will be in fine condition to receive the plants. If it is desired to plant roses at intervals separately in the flower garden, a hole should be dug out for each eighteen inches square and the same compost placed in it. To plant a rose bush in the common garden soil without any preparation is a fatal mistake.

Plant early in the spring, and before planting see that the roots are pruned of all bruised parts, and if dipped in a mixture of cow dung and clay, about the thickness of cream they will be benefited. Some nurserymen do this to all the stock they send out and it arrives in excellent condition, the coating effectually preventing the ac-



tion of the air on the tender fibres exposed, and increasing the chances of success in the removal of plants by one hundred per cent.

In planting, the roots may be put into the ground an inch or so deeper than where they have grown before, carefully spread out, and the soil placed about them with great care so that they may be covered uniformly. The soil about them should be made quite firm, and a gentle watering given to settle it around the roots, but not so much as to wash it away from them, leaving air spaces. After planting, the plants should be examined and if they have been loosened the soil should be again pressed firmly about them. A coating of half-rotten manure may be placed with advantage on the surface among the plants which will keep the ground cool and moist and preclude the necessity of future watering, which should always be avoided except in a season of extreme drought.

And now, as usual with all good things, our pets will be attacked by enemies which we must assiduously watch for and destroy. First it will be a large green caterpillar which will roll himself up snugly in one of the leaves and when we are not looking will feed upon another, and another, and more particularly on one of our most promising buds, which he entirely ruins. These fellows are not numerous and by searching carefully over our roses in the morning we can find them and make what disposition of them the circumstances of the case very dictate.

Some people just crush them on the leaf where they are found, between the finger and thumb but if what Shakespeare says is true:

"The smallest insect that we tread upon,  
"In suffering death, feels pangs as great  
"As when a giant dies."

This is cruel. A little white fly will come next and commence his work of devastation and he is more numerous and destructive than the larger marauder, he will, in an amazingly short time, destroy all the tissue of the underside of the leaves turning them brown and white, and rendering them an unsightly mass.

We want to be on the look out for him very keenly and, even before his advent in his full fledged state, we must saturate our bushes with a mixture of whale oil, soap and tobacco in weak solution or very weak coal oil emulsion. We must be very watchful for this pest if we want any roses, for if he is first in the field we may give up all our aspirations in that direction for the season.

The rose beetle will appear when our roses are in full bloom, and he likes roses as well as we do and will make a meal out of the very heart of the choicest he can select, and disappoint our hopes.

He is a sneak thief too, he goes away and hides himself in his cave in the earth in the day time and comes up to commit his depredations at night, so the best way to capture him is to spread a white sheet upon the ground under the bushes in the evening then shake them and he with his accomplices will fall off.

Their dark brown uniform jackets will render them visible and they can

be condemned to the condign punishment due to such criminals.

In very wet seasons, a miserable little snail will perhaps do us harm but if a few grains of salt are scattered under the bushes and he comes in contact with them, he will melt away like the morning mist.

Mildew may sometimes trouble us but this may be checked by powdering the foliage with flour of sulphur.

In the autumn it will be well to mulch the beds with rotten manure; this will serve as a protection to the roots and can be dug in the following spring to further enrich the soil. Another plan for winter protection is to bend down the branches of the plants and cover them up with earth a foot or two thick.

If this is frozen hard the roses will nevertheless be safe, because it is not the freezing which destroys vegetation so sorely as the alternate freezing and thawing.

Pruning should not be done until the spring, for, if it is done in the fall, the shoots will die back at the cut. Even late in the spring, pruning may

warmth of his affection, which he could not give expression to in words; a flower by which the bride and the bridal feast have been adorned, and the last funeral rites rendered less oppressive to the survivors by raising their thoughts and hopes to that glorious home whither their departed one has gone a little before,

"Where everlasting spring abides  
"And never withering flowers."  
GEORGE MOORE.

MONTREAL HORTICULTURAL SOCIETY

AND  
Fruit Growers Association of the Province of Quebec.

BUDDING.

Among the first requisites for the amateur to have at hand for the purpose of performing the operation of budding successfully are some plant or plants in the proper condition to work: that is in the most suitable stage of

It will be necessary now, to explain the operation itself, and in so doing reference will be made to the accompanying diagrams. Beginners will require a little time and practice before the operation becomes an easy one. In their first efforts they may consider themselves no adepts at budding, but if they persevere, everything will come handy to them and it cannot fail to be the means of a great deal of pleasure to any amateur who becomes a successful budder. It is a good way to get into the proper use of the knife, by practising on subjects by the wayside, when they are in proper state.

Ash, oak, elm, or any of our common deciduous trees can all be budded in the proper season, but it must be kept in mind that a basswood bud will have to be inserted beneath the bark of a basswood shoot; an elm bud beneath the bark of an elm shoot; and so on with other trees.

Such vegetable miracles as pears growing on plums and plums on apples, &c., it will be well for the amateur to take no notice of.

Common shield budding is not only the simplest but it is also the most approved method and hence the following explanations will refer more particularly to that mode, all the other styles of budding being modifications of the same thing, varying in detail, but depending upon the same conditions for success.

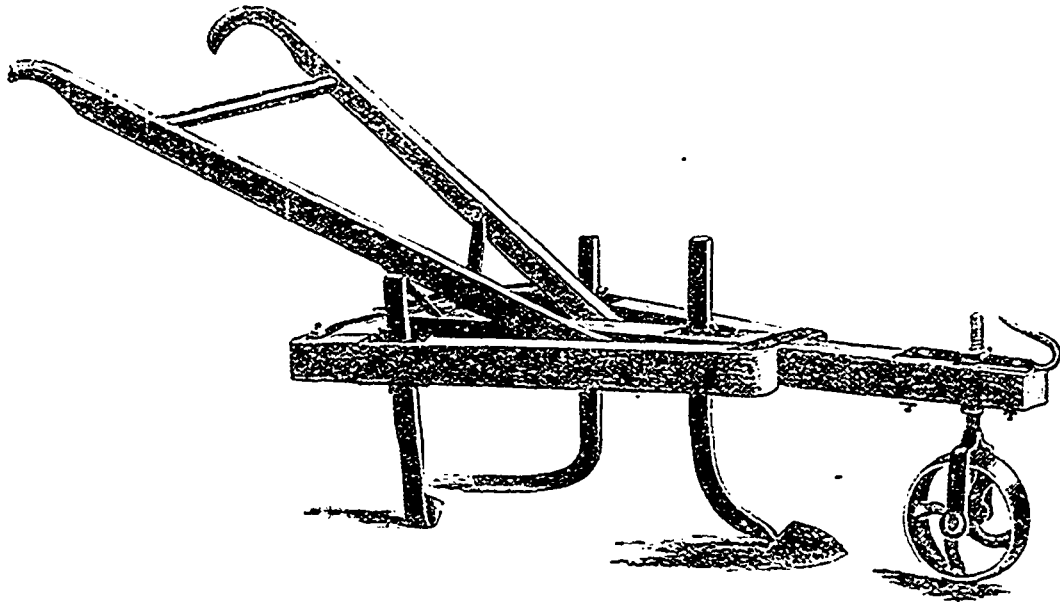
To commence operations it is necessary to have a strong and sharp pruning knife to trim off any branch, that may be in the way; a sharp budding knife, (Fig. No. 7); a stick of buds (Fig. No. 6) and some tying material such as raffia.

First make the vertical cut on the stock No. 1a, about one inch long, then the horizontal cut No. 1b about half an inch long forming the rude shape of the letter T. (This method is also termed T budding.)

In making these incisions it is well to bear in mind to cut the depth of the bark only and not to injure the wood beneath the bark any more than can be helped. Practice and observation will bring the operator to know just how deep to cut. The next thing is to prepare the bud, this is done by inserting the blade of a sharp budding knife, about three quarters of an inch beneath the leaf-stalk and cutting inward nearly half the diameter of the small branch; bringing out the knife about half an inch above the bud. The little woody part remaining inside the bark has now to be removed and care and practice will here be found necessary, so that the bark of the bud about to be made use of will not be injured. After a little practice it will be easier by performed, without injury to any part.

If there is a cavity beneath the bud the root as it is called is gone and the bud is of no more use, if the bark is running well, this mishap rarely occurs. Next place the thin bone edge of the budding knife beneath the corners (No. 2a) lift them gently and slide the knife down each side of the vertical cut.

Take the prepared bud, holding it by the part of the leaf stalk No. 5b, and insert it into the incision (where the bone handle has been taken out) and push it down to its place, cut the



HORSEHOE.

be safely done, for there is no danger of what is called bleeding, as in the grape vine or other plants, the sap of which flows more freely, and better results are obtained by waiting until the danger from spring frosts is entirely over before the covering is removed and the pruning done, than by doing this too early. Without entering into further particulars I hope enough has been written to show how much interest attaches to roses.

If any of the readers who have favoured me with a perusal of these pages have felt a new love for the beauties, awakened in their minds, or if I have induced some to look upon the love of flowers and their culture as a much more important matter socially than they had supposed, I shall have attained my object.

And as to roses. What more refining, elevating, and amusing occupation could be found to fill a leisure hour than the culture of a plant producing a profusion of blossoms of the richest, purest, or most delicate hues, and laden, in many instances, with the most exquisite perfume, a flower whose history carries us back to the past ages of the world, to the time when Solomon sang of it, when Anacreon, Virgil, Cicero, Ovid wrote poetry in its praise, a flower which has been associated with the tenderest memories of thousands in all ages, by which the bashful lover has been able to make known to his dear one the

their growth, so that the union will at once commence to take effect. In the following remarks an attempt has been made to explain these conditions. A fixed date cannot be given when operation should commence or when they should terminate, but during the months of July and August, nearly all sorts of fruit trees, may be safely operated upon, taking it for granted that both the stock and the variety intended to be budded are in a healthy, vigorous condition, when the bark of both stock and bud will run.

To explain the term "run" it may be stated that the bark is in this condition when the boys are able to make whistles with the young shoots from the basswood, ash, &c. Upon examining the condition that the sap is in, immediately beneath the bark, it will be found in nearly every instance to be in a viscid state, resembling to the touch very much like a thin coat of mucilage; on examining the extremity of the growth it will be found to have in nearly every instance terminated its growth. At this stage the layer of cambium (the coat of mucilage like sap referred to above) is in the suitable condition to form an union with the layer of the same material, still adhering to the inner bark of the bud. If the process has been performed without allowing the operated parts of stock or bud to become dried, through too long exposure, success will have been attained so far.

upper part of the bark of the bud, to fit even with the cross cut on the stock; see No. 4.

When this is done it must be banded up immediately, taking care to tie it firm enough that the air and wet will be excluded. Do not tie on top of bud. The order in which the different varieties will be most likely to come in, will be 1st cherries, next plums, apples, pears, roses, &c.

In keeping buds in good order and fresh until they can be used it is a good plan first to wrap them in wet paper, several plies, then about the same amount of dry paper on the outside, leaving the lower ends sufficiently out of the package, to be able to take hold of one and pull it out as required.

A great many such operations can be performed in the time it takes to tell how to do it, but it is to be hoped that the above few remarks may be of some interest to the beginner.

Horticultural communications to be addressed to Corresponding Secretary,  
P. O. Box 1078, Montreal.

1st May 1894.

### THE VEGETABLE GARDEN.

There is something about every vegetable that makes one think when it comes that it is more desirable than any of its predecessors, and I always feel so when I commence to gather that most delicious fruit, the cantaloupe melon. This is one of the musk-melon family and is too well known to need any lengthy description. It should not be planted until the ground is warm, as it is almost as tender as the squash. Plant in hills and thin out to two or three plants in each hill. When the plants have made four leaves the ends of the main shoots should be pinched off, which will cause the lateral branches to put forth sooner than otherwise; this will strengthen the growth of the vines and the fruit will come earlier to maturity. The Arlington, Montreal and Hackensack are three as good cantaloupe melons as grow. About 15 hills will give a good supply.

Watermelons are cultivated the same as muskmelons, but are not grown in this section with equal success, as our season are not long enough to bring them to that perfection which this vegetable reaches further south. Mountain Sweet, Vick's Early and Phinney's Early Oval are good sorts. It will not take much room to try a few hills, and so if our watermelons are not successful it need prove no great loss.

The squash is one of our tender annuals and until all danger from frost is past it should not be planted, as aside from the tender nature of the plant the seed is liable to rot in damp, cool weather. Make the hills 8 or 9 ft apart and thoroughly manure them. Place seven or eight seeds in each hill so as to have plenty for the bugs, but as soon as the plants are well up thin out to three plants in each hill. The bush varieties, such as Summer Crookneck and White Bush Scallop, can be planted nearer together, say 6 ft apart each way. Press the seeds down firmly before covering and cover early-planted ones an inch deep and late ones two inches deep. Fine plaster is about as good an article as has yet been found for driving away the bugs. Plant Early Summer Crookneck and White Bush Scallop for summer use, Boston Marrow for fall and Hubbard.

(1). Here, our climate demands sun frames, with a barrowful of hot manure under the earth.—Ed.

Essex Hybrid and American Turban for winter. Be sure and gather the crop before it is nipped by frost if you wish your squashes to keep well. A dozen hills of the summer kinds will be enough, but quite a quantity of the fall and winter sorts should be planted. Tomato plants should be set out in rows about June 1. Their cultivation is very simple. Set them 6 to 8 ft apart, make the ground very rich and keep them free from weeds. Just before frost take up the vines with all the earth that can be made to adhere to roots and place them in the cellar, and the tomatoes which have not been picked and are fully grown will ripen. I have seen perfectly ripe tomatoes of most excellent quality on the table at Thanksgiving which were ripened in this way. Favorite varieties are Acme, Livingstone's Perfection, Cardinal, Essex Hybrid and Emory. There are so many good tomatoes that it is hard to make a selection; but any one who plants any of these kinds will be satisfied. Set out about 35 to 50 plants to have a good supply all summer.

The turnip is propagated from seed and it should be planted where the plants are to remain, as they do not do well when transplanted. For early crops sow as soon as the ground can be made ready in the spring, and thin four to eight inches apart according to the size of the variety. The principal trouble in planting turnips is in getting them so thick that much work is made in thinning. Swede turnips are planted later, about June 1, while the purple-top varieties may be planted either early or late; a good crop may be secured as late as July 15. The Sweet German turnip is a very desirable sort for winter, as is also Carter's Imperial Swede. The first is white and the last yellow. These turnips should be planted from June 10 to 20 for the best results. The sweet German turnip is commonly known as the Cape turnip and is raised extensively on Cape Cod, Massachusetts. Do not fail to have a plentiful supply of this most excellent vegetable for winter use.

*Farm and Home.*

### GRASSES FOR FODDER.

The best varieties for use in Canada

PROF. FLETCHER DISCUSSES THESE AND THE "HORN FLY"—CONVENTION OF THE CENTRAL CANADA AGRICULTURAL ASSOCIATION.

At yesterday afternoon's (Feb. 6th) session of the Central Canada Agricultural Association's Convention, the following twelve gentlemen were proposed by Mr. R. Ness, seconded by Mr. Brown, as directors for the ensuing year: Messrs. William Ewing, A. J. Dawes, S. J. Doran, S. A. Fisher, J. A. Cochrane, W. H. Walker, J. Beaubien, T. A. Trenholme, J. A. Massue, A. E. Garth, Lt-Col. Gilmour and R. R. Sangster.

Mr. J. X. Perrault thought that there should be more French Canadian names on the list.

Mr. A. J. Dawes, Mr. T. A. Trenholme and others expressed their willingness to withdraw in favor of Mr. Perrault or any other French candidate. They were anxious to avoid any race quarrels.

The secretary stated that the Society was desirous of giving every encouragement to the French Canadian element; but the fact was they found it very hard to get French Canadian farmers

1. Try 23 in rows by 15, and only one stem.

to take much interest in the work of the Society.

It was at length decided to increase the number of directors from twelve to fourteen. The names of Mr. J. X. Perrault and Mr. Drysdale, of Beauharnois, were then added to Mr. Ness' list, which was adopted.

Prof. James Fletcher, of the Ottawa Experimental Farm, then delivered an address on the subject of "Grasses for Fodder." He commenced by a plea on behalf of the somewhat abused class of seedsmen. It was the practice to condemn the grass seeds sold by dealers, because they did not turn out well here. That was not the fault of the dealer, whose business was merely to supply the demand. The dealer had no object in palming off an unsuitable article. Prof. Fletcher proceeded to inform his hearers of the results of experiments that had been conducted at the Experimental Farm at Ottawa. Grass seed to be useful for hay or pasture purposes must combine several qualities. It must produce sufficient crop to make it worth growing; the crop must be hardy, nutritive. There were found many native grasses in Canada, worth growing. The best time to cut grass was as soon as possible after it had flowered. In "meadow fescue," which was a very fine grass, and "orchard grass" (cock-foot), there were two grasses which, Mr. Fletcher thought, should be introduced into every grass mixture. He would use in every pasture mixture, from the Atlantic to the Pacific, "common June grass," or, if they liked to pay more for the same article, they might call it "Kentucky blue grass." It was well to introduce with that some "Red Top," which formed a thick sod, and also made good hay. This grass was looked upon in England as of low value, a weed in fact. But it was not so for them in Canada. "Red Top" was an exceedingly valuable grass, to grow either for hay or for pasture, in low lands. "Meadow fescue" and "Orchard grass" were of value because of

### THE AMOUNT OF FOOD THEY GAVE.

In the Townships, better suited than any place in Canada for dairy purposes, that kind of grass had been used with great success. A mixture which had given excellent results on a rich, damp soil had been composed of "Blue Grass" (2 lbs), "Meadow Fescue" (4 lbs), "Orchard grass" (2 lbs) "Timothy" (6 lbs), "Red Top" (2 lbs), and two pounds each of "Red," "White," "Alfalfa" or "Lucerne", clovers.

Several questions, arising out of the address, were put to Prof. Fletcher, who gave his querists a great deal of information.

He then proceeded to deal with the horn fly. This little insect only appeared in Canada last year; but it did great mischief among the cows. It would be worse next year; but, after that, it would gradually disappear. That was what the experience of other countries showed. Professor Fletcher advised the farmers to wash their cattle regularly, say once in three days or oftener, in a mixture of coal oil and soap suds, which was called on the other side of the line, "kerosene emulsion." A mixture of carbolic acid and oil of some kind could also be used with advantage. Even oil by itself would be found efficacious. The following is the natural history of the horn fly: The eggs are laid in the droppings of the animals. Here they hatch for a week. Then they burrow into the earth, where they spend another week, whence they emerge in the fullness of time, ready for mischief. Therefore, the use of the "brush harrow," to ex-

terminate the species, might be recommended. The "brush harrow" is simply a bushy branch which is dragged over the fields for the purpose of scattering the droppings, and depriving the tender little horn fly of its shelter necessary to them at this stage. Professor Fletcher also dealt with the subject of pests generally, and the potato bug in particular. He described the use of Paris green and Bordeaux mixture.

### EVENING SESSION.

In the evening the proceedings were under the presidency of Sir Donald Smith, who delivered a brief address on the subject of the general progress that had been made in the art and science of agriculture during Sir Donald's recollection, extending over a period of fifty years.

Professor Robertson then delivered an interesting address on the subject of "Agriculture and Culture." He pointed out how the farmer was the real pioneer of genuine culture in any country. All wealth (the means of culture) was drawn from the land and the farmer extracted it and placed it in circulation. He showed how intelligent methods of farming had superseded those of the earlier days; how the farmer was going in more extensively for agricultural societies, literature, technical and general and other pursuits of an elevating tendency. The address was listened to with great attention and the speaker was greatly applauded. A cordial vote of thanks was moved by the Hon. Mr. Beaubien, seconded by Mr. J. X. Perrault.

### Morning Session.

At this morning's session of the Central Canada Agricultural Association, Professor Robertson delivered a brief address on the subject of "Experiments on Feedings Hogs." His address, as he explained, was not intended to be of an exhaustive nature, but merely to provide subject matter for discussion. He then cited some figures to show how profitable hog raising could be made. No farmer should keep less than one hog for every acre of land he owned. The figures which follow have been arrived at as the result of accurate experiment. First of all, grain marketed in the form of swine brings twenty-five per cent more profit than when marketed in bags; 4 1-6 pounds of steamed and warm grain fed to a pig, yield one pound of increase in the live weight of swine, 4 1/2 pounds raw cold grain gave the same result. A fact especially interesting to farmers in the North-West is that the gain per bushel of frozen wheat is 9 1/2 to 15 1/2 lbs. in the pig. Now that meant 40 to 75 cents per bushel for grain which had once been considered valueless, and that was the same price as "number 1 hard" fetched in bags. The following results had been arrived at from recent tests feeding pigs from 102 to 193 lbs. 5 6-10 lbs frozen wheat for each pound of flesh, 49 to 97 lbs, 3 65-100 lbs of ground barley, rye and wheat, 83 to 154, 3.72 100 lbs, 122 to 184, 5.47-100 lbs. Prof. Robertson dwelt on the necessity of keeping the sow in good healthy condition, especially near farrowing time, by forcing her to take a little (not too much) exercise. Skim milk and buttermilk should be fed freely to pigs up to 75 or 80 lbs. The pig would stand any reasonable amount of cold; but there must be no wind. Pigs should lie dry. There is

### NO ANIMAL SO SUSCEPTIBLE TO DAMPNES.

Sods should be fed to sows to serve as condiments. An interesting discussion followed, and Mr. Fisher then delivered

a short address on winter feeding for milk. One of the most profitable questions was the advantageous use of skim milk for feeding purposes. Mr. Fisher fed skim milk cold. He spoke of the increased demand for dairy cows and bulls in all portions of Canada. There was abundant room for winter dairying. Milk brought a better price in winter. The cost of production might be slightly higher, however; but notwithstanding, winter dairying was undoubtedly profitable. The silo was, according to Mr. Fisher's experience, indispensable. Roots, hay and clover were useful; but the silo was a useful and necessary adjunct. Ensilage should be used judiciously, as should all other food. The food must be pure, and, if in proper condition, turnips may be safely fed to milking cows. The speaker considered that corn for silos should be just ripe enough to cut for table, and no riper. He had formerly thought otherwise; but he had changed his opinion. For winter feeding of dairy cattle, use just as much clover hay as you can get hold of. The more clover you can bring into your barns, the better your cattle will do. Winter dairying means that the cows must be comfortably stalled and plentifully fed; otherwise it will not be successful. You need not expect a cow that has been accustomed to giving milk for only half the year, to give it for ten months. But you can train a heifer from that cow to give milk during the longer period. Mr. Fisher recommended farmers who had a herd of cows which were not giving satisfaction to weed out the absolutely useless ones; then procure the services of a good thoroughbred dairy bull, and train the heifers up to giving milk for ten months in the year. No farmer, who could afford it, should be without a good thoroughbred dairy bull. "Don't try to breed a dairy cow by a Hereford bull," said Mr. Fisher. "The more you feed good milking cows the better it pays." Mr. Fisher had got 300 pounds of butter in twelve months from each of his cows. This was for an average of nineteen cows. He attributed this satisfactory result to the care which he had exercised in selection and breeding. There was nothing that Mr. Fisher knew of which required more study than farming work. Men might be lawyers and doctors; but they had none of them the same scope for their talents as, after all, the farmer had.

**The Dairy.**

*American standard ration for dairy cows*

Average for 128 herds	Digestible Matter.				Nutritive Ratio
	Dry Matter.	Protein.	Carbohydr.	Fat.	
	24.51	2.15	13.27	7.16	16:1:69

This ration is practically the same as the one published in Bulletin 33 and in our Ninth Report; it is believed that it will be found correct for our American conditions, except perhaps for those of the Rocky mountains and the Pacific states. While local conditions or the business methods of farming in some places may make a ration desirable which contains more

protein than this, and has a narrower nutritive ratio as a consequence, we feel confident that in the large majority of cases its adoption will give satisfactory results, and that it is preferable to the German standard ration so long placed before our stock feeders as the ideal one, the nutritive ratio of which is 1:5.4. It is the result of American feeding experience; the majority of our most successful dairy-men feed in the way indicated by the ration, and we shall not go far amiss if we follow their example.

The practical importance of this matter lies in the fact that the nitrogenous feed stuffs are our most expensive foods; as the results published in this bulletin plainly show, it will not as a rule be necessary to supply our cows with such quantities of them as to bring the proportion of nitrogenous to non nitrogenous digestible components in their ration down to 1:5.4. Usually we shall not need to feed more than one-seventh as much of the former as we do of the latter; hence we can make up the rations to

however, that any dairy farmer can easily select from the abundant material in the preceding pages a ration suited to his conditions.

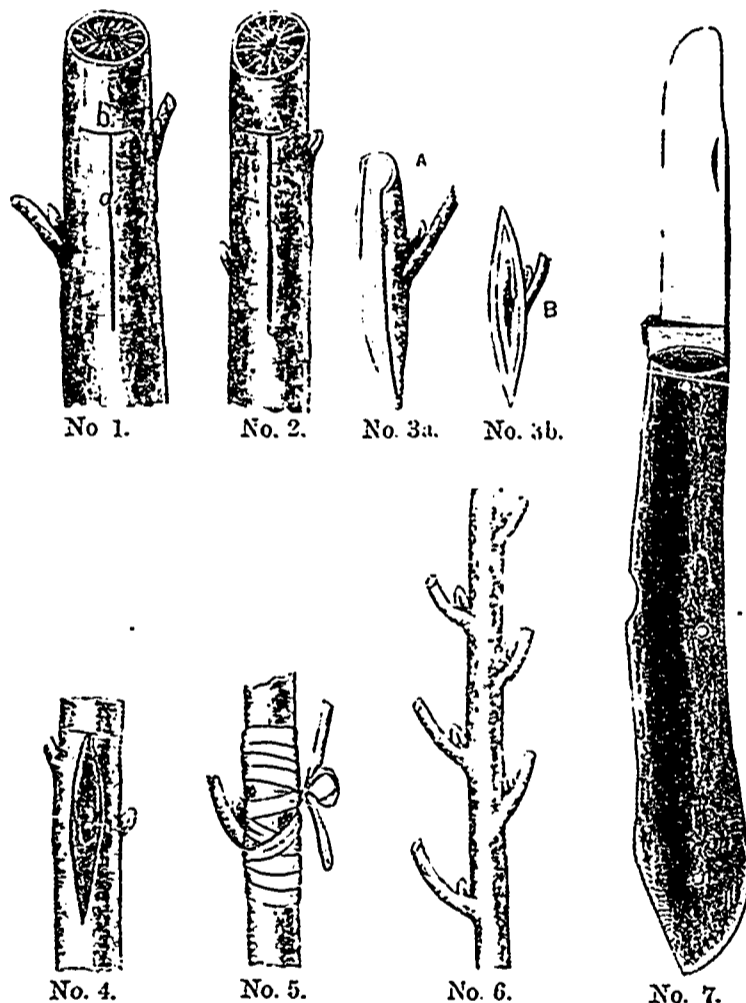
*Univ. Wisconsin, Bull. 38.*

**THE MONTREAL CHEESE TRADE.**

There has been more activity in cheese during the past two weeks and the past week the sales have aggregated 8000 boxes for export, ranging in price from 10 3/4 to 11 3/8c p. lb., one or two small lots of off grades selling below the inside figure.

This almost ends the present season, and the unsold stock in Montreal is reported at not over 4000 boxes. Some profess to think, however, that a sudden change in the market would bring out more, though that cannot be stated as a fact.

The season has not borne out the sanguine expectations entertained at the opening, but the trade, as a whole, since last May has been, in the main,



a large extent of feeds like corn fodder, corn silage, mixed hay, clover hay, corn, oats, pease, etc., and need only supply the expensive, highly nitrogenous foods in small quantities.

As regards the importance of rations and feeding standards in general, their uses and limitations, etc. the reader is referred to the discussions on the subject in the Ninth Annual Report of this Station. While we may be guided to some extent by their teachings, we must not be led blindly; the question of the proper kinds and classes of food stuffs to feed for any single purpose is one of practical economics and not one of physiological chemistry. (1)

As the market prices of cattle foods and the local conditions vary to such a great extent with different regions, it is evident that no universal "best" ration for milch cows or for any other animals can be given. It is believed,

(1) Just what we have been saying for years.—Ed.

satisfactory. Exports from Canada have amounted to to \$13,500,000 in value, indicating something of the competition American farmers must meet. Quebec in particular has made enormous strides in the past few years, the farmers having abandoned the old system of cultivating set crop year after year and adopted dairying. Quebec's success has caused a more or less general adoption of dairying wherever practicable. Farmers in the United States have met this competition so far as well as they were able, but the effect has been ruinous in some degree. There is no way out of it except to improve the quality so much that Canadian producers cannot meet it.

*Farm and Home.*

**FEED AND FAT.**

Why is a ration containing a large proportion of butter fat recommended, if rich food does not increase the

butter fats in milk? Why not feed rations, that would give the largest flow of milk? E. D. Broome County, N. Y. [The position that the proportion of butter fats in milk cannot be increased is untenable. Let us illustrate by the special feeding of some celebrated cows. In the winter of 1884, Princess 2d gave, in one week, 315 lb. milk, 27 lb. 19 oz. butter—11.4 lb. of milk for one of butter. She was tested again in 1885, and gave, in one week 299 1/2 lb. milk, 46 lb. 12 1/2 oz. butter—1 lb. butter for 6.4 lb. milk. Here was a gain of 44 per cent. in richness of milk in one year by special feeding. In September, 1883, Mary Anno of St. Lambert, gave in one week 251 lb. milk, 27 lb. 9 1/2 oz. butter—9.10 lb. milk to one of butter. She was tested again in September, 1884, and gave, in one week, 245 lb. milk, 36 lb. 12 1/2 oz. butter—1 lb. butter to 6.66 lb. milk. Here was an increase of richness of 27 per cent. in one year by special feeding. In an experiment of our own, a cow, of whose milk it took 25 lb. for 1 lb. of butter, was increased by special feeding until 15 lb. milk made 1 lb. of butter. All the butter a cow makes comes from her food, and what more natural than that the richness of milk should depend upon the richness of food? The opinion that you cannot feed fat into milk originated with some short German experiments, in which they tried to increase the butter fat by 14 days feeding; on analysis they found no increase of fat—thence reported that you could not increase the fat in milk by feeding. But on a further trial of 30 days, they found an increase of fat, and the former opinion was supposed to be reversed. The constitution of the cow requires time for its modification. Nothing is more common than to find cows that have increased from 20 to 50 per cent. in the production of butter within a few years. E. W. S.]

*Country Gentleman.*

**WHEN TO AERATE MILK.**

By aerating milk, odors can be completely driven out that have been absorbed by the milk after being drawn from the cow. Odors that were derived by the milk through the system of the cow are not so easily taken out. They will be somewhat lessened, but can never be wholly removed. Milk should be aerated as soon as possible after it is drawn, and it should, at the same time, be cooled. Aerating alone is an advantage, but its good effects on the keeping of milk are much increased by bringing the milk down to 55 degrees or lower. Milk should keep at least 12 hours longer for the aerating. By using a cooler and aerator faithfully, it is possible to dispense with ice in selling milk under the ordinary conditions as they occur in the smaller cities; but where the milk is to be brought by train, and is 24 to 36 hours old before it is put on the milk cart, it would be necessary to use ice even with aerated milk.

The question as to whether, by the use of the aerator, ice can be dispensed with in butter-making would seem to imply that the aerator could be used to advantage in butter-making, which is not the fact. The man who is raising his cream by shallow setting or cold, deep setting, or any form of gravity creaming, has no use for a milk-aerator or a milk-cooler. Either would be a positive detriment, occasioning the loss of a large amount of butter in the skim milk. The man who is running his milk through a separator has



little need of an aerator for the whole milk, since, of course, the milk is aerated in passing through the machine. But to make the best quality of butter, it is necessary that the cream be cooled below 55°, and butter to 50°, as soon as possible after coming from the separator, and the combined milk-coolers and aerators, as they are now on the market, are probably the best forms of cooler to be used for that purpose.—[Prof. W. W. Cooke.

### DAIRYING IN CANADA.

Canada is a close competitor of the United States in dairying, particularly in cheese making, and her exports of cheese have increased while ours have diminished. The new order has gained a tremendous hold in the provinces bordering on the United States and is the result of the efforts of theorists extending over a long series of years. The old order was grain raising, but unbelievers were brought to a realising sense of the situation by the need of a new mortgage on the farm. Constant cropping had impoverished the land and heavily mortgaged farms dotted the landscape in some of the richest agricultural provinces of Canada.

There has been a gradual recovery, however, brought about by the action of farmers themselves. They changed from oats and wheat and began on stock raising. Mortgages were raised and prosperity has constantly increased. Now Canada's dairy industry has assumed enormous proportions and the dairy product is exported to Europe countries to be sold in competition with the products of United States dairies. The farmers this side of the line should see in this an incentive to greater activity along the lines of improvement. Competition, even in home markets, will probably be stronger than ever within a few months and it will become a question of quality. If United States dairymen wish to meet the competitor on even ground they must study methods more diligently than ever and outsell by sheer influence of excellence.

*Farm and Home.*

### CHEESE-MAKING PAID THE MORTGAGE.

In '85 my 150-a farm was advertised for \$4000. Visiting the farm I found it in poor condition, fences wrecked and the soil fit for tillage badly run down; but thought it just the place needed if fixed up. There was a creek running through the place on one side of which were about 25 acres of first class timber. This creek took up about 50 acres in flats which were splendid for pasture and the place was sandy. I thought the place was adapted for stock, so I bought 25 prime cows and two of the best brood sows I could get. I had \$2000 to pay down on the place, so I mortgaged it for \$3000, as I wanted \$1000 for repairing. The barn buildings did not afford good stables so I put back stables under them. I raised enough wheat for family bread and generally put in about 5 a of turnips; the rest of the land I put in with oats, peas, corn and rye, which were for hog feed. A couple of men were hired to take care of the stock and work the place. I had been working at cheese making before I heard of this farm, so I put up a small building near the barn and brought machinery from the factory and made

up my own milk and the milk of a few of the neighbors. I raised and bought hogs, which took up the whey and rough grain. I sowed globe-turnips in the corn at the last cultivation to feed the cows in the fall before stabling. I found this a big help to their milking. About Nov. 1, I stopped cheese-making and made the milk up into batter until the cows dried up. Then when winter came I would try and get enough wood cut to sell and pay for my hired help. At the end of the first year I had a small payment gathered together, besides paying my expenses, so I continued this way of farming and now have the mortgage raised and the farm in good condition.—[J. H., Ontario.

*Farm and Home.*

### ENGLISH PRACTICE IN FEEDING TURNIPS.

ED. HOARD'S DAIRYMAN:—Dr. Horne tells his experience with turnips for cows in his native Yorkshire. I will give you my experiences in my native Yorkshire too.

My father was a farmer in Yorkshire all his days. He lived at Middleton in Leeds, Bottomboat in Wakefield and lastly Edderthorpe in Barnsley. It is the last place I will speak about. I was very young when we moved to Edderthorpe. We kept on an average about eight or ten head of cattle, four or five milch-cows in winter. If our own team did not go to Barnsley market on Wednesday we sent our butter to Barnsley by the carrier, a man that had a covered cart and made a living by taking baskets and bringing them back for the farmers. An old lady that kept a small store took our butter every week, because it suited her customers; she could not sell any other. It was done up in pound prints. In course of time the print burst, and we could not get one exactly like it. The old lady had a great trouble to convince her customers that it was from the same farm.

I will now give you the ration: six o'clock a.m. one bushel of turnips, white generally, split into about three pieces. Eight a.m., let out into the yard, cow shed cleaned out, the Yorkshire people call it the "mistal." cows put in, given one bushel of turnips, wheat or barley straw whichever the man happened to be thrashing with the flail. At 12 m. another bushel of turnips and a little more straw. At 4 p. m. the same dose.

Should there be any turnips left by the cows they were thrown out to the cows in the yard. Milked at 6 a. m. and 9 p. m. Dissolved a piece of salt petre, about the size of a hazel nut, in the milk bucket with hot water. Churned every Tuesday. Sent the butter to Barnsley every Wednesday, market day. A market day in England is once or twice a week, according to the size of the town, and you will never see a farmer there on any other day but the market day.

If we fattened a cow we tied her up by the neck, gave her all the turnips she would eat and straw; never let her out, cleaned the shed with her in, no water.

One quarter of our farm was turnips, except the meadow, every year. What the cows did not eat was sold to be eaten on the ground with sheep—put them in one corner of the field and netted them off a small piece every day, just what they would eat up. Next day we used to drag up what they had left in the ground. The sheep had turnips morning, noon, and night and all hours in between, and

nothing else to eat or drink: I wonder if the mutton tasted turnipy? Dr. Horne never saw sheep or cattle so fat here as they are in Yorkshire. Little Houghton and Great Houghton were just across the river. They could not grow turnips, their land was too clayey. Now if the old lady wanted butter that did not have the turnipy flavor, that you hear some people howl about, why did she not buy her butter from the Houghton farmers, who did not grow turnips. Farms in England that will grow turnips will rent for more money than those that will not. Don't all of you go to growing turnips here, the climate is against you. You can leave them out all the year, frost does not hurt them, in England.

My wife came from Western Reserve, Ohio; been in cheese and butter making all her days. She was like many more prejudiced against turnips. She said they were only watery, sloppy things. One year I grew some, fed them to my milch cows. My wife repented and confessed she never made so much butter in her life from cows. My wife prides herself on being a No. 1 butter maker. We could always get from 3 to 5 cents more than our neighbors. One more word, I buy all my butter now. I buy creamery and country butter. No. 1 creamery I never get, because it is not made. (1)

ROBERT P. WILSON.

Johnson Co. Kansas.

### CHEESE MAKING NOTES FOR APRIL AND MAY.

Milk from cows fresh calved is what cheesemakers call tender, and therefore more easily coagulated. As most of the farmers in this Province have their cows fresh in milk in the spring we will lay down a few rules that should be observed in the manufacture of April and May cheese.

Should there be some cheesemakers who have never used the rennet test, begin to do so at once, it is not needed much in April but get accustomed to use it, it is this: take 8 ozs. of milk 84° to 86° (an ordinary tea cup holds 8 ozs. when filled to about within  $\frac{1}{2}$  of an inch of the top) and one (drachm) dram of rennet extract (an ordinary teaspoon holds about 1 dram) take a small portion of a burnt match, drop it on the top of the milk, or any black speck that will float on the milk will do, take out your watch or time piece. Stir the rennet into the milk for 8 to 10 seconds in a circular manner, if your milk coagulates in from 15 to 18 seconds you will find it good condition to proceed. It sometimes happens to coagulate before you have done stirring, in that case you know you will have a lively time later on.

Heat your milk to a temperature of 84° to 86° F. and having tried it with the rennet test, and found it right, use sufficient rennet to get a perfect coagulation in from 18 to 25 minutes. Stir the rennet well for 3 to 4 minutes unless you have milk that is very far advanced when 2 minutes is all you dare stir, the milk should be perfectly still when the coagulation commences to be visible to the eye. Cut lengthwise of the vat with the horizontal knife. Allow the whey to start a little on top; cut across the vat with perpendicular knife and then lengthwise with the same knife. This generally should be sufficient if you have been careful and particular and your knives good, but should you see

(1) Four bushels of turnips a day is far more than any beast can utilize.—Ed.

pieces of curd as large as half an inch, cut again with the horizontal knife.

Stir gently with the hands, removing all the curd from the sides and bottom of the vat, heat gently at first, and as you increase the heat increase your stirring until 98° to 100° F. Where the milk is rich in butter-fat keep stirring your curd to get it firm before the acid develops. In some sections draw the whey at the first show of acid, where milk is low in butter-fat to perhaps an  $\frac{1}{2}$  of an inch in rich milk for April increasing it and  $\frac{1}{4}$  of an inch for May. If your curd is still soft, stir well to make it firm and dry, keep it warm in the vat over 94° but never more than 98° F., turning every 20 minutes: do not pack high. As soon as it has the nice glossy appearance, *rubbery* (1) in from 2 $\frac{1}{2}$  to 3 hours put through curd mill at 90° to 92° F. and after the curd has milled over salt, at 1 $\frac{1}{2}$  to not more than 2 lbs. per 1000 lbs. of milk; stir well, and put to press at a temperature, in April, gradually increasing during May, to 2 $\frac{1}{2}$  lbs. at the close of the month of 80° to 85° F. Do not make your cheese too large in April, see that the bandage is pulled up neatly, press even and straight; keep the curing room say 70° to 80° F. Early cheese will sell well, keep your cheese warm, turn every day in the curing room. Box neatly marking the weight with a stencil, if possible. Now let me conclude by recapitulating. Use plenty of rennet to coagulate in 18 to 25 minutes. Cut gently.

Do not give much acid in April. Use very little salt in April. Plenty of care, cleanliness and attention, and you will get a sure reward.

PETER MACFARLANE,  
Inspector.

St. Hyacinthe,  
13 March 1894.

### The Farm.

#### SURFACE CULTIVATION.

It is to be regretted that sufficient attention is not paid to this most important part of farm management. Frequent moving of the surface soil, in a root, potato, or corn crop, during its season of growth is attended with the best results.

In the first place, a hoed-crop is the cleaning one of the course, and during its growth, we have an opportunity to eradicate weeds which we do not have in crops which completely cover the ground. The best time to destroy most weeds is when their seed is germinating, or as soon after as possible. Their vitality is then so incomplete that, when disturbed over so little, they become an easy prey to sun and air, which wither them as soon as they are exposed to their influence. The annuals, such as wild mustard, chickweed, groundsel, &c., are easily overcome by not allowing their seed to mature, because that is their only means of propagation. This maturity can be prevented by never allowing a plant to proceed further than its embryo or imperfect stage of growth, and this end can be reached by frequent and continuous surface cultivation—during the growing season.

Biennial weeds are more difficult to banish, because they have strong roots in which is being stored the matter which is to nourish the plant and enable it to bear its seed the second year; after which it perishes, having

(1) This word means, we suppose, like India-rubber.—Ed.

performed the functions allotted to it by nature.

But these biennials are not so numerous or so noxious as the perennials. They include such species as the Burdock, Cockle, Wild Carrot, &c., which having no spreading or creeping, but merely fleshy tap-roots, do not increase by propagation rapidly.

The perennials or plants which live from year to year, are the worst of all. The plants which form the class which reproduces from seed alone as the ox eye daisy, Field chickweed &c. are not so bad as those which have branching roots full of germs, or buds, which propagate even faster and more persistently than by seed. These are the dreaded Canada thistle, (*Cirsium arvense*) and the couch grass (*Agropyrum repens*) (which many people confound with the Witch grass—(*panicum capillare*), an annual easily killed,—and some others of which these two are the type.

The old method of deep cultivation of hoed crops, is rapidly giving way to the more reasonable one of surface culture, because, for one reason, all these weeds can be killed as soon as one crop is destroyed another can be similarly treated, especially since the introduction of implements which can be rapidly worked by horse power, thus almost entirely doing away with the tedious and expensive use of the hoe, or weeding by hand, and enabling us to go over the land at very frequent intervals, so that a weed never can make any headway—all summer. The annuals and biennials may thus be entirely destroyed, and the perennials weakened so that their roots will not spread, because, being continually denuded of their vital parts, the leaves, they are not supplied with all the elements necessary to their existence.

Again, shallow culture does not prune the roots like deep. It is obvious that young plants require every fibre to assist in the accumulation of plant food during their growth, therefore every root that is severed at this time is a loss to the mechanical structure of the plant, upon which it is dependent for its full development, and the growth is necessarily retarded until new "feeders" have been formed. (1)

Roots, too, have another important function, namely, to hold the plant firmly in its place in the earth and when they are cut this natural means of support is injured hence they cannot thrive. This alludes of course more especially to the corn crop, with the root-crops the conditions are not the same, because the fibres are close to the tap root, and in that case deep culture and earthing up is beneficial. (2)

Another grand advantage of surface cultivation of the soil is its more perfect admission of sun and air and prevention of evaporation. The land should never be cultivated when wet nor neglected when dry, nor allowed to bake.

Have we not all noticed how our turnips have improved and how rapid has been their growth after hoeing? This is the effect of more complete admission of air to their roots and the moisture they were enable to absorb.

If careful and persistent surface cultivation was practised from the time the crop is planted, or at least as soon after as possible, and as late as could be in the summer, we should get rid of some of our worst enemies, the weeds, have better crops, and our farms

would be continually improving and becoming less expensive to till.

"A stitch in time saves nine," is an old proverb, perhaps more applicable in the management of a hoed crop than any other operation on the farm. Weeds are active if we are sleeping and air and water cannot work where they cannot get access.

GEORGE MOORE.

### RAPE GROWING.

Last summer, *The Farmer* sent out 25 samples of dwarf Essex rape-seed, as a means to ward demonstrating its value as fall feed for every kind of stock. In a very few cases the soil, season and treatment were all right and the reported results highly satisfactory. Extra dry weather, combined in some cases with poor preparation of the soils, produced in the majority of cases only middling results. In one or two cases seed was asked for and sown on land so unfit that the sowers ought never to have had it. But with all the drawbacks, there was a very strong verdict in favor of the plant as a most attractive, seasonable and profitable feed. Of course from the very nature of the plant it cannot be left to the discretion of the stock that are to eat it. If they are allowed to begin on it with an empty stomach in a dewy or frosty morning the owner will, in a few hours, get a very effective lesson in animal chemistry, and most likely have a few carcasses to skin and dispose of. The same thing will happen with clover, but the clover is not at all to blame.

The last few months have shown that years ago farmers of progressive turn of mind have been sowing rape to a greater or less extent and the prize sheep essay by Mr. Halliday, in the present issue of *The Farmer*, has no more interesting paragraph than that in which, he gives his experience in rape growing and feeding. J. C. Callin, of Cherry Hill, Whitewood, Assa., has sent *The Farmer* a most interesting account of his experience with rape in the last very dry season. As the result of a free hand with both manure, seed and labor, Mr. Callin had from half his area a very fine return. The other missed the shower with which the earlier plot was favored, but, as he takes care to point out, his land is now in better shape for wheat than if it had lain bare to the roasting sun all summer.

Mr. Callin says: "Through reading the valuable hints given in your paper on summer fallowing, I was induced to try rape on my fallow last summer, and although the season was unfavorable, owing to drought, I am more than satisfied with my experience. I sowed two 1 acre plots with dwarf Essex, finishing the last about July 10th. The first plot was heavily manured with well-rotted barnyard manure, harrowed twice immediately after plowing, then sown with 3 lbs. of seed to the acre broadcast, and given one stroke of the harrow to cover the seed. It received a good shower of rain, which brought it up at once, and it grew right along, soon covering the ground. The second plot was not manured but treated otherwise, the same as first, but received no rain for about three weeks. It came slowly and thinner but grew to the height of about 2 feet. There were no weeds, except a little wild buckwheat, which was killed by the frost before it matured its seed. The first plot was eaten off before any frost came and was relished very much by the cattle. The second, owing to being in close proximity to grain fields, got a pretty

heavy frost before I let the cattle on it, which made it wilt badly, yet the cattle eat it off clean, but I think it is not so good for them. I am satisfied that in both cases the ground will be in better condition for seed this spring. This is the first rape sown in this district but I believe it is only the commencement of a large acreage in the near future. If some of our merchants would get in a stock of seed from some reliable seedsmen and push the sale of it a little they would confer a favor on many farmers, as more of it would be sown. When I wanted seed last season I had to order it from Winnipeg."

Looking to the purpose for which Messrs. Halliday and Callin, as well as a great many other farmers sow it, it is pretty plain that if 1½ lb., of seed to the acre could be well sown the result would be about right. Mr. Halliday, with ½ lb. of seed, got monster plants (1) and every seed grew, and it is quite clear that Mr. Callin would have had a good enough stand with much less seed. The object of sowing as a part of a summer fallow scheme is not so much to get a plant on every square yard as to combine the three points of firming the soil, getting a closer fall bite for stock and fixing nitrogen that but for the action of the plants would fly off into the atmosphere to enrich some less profitable vegetation. A pound of rape at 10c. will make a very different effect on an acre of fallow land than if it were left to annual weeds, most of which stock would only eat as a matter of necessity, and with certainty of almost worthless feeding results. (2)

When and how to sow cannot be definitely fixed. If too early it may get a nip of frost, if too late drought will perhaps check it and frost will to some extent reduce its feeding value, but Mr. Young, V. S. at Manitou, had it standing all through the winter and greedily eaten in spring. Rape may be sown on old land foul with stored up seeds. In that case the harrow should be freely repeated to kill them. Even if no growth appears above ground it will pay well to give a round every week from early spring on till June 10th and then sow by drill say 1 lb. an acre. If cultivated between the rows by horsehoe till the rape is well grown the crop of grain raised after it without further plowing will for cleanness and quality astonish the oldest inhabitant.

If used in an ordinary summer fallow, and sown broadcast, plowing late in May with two or three harrowings closely following will prepare any decent land for a good crop of rape to be followed by as good a crop of wheat next year. The later the rape is sown the more time will there be for surface culture, the best of all ways of crop preparation. Try an acre with manure, and seed June 1st, but for summer fallow if a shower comes along it will pay to sow rape on till July, sometimes even later, but care must always be taken to keep the harrow going till the rape is put in. Little seed skillfully sown so as not to come in spots and so make it cover the largest possible area, is the point to be aimed at.

About the seed itself let there be no mistake. Dwarf Essex and no other, (3) and make up your minds early. Local merchants and even Winnipeg seedsmen cannot afford to bring in a lot of seed on the chance of some one looking

(1) Don't want such "monsters", but tender leaves and stems. Six pounds an acre is about the right seeding.—Ed.

(2) Firming the soil is one grand point. Ed.

(3) The "colesed" is the favourite in Cambridge, the "rape" in Kent. Ed.

in for a pound or two in the middle of June. Place your orders at once. Several farmers who were not nervous about it last year could not get it when they did want it, and when the seed did come from Toronto by express the land was too dry and half the seed was lost in the ground or kept over till this year.

Nor' West Farmer.

### Departmental Notices.

#### THE COUNCIL OF AGRICULTURE.

##### COMPETITIONS &C.

The Council of Agriculture is particularly anxious that it should be thoroughly understood by all the Agricultural Societies of the province, that, in future, they must conform themselves strictly to the law. They must hold an exhibition every two years, and a competition in the alternate years. For instance, this year must be held either a competition of standing crops, or a competition of the best cultivated farms. The competition of farms need only be held every five years, so this year, the competition of standing-crops may be held. Part of the grant may be devoted to the purchase of breeding stock.

The encouragement, by special prizes, of the crops, &c., best suited to the development of dairying is earnestly desired by the Council, and the growing of root-crops and green-fodder will greatly assist in this.

If any of the societies are situated near Montreal or other large towns, the cultivation of small fruits will prove profitable to the members when the soil is suited to such crops.

The ventilation of cowhouses, the feeding of cattle, and the care of manure, are all worthy of more attention than they usually receive, and to improve these, a competition might be opened and prizes offered.

The societies exist for the improvement of agriculture, and it is clearly their duty to encourage, by means of prizes, all useful novel ameliorations that favour the progress of agricultural practice.

#### Department of Agriculture and Colonisation, Quebec.

##### PRIZES PARTICULARLY RECOMMENDED IN 1894.

Seeing that it is advisable to employ a small part of the grants to the Agricultural Societies in the encouragement in the greatest degree of certain experiments of general utility, and by which every farmer in the country may benefit at once, the Commissioner very specially recommends that, in the programmes of the agricultural societies, this year, 1894, the following prizes be offered:

For the best half-acre of potatoes treated with the *bouillie Bordelaise* for the purpose of arresting the rot and, consequently, of increasing the crop:

(1 prize of \$10.00.)

The prize not to be awarded without the making of a special report, by the competitor, of the comparative result obtained, with the dressing and without it. (See the Journal for the means of using the *bouillie Bordelaise*.)

For the best half-acre of "Prize-Cluster" oats:

(3 prizes: \$5.00, \$3.00, \$2.00.)

For a quarter-acre of cabbages (choux à moelle):

(3 prizes: \$8.00, \$5.00, \$3.00.)

For the best quarter-acre of rapa: (3 prizes: \$5.00, \$3.00, \$2.00, with a report of the results obtained in fattening sheep with it.

For the best silo built and filled in 1894:

(3 prizes: \$10.00, \$5.00, \$2.00.)

N. B. The agricultural societies that do not accept these suggestions, in whole or in part, run the risk of having their programmes disapproved.

#### Department of Agriculture and Colonisation.

Programme of operations recommended to the Agricultural Societies and Farmer's Clubs.

The considerable growth which the dairy-industry has attained within the last few years and the important position it now occupies amongst our agricultural industries call for special attention and more direct encouragement than in the past, from the Agricultural Societies and Clubs.

Therefore, at its last meeting, the Council of Agriculture adopted a resolution recommending the Agricultural Associations to encourage, through the medium of prizes, the production of green fodder, roots, or any other produce of a nature to improve the dairy-industry.

In order to enable the Societies and Clubs to meet the views of the Council, we have embodied herein, as an example a series of several prizes which might be offered in the future, each association naturally modifying them according to the means at its disposal.

1st. \$10.00 for the best fields of 2 acres of clover.

1st. prize \$1.00, 2nd. \$3.00 3rd. \$2.00, 4th. \$1.00.

2nd. \$15.00 for the best fields of tares, or lentils, peas and oats mixed, of one acre.

(\$1.00 \$3.00, \$2.00, \$1.00.)

3rd. \$10.00 for the best fields of one acre of Indian Corn fodder

(\$4.00, \$3.00, \$2.00, \$1.00.)

4th. \$15.00 for the best fields of half an acre of mangel wurzel, swedes or carrots.

(\$5.00, \$4.00, \$3.00, \$2.00, \$1.00)

4th. \$15.00 for the best field of one acre of mangel wurzel, swedes or carrots.

(\$8.00, \$1.00, \$3.00.)

The Government grant may also be used for the purchase of bulls or other registered stock.

At the same time, we cannot too highly recommend the hoed-crops because they give good immediate results and put the land in very good preparation for the succeeding crops.

No expenses are to be incurred without the previous sanction of the Honorable Commissioner, the Government grant cannot be used for the purchase of grass seeds.

Quebec, December 1st. 1893.

### The Silo.

#### A SIMPLE AND CHEAP SILO.

It is conceded as a fact that the farmer of small means is the one of all others to whom the silo is a necessity.

He has to crop his land heavily and continuously in order to make both ends meet, to raise his crops on the

most economical principles, and to store his forage in the smallest possible space.

The poor struggling farmer, with perhaps a large family to support or a mortgage on his farm, although he may fully appreciate the advantages of the ensilage system is not in a position to spare even the few dollars required to build an ordinary silo, but if any means can be adopted to lessen the cost the possibility of doing so might be brought within his reach, otherwise all he can do is to keep in the same old rut until some fortuitous event brings him relief.

I am lead to these reflections from circumstances, which came under my notice on a trip I recently made to the Township of Ham. After having explained to a meeting of farmers on a newly cleared district—all being small occupiers,—the method of building such cheap silos as I thought would suit their capacities, a Mr. S. C. Bishop of Dadswell said he had commenced building a silo in the corner of his barn as nearly as possible on the plan I had suggested, but by an accidental circumstance he had changed his plan and had succeeded in making one which had preserved perfect silage at less than half the cost of the cheapest one I had described. At my request he explained clearly and intelligently to the meeting how this had been accomplished, and so convinced was I of the reasonableness of his statement, that I determined to pay him a visit and see it for myself.

I found, as he had stated, that he had commenced building a silo with the usual hollow walls in one corner of his barn, but found that the stone foundation projected several feet into the inside and prevented him placing his studding against the outer wall as he intended.

To fill up the bottom level with the wood work would have been expensive and would have raised the floor too high and to have removed the obstruction would have been yet more expensive and difficult. In this dilemma it occurred to him to build independently of the wall and several feet away from it, not adopting the hollow walls on the side next the barn floor, but making his walls of two inch boards nailed together, simply breaking the joints by allowing them to overlap each other, and using, for uprights to nail them to, 3 x 4 joists only, merely strengthening the corners by placing in them a foot wide board thus and filling in the triangular space with sawdust. Round this he packed his hay as he brought it in, and as it had settled before the ensilage of the forage corn, it had the effect to render the silo of sufficient strength and make it also impervious to air and frost.

Mr. Bishop stated that he had filled the silo slowly and packed his corn with great care but without cutting, that he had not lost a pound of material, which proved to be of the best quality (indeed what was still unused showed his assertion to be true) and that his cows doubled their milk a few days after its use, in connexion with a little hay, was commenced.

This simple statement of facts as they came under the notice of the writer seems to be of sufficient importance to be put on record as it may be the means of encouraging some needy but well intentioned habitant to endeavour to lift himself out of the "slough of despond" in which old methods and old prejudices have plunged him.

GEORGE MOORE.

### The Flock.

#### LAMBING EWES.

By the time this issue of THE FARMER reaches its various readers it is probable that some one or two ewes in each flock may be near their time. It is too early for a crop of lambs, the second week of April is soon enough for that. But accidents will happen when a few sheep get to run with a ram, or even a "chaser," the most obnoxious of all varieties of sheep, and it is well that beginners who did not keep the ram up in the fall be on the lookout for a stray lamb at any time. The trouble they are pretty sure to have with ewes that were not properly marked at the time of service, will not be too soon forgotten, and make them vigilant enough next breeding season. Experience, if not too dear, is a pretty sure teacher. In this cold climate a ewe will seldom show long beforehand that her time is near. If it is her first lamb, the risk is all the greater, and the more valuable the ewe the greater will the risk of mischance always be. A mean little western ewe seldom goes wrong, if she does, the loss is small. To come along in the best way too concentrated fed is not desirable. The ewe that has pottored round a stack bottom, deep in chaff, and had a stray bite of green cured hay is safer than one fed chop. Roots should always be grown by the small sheep farmer—to feed in fall, if small, to be stored for spring use if of good size. A stack of green cut oats or flax a load of Indian corn set up in the field and brought in a few bundles at a time in winter, are all proper for breeding ewes, no chop if possible, and if the fall management is right, they will be in the best condition after this cool sort of feed. If the lambing time is known, a little bran or oilcake is a good preparative for lambing.

"Eternal vigilance is the price of safety." Keep that in your eye every day. No half awake man will do to care for lambing ewes. Even when he sleeps it should be with one eye open. The ewe may do all right without any help, but if a lamb make a wrong presentation, it should be the business of the shepherd to talk lambing at all hours to any old seasoned hand he may have the good luck to pick up. If the ewe is fat, or the lamb extra large, help may be needed even with a proper presentation, but the less help the better always, and if such ewes have to be handled along with others, be sure to wash the hands in a little carbolic acid and water to keep clear of inflammation and puerperal troubles.

Suppose a ewe should die or have no milk, and another lamb die from the next few days' lambing, the first lamb, kept on cows' milk in the interval, must be sewed in the warm skin of the dead one, and the ewe be so made to a lopt it. All ewes should for the first few days be in separate pens, say four feet square, with their lambs, and a very little management will soon make any ewe take either her own or another lamb. A bottle with a cotton or rubber teat on it and nice warm sweet milk at hand is a part of every true shepherd's outfit, and he is always particular to have it sweet and clean. A chance to sip a little water out of a clean pail will be a help, though clean snow would be no objection. Cool feed of the sort already specified, and a few roots are the best of feed for a nursing ewe, but some ewes will prove poor milkers, and for

that trouble the best remedy is to give the lamb a little cow's milk and let it have a "crop" through which it can get to eat a little bran or oatmeal chop, it will still flourish on a scanty milk supply. To start this practice, dip the lamb's nose in the dry oatmeal, it will lick it, and soon want more. Feeding the chop to the ewe is no good (1); teach the lamb to hustle for it—elf at the outside chop box, and it will pay well for all its eats.

One advantage of lambs in small flocks coming too early is that they get care when nothing else is pushing. To follow a harrow a long April day and watch a lambing ewe half the night is not quite pleasant to an amateur sheep man. The seasoned hand counts little on it, and knows also how to cut down to a minimum the work he must do.

Look out in the next three months for the bad nurses, and mark them down for fall mutton. The butcher's knife is the best cure for an ewe that raises a mean lamb. Mark also the double-lambing and good nursing ewes, and stick to them. If they won't pay here you are no sheep farmer.

N. W. Farmer.

#### SHEEP TALK.

It may sound strange to many, but I believe it true that more than half the sheep in the United States are not getting enough to eat. I believe in the "corn breed"—that breed that for several generations has had a plentiful supply of nutritious food. A sheep to do its best must be improving 365 days in a year. Breed is not everything, feed has a great deal to do with the game. Now, more than ever before, we need to be exhorted to not lose our grip on the sheep, nor let our interest in the flock be abated—the shepherd who holds out faithful to the end will be richly rewarded.

A slouch has no business trying his hand with sheep. Memory recalls the flock of such a man among the hills of Maryland. They hunted a scanty living on bare spots on the hillsides and in fence corners all over the farm. They looked as though they had "tightened their belts" to keep from getting hungry. They "wintered all right" but spring killed nearly all of them.

While a sheep may be a scavenger, to clean up the farm and rid it of alders, briars and weeds, the poor creature ought not to be compelled to hunt most of its living through the winter. "Sheep won't eat hay in open weather." No, not if it is thrown down in the mud and they have all the farm to range on. (2)

A sheep may live a long time under the severest neglect and may not even seem to "need water." Try it yourself awhile. A snow eater is poor property. Sheep must have plenty of pure drinking water, especially in the winter season.

Keep salt where the sheep can get at it any time. They know better than you do when they need it. One-fourth flour of sulphur and three-fourths salt is good for the blood and is helpful in keeping clear of ticks. The sulphur should be used only at intervals, as too much is injurious. Sheep eating sulphur must be protected from bad weather.

When a member of the flock seems "mopey" and stupid and looks as

(1) Ah! There we differ. Ed.

(2) But they will not often refuse clover-hay or pease-straw. Ed.



though it would just as soon die as stay here, just remove it from the flock and let it run with the lambs for a little season and it will likely recover without further treatment.

If sheep are biting at their backs and pulling wool—and this often happens with fat sheep that are clear of ticks—look to the feed; too much corn is likely the cause. Change to bran and oats or bran alone and feed a dose or two of sulphur—a handful in the feed for thirty sheep—to thin the blood. If there are any ticks on a sheep they will likely be found under the throat and downward.

Bran and oats make the best general grain ration for breeding ewes. You needn't be afraid of giving them too much if you make the increase in feed gradually. Turnips must be fed with caution to in-lamb ewes, but if they are simply cut in halves and let the ewes "scoop" them, they get the food too slowly to cause any bad results.

The man who cares for his ewes well and has them in good flesh, and strong, will have little or no trouble in getting ewes to own their lambs. Take good care of your ewe through the winter and she will take care of her lamb in the spring. To have a big, strong lamb you must feed the dam. (1)

The shepherd ought to be on very intimate terms with his flock, and his presence among them should cause no disturbance or scatterment. Speak kindly and deal gently with them, get their confidence. Sheep are no fools; they know who is good and kind to them. His voice will they follow, even across a stream of water.

When you have occasion to take hold of a sheep don't fall on it like a bear. If you have no crook, reach down gently and take hold of the gambrel firmly with one hand, place the other hand around in front of the throat and the animal is in your possession and under your control. This operation ought not to frighten the animal caught or the rest of the flock.—Howard U. Keim, in National Stockman.

**GROWING RAPE FOR SHEEP.**

EDS. COUNTRY GENTLEMAN—I am having more than the usual number of inquiries in reference to my experience in growing dwarf Essex rape for sheep. I therefore ask the privilege of replying through your paper, and it may save you a number of private letters. Under the changed conditions of the sheep industry, farmers are naturally casting about for new methods which will make up the difference between profit and loss, and for this purpose they turn to the rape crop and perhaps are expecting more from it than results would justify.

A crop of rape will grow and be ready for the sheep on good soil, and under favorable conditions, within six weeks from the time of sowing, and it may be sown any time from the 1st of May to the 10th of August. We usually sow from May 29 to July 1 to give us rape pasture during the droughts which almost uniformly prevail in Southern Michigan in July and August. We sow another piece from July 1 to 20 for late fall pasture. At "The Willows" our object is to raise feed for sheep, which is our only cash resource. For this purpose we sow rye in the corn about August 15,

(1) In-lamb ewes need nitrogenous food: prairie, clover, &c. This is the secret!

and pasture it during fall and spring. About May 10 we plow this rye under and drag it over once, allow the weeds to start, then give it a thorough cultivation put the ground in fine tilth and sow the rape broadcast, using from 5 to 6 pounds per acre (1) We then brush it over lightly with a smoothing-harrow, and if there are any lumps and the ground is not too moist we roll it. The rape comes up quickly, and in six weeks will average 2 feet high over the field, (2) and be so thick that the sheep will eat into it without trampling it down so as to injure it. For the second sowing we usually take a piece from which we have just cut clover hay, plow it, allow the weeds to start in the same way, put the ground in the best possible condition for seeding it, and sow the seed in the same quantity, which gives us a crop for October and November pasture. One acre of rape will carry 15 Shropshire sheep for six weeks on the average. Both our soil and climate seem well adapted to it. In England rape is always sown in drills and cultivated (3) but their ground is much harder than ours, is more foul, and crops do not grow so quickly, which seems to make it necessary to cultivate it in drills. Rape, like buckwheat springs up so quickly that there is very little trouble from weeds, because the rape gets the start of them and smother them back.

By this combination of rye and rape, we are enabled to carry our sheep over the drought of summer and late into the fall without feeding hay, and not only that—we get a better growth on our breeding sheep and more flesh on those that are intended for the feeding-pen. We have also found rape a valuable crop for bringing what would otherwise be barren ewes into breeding. (4) When our ewes have been running in the rape through the breeding season, it has been a rare exception that we have had one fail to breed. Sheep thrive upon it and make a growth that is more than satisfactory, and which, to people unaccustomed to it, often seems wonderful. I know of no better preparation for sheep intended for the feeding-pen.

I have grown three successive crops of rye and rape, or six crops in three years upon the same ground, and it is continually growing richer, each crop increasing each year. I am thus able to save my pasture at a time when stock is most injurious to it, and this is a secondary object of considerable importance where we carry from 100 to 500 Shropshire sheep on 200 acres of land.

The dwarf Essex rape does not seed the first year, and winter kills it, so there is no danger of its fouling the land. In fact, I have found it a good cleaning crop. Among my numerous inquiries have been some asking if it can be sown in the corn before the last plowing without injuring the corn, and if it can be sown in woods or on poor land. To these questions my answer would have to be in the negative. It might make something of a growth in the corn field, but I doubt if it would be profitable. The rape is grown entirely for the top, the root being valueless for any purpose, and when a full crop covers the ground it is not easy even to walk through it. It requires good soil and in good condition. Under these conditions and for the purpose for which I grow it, I have found it very satis-

(1) Right. Ed.  
(2) We never saw such rapid growth as this. Ed.  
(3) In Scotland, but we never saw it so sown in England. Ed.  
(4) And for twinning. Ed.

factory, and shall sow each year what I require for my flock.

While I am speaking of sheep feed, allow me to add that on account of the drought and my absence at the world's fair at a time when I should have ensiled my corn, our siloes were not filled last year, and we have missed them more than we expected; 12 to 15 acres of corn which we have usually had in the form of silage, have done us more good than 40 acres of corn fodder this year, harvested in the usual way and fed dry. I hope never again to winter stock without siloes well filled. While we have siloes, rape, rye and clover hay, I can afford to raise sheep for mutton and make more money than I can raising wheat at a dollar a bushel.

Paw, Pay, Mich., Mich. 1.

G. E. BRECK.

**Breeder and Grazier.**

**DETECTION AND CARE OF TUBERCULOSIS.**

Tuberculosis is consumption, detectable, by the ruffled condition of the hair, coughing and general pining condition. Animals supposed to be infected should be quarantined and a skilled veterinarian called in and if found affected, killed; if not, the animals should be closely watched for some time. It is important that the stable be kept warm and well ventilated to eradicate odors. The food should be wholesome. Cattle and swine show the greatest predisposition to tuberculosis. The contagion is received into the system in the natural way, nearly always by inhalation or by swallowing. It can be communicated to almost any animal by inoculation. An animal may have the disease and yet not show it for a considerable length of time. In some cases it follows a concealed course and extensive changes may occur in the lungs or other organs, yet the general appearance of the animal would not belie that tuberculosis existed in its flesh. Generally an affected animal shows no benefit from its food; the appetite is not even, the skin is dull, the hair dirty and rough, a cough may be present, diarrhea is noticeable, but the flow of milk may not be impaired for some time.

A rigid system of changing the animals often and putting fresh ones in their places has been the means of reducing the number of cases to the minimum. There would be just as much tuberculosis among swine as in cattle if the stock did not change so often. Do not retain on animal that is in the least undesirable and never trade such to neighbors, thus propagating an evil. Fit her for beef and see to it that she goes that way. When the most scrupulous measures are observed in caring for the diseased waste from the human consumptive patient, and when our knowledge is sufficient to enable us to discover the presence of the disease in our cattle at an early stage and before the diseased tuberculous matter has begun to form, then we shall see a marked diminution in the number of cases, and let us hope for an entire eradication of the disease. It seems as though it might not be thought an impossibility to accomplish this, thought it must be admitted it is a formidable question.—[A. A. Southwick.

Farm and Home.

**BREWERS' GRAINS AS CATTLE FOOD.**

A creamery manager in Wisconsin recently asked advice of Professor Henry of the Wisconsin Experiment Station, as to whether the feeding of brewers' grains by his patrons, who buy them at \$4 per ton, was to be recommended, and whether the quality of the butter would be injured thereby.

Professor Henry's answer is given below as printed in Hoard's Dairyman, and is applicable to farmers here who feed these grains largely:

In the process of making beer from malt, the malt extract is soaked out of the malted barley grains, leaving each grain a watery shell. Below I give the digestible constituents of brewers' grains containing water, dried brewers' grains and Indian corn for comparison. Digestible constituents in 100 pounds:

	Carbohy-	Protein.	drates.	Fat.
Brewers' grains..	3.9	9.5	1.3	
Dried brewer's grains .....	16.2	35.5	5.3	
Indian corn.....	7.1	62.7	4.2	

The fresh brewers' grains are three-quarters water. Considering this, it will be seen that their nutritive constituents run very high.

Properly fed, brewers' grains are all right for dairy cows. Improperly feed they are exceedingly unsatisfactory. These grains loaded with water are often bought at a very low price in comparison with hay and with other grains. Because of their abundance and low price, improvident dairymen feed them to excess, withholding the proper amount of other grain and sufficient quantity of coarse fodder to properly go with them. Thus the cow is improperly fed. In the second place, the grains must be received fresh from the brewery daily to be in proper condition for feeding. It is easier to get them "once in a while," and in such cases they are sometimes putrid and in very bad condition for feeding. In the third place, this wet feed being given in the barn, the water from the grains drains off through the feed boxes and ledges about the feed mangers and under the floors of the barn, where putrefaction sets up, filling the barn with bad odors. The germs from the decaying grains, as mentioned in the last two cases, get into the milk and cause improper souring and other troubles. Fed when fresh, in reasonable quantity along, with some other grain and a liberal supply of good hay or corn stalks, with everything kept clean, brewers' grains are a splendid cow feed. They can be fed in this way and should never be wasted.

I advise this company to make its patrons sign a contract that they will feed fresh grains only, in reasonable quantity, exercising the greatest precaution as to proper cleanliness and wholesomeness of the feed. If the patrons will not comply with such rules, I should object to the fresh grains being fed.

Our most enterprising brewers now have arrangements for drying these grains, getting rid of all the superfluous moisture and making the grains as dry as bran. As shown in the analysis for dried brewers' grains, such is very rich feed, richer than bran and very satisfactory. (1)

W. A. HENRY.

(1) Half a bushel a day is as much as a milk-cow ought to have of fresh-grains, if for continuous feeding.

## The Diagnosis of Tuberculosis in Cattle.

We take the following interesting extract from the North British Agriculturist:—

Tuberculosis appears to increase in prevalence amongst cattle and especially among dairy stock, undoubtedly depending upon their being closely housed, one infected animal thus spreading the disease to those in near proximity with it. Statistics in this and other European countries indicate that 20 per cent. of the bovine race suffer from this serious disorder. Of the cows killed in Edinburgh in 1891 under the Pleuro Pneumonia Slaughter Order, 20 per cent. were found on *post-mortem* to be affected. Bulls, steers, and young cattle of both sexes, being attacked in much less proportion than housed adult cows, confirms the conclusion that contagion is the prime cause of the complaint, or, in other words, demonstrates that the tubercle bacillus is transferred from the infected to the sound. Some authorities still adhere to the view formerly entertained that the disease is hereditary and transmissible from the main parent, or from the female during pregnancy. However produced, in view of limiting its prevalence and preventing its being communicated from cattle to man, as it is apt to be with infected milk, it is very important that bovine tuberculosis should be discovered in its earlier stages. But during its earlier progress, and especially when it attacks the deeper seated glands or organs, its presence is determined with difficulty. The most careful auscultation and percussion may detect no definite evidence in the lungs of cattle, which are the site of about 60 per cent. of the attacks, and yet in such unsuspected cases *post-mortem* examination frequently discovers disease which may have been slowly developing for weeks or even months.

"In the current number of the Journal of Comparative Pathology and Therapeutics, Professor McFadyean has a very valuable paper on the 'Diagnosis of Tuberculosis in Cattle.' He premises that the essential condition of the disease is the presence of the bacilli. The bacilli occur in the local lesions, but although in certain stages they are transmitted in the blood stream from the primary lesion to other parts it is scarcely possible to find them in the blood. The Professor has made a series of experiments which demonstrate that, even in cases of general and serious tuberculosis, bacilli are not present either in the blood or in the milk.

## THE CHUMP.

One more allusion to the champion Aberdeen-Angus heifer. All the butchers to whom I spoke, who had seen her alive, remarked on the small "chump"—that is to say, the narrowness of the spinal bone at the setting on of the tail. Whether the fineness of the tail itself has anything to do with this or not I am unable to say; but a "whipthong" tail is usually associated with general "quality" by breeders. The thickness of the "dock" in sheep is always regarded as an indication of thickness of lean meat. This leads me to repeat, once again in this connection, my firm belief is that no animal can be profitably sold to the butcher until it has attained its complete development; that is to say,

until the spinal column has grown to its natural limit, because it is this part of the structure which admits of the largest development of lean meat. I may be wrong but I stand to be shot at.

(*Eng. Ag. Gazette.*)

## THE CARE OF CATTLE IN WINTER.

A very important matter is the winter and fall care of cattle. From my experience, it is necessary that the milch cows should never be left out on cold damp nights, as this is the first cause of their coming down in milk, and it is almost impossible to get them up to the same amount again, no matter how much they are fed. I consider this extra feed all loss, which could have been saved by simply keeping the cows in. There are thousands of dollars lost every year through the country by this neglect.

As soon as the winter sets in, they are brought in permanently and are not turned out till the grass is ready either in the latter part of May or the beginning of June. The time for turning them out depends on the locality and the nature of the soil, as grass is produced earlier in some soils than in others. Here, I take the precaution of not turning them out on a very bright warm day, neither do I leave them out all day at first, as it would be too sudden a change, and it is possible that the sun might have an injurious effect on their skin. I always feed a little dry meal and hay for the first week after they go out in order to prevent the grass scouring them too much.

I would advise feeding on mangels or other roots during the months of April and May, as it prepares them for the change to the grass, and also keeps them up in flesh and milk; but they also require meal as well. I strongly advise my fellow-farmers who sell oats and hay to feed them to their cattle. For instance a farmer was selling his hay and feeding his cows on straw and *moulée*. I advised him to change, give the cows hay and use the straw for bedding and clean his cows, which he did. He was selling his milk at 18c per gallon and after giving it a fair trial, found he was getting \$9.00 per 100 bundles for his hay from the extra milk. Some claim they should be turned out in May on bright, warm days, but I have tried and found no good results, as I find that the cattle become so restless and unsettled and so eager for the grass that it interferes with their milking and their regular feeding.

My reason for not putting out my cows in winter is to keep them up in flesh and milk and I have never seen any bad results therefrom. On the contrary they come out better and healthier in the spring by keeping them in a proper temperature and not exposing them to chills.

Now comes another very important point, the stable. Care should be taken to build it very warm and to have abundant light and ventilation, the ceiling should be from 8 to 9 feet, and there should be good large windows, for it is so necessary to have the sunlight in the stable.

In so many cases we find cow stables built like a box without light or ventilation; the cattle breathing the same air over and over again: it is a well known fact that this air becomes poisonous and injurious to the health of the animals. I am satisfied that two-thirds of the stables in the Northern part of this Province are built on

that principle. While feeding the cattle, the doors have to be left open at least nearly three hours per day. No wise thinking man would ever suppose that cows would give any profitable returns with such treatment.

Suppose we ask a poultry man why he has so much light in his honnery, he will answer that he cannot get a profitable returns from his hens, unless they have the full benefit of all the sunlight which can be conveyed into the building. With cows it is the same, they require all the sunlight possible. The proper temperature for milch cows is from 60° to 65°, and for every degree below that the quantity of milk is reduced; at 40° it takes one third of the food to keep up the animal heat, and at 30° it takes one-half; while it is almost impossible to keep up the amount of milk.

During our trip this summer, judging for the "Merito Agricole," I noticed that the farmers who had dark, cold stables, with little or no ventilation and who turned out their cattle every day during the winter, were the ones who only received from \$20.00 to \$25.00 per annum from each cow. Otherwise, where the cattle were better cared for and the stables were on a more improved plan, the average was from \$30.00 to \$38.00. In the Eastern Townships where a speciality is made of taking good care of their cattle, I have known some whose cows averaged from \$50.00 and upwards each at the cheese or butter factory.

In conclusion I would like to say a few words in regard to the pasture. Fully one half of the farmers have quite too much land under pasture. They have adopted a plan of pasturing in the same place for three or four years, then ploughing it up and sowing oats or other grain for the same period, and then turning it back to pasture without ever seeding it down.

According to my experience, a pasture requires more seed, as it is not allowed to grow so tall and requires a thicker bottom than a meadow. For hay, 4 lbs. red clover, 2 lbs. alsike and 1 peck timothy is sufficient. For pasture, 2 lbs. red clover, 2 lbs. alsike, 2 lbs. white clover, 1 lb. red top, 1 lb. blue grass and 1 peck timothy seed is a good mixture. A pasture seeded down in this way would give more and a great deal better grass on one half the land, besides improving the land very much.

GEO. BUCHANAN,  
Côte St Michel.

29th March 1894.

## The Horse.

### THE HORSE.

#### The Roadster as a Profit-Maker.

Among the many well filled classes at the recent national horse show in New York, and perhaps the most interesting for the majority of horsemen to watch, was the roadster. This is a class of horses whose usefulness has a far wider range than that of any other one class. A roadster, therefore, must be an animal having a combination of good qualities exceeding that of almost any other type.

One of the first things our interested spectator will notice in the catalogue is the entry in several different classes of the same animal. While this may be done to a certain extent, it has without a doubt been carried too far in some respects, notably so in entering horses in both the trotting and roadster

classes. These should be distinct, each a class in itself. The typical American trotter is not what one would call an ideal road horse. He is too delicate, narrow chested, and too much of a racing machine to be a good in-and-out horse on the road. Colonel Kips' mares, My May and Mona, were beautiful specimens and well worthy of a blue ribbon, but they should be classed as trotters and not roadsters. They are a type that all men would like to own and drive, but comparatively few men have the means to keep a horse for one particular kind of driving; therefore, they must try and find an animal whose qualifications combine those of several different types.

A roadster should be a large and powerful horse, broad chested standing at least 15 hands high, well put together, who can go along at a three-minute gait and keep it up. He must have a good, allround action not too high, if possible, something between that of the hackney high stopper and the trotter. He should be a strong and easy mover, at the same time carrying some style with him.

In this horse also we need more than in any other a good walker. How comparatively few good walkers one can find when looking for them. A horse cannot trot forever as some people seem to think. He must rest a little now and then, and if he is a good walker one does not mind it, whereas if he happens to be a poor one, the chances are that the driver gets impatient and pushes him on. If the men who break our colts would pay more attention to teaching them to walk well and carry their heads so as to obviate the use of the check rein, instead of trying to develop a few seconds of speed below the standard mark, we should have a more satisfactory lot of road horses, and the breeders would make as much money. It is only once in a very long time that one can breed a record breaker, even when if you have the right stock,—and there is plenty of it in New England or New York—ono can get a good roadster every time, and they will always command a good price.

The day for scrub horses has gone by and they are at present a drug on the market, but good ones can always find a buyer and at a fair price. Must we always have our Eastern markets filled with Western and Canadian horses which are brought here, many of them only half broken, and sold as roadsters that are safe for a lady to drive? Are we not endangering the lives of those nearest to us, our mothers, wives and sisters, by buying such animals and turning them over for their pleasure driving? Rather let us have our markets filled with a good substantial animal, born and bred in New England or York state, whose every movement is known to us and on whom we can rely—ono that has good manners and will command recognition and respect from horsemen far and near.

Then at the next show in New York let us ask for a class for roadsters in which the speedy and sensational trotter is not eligible. This will certainly help to improve the present condition of our road horses and is nothing more than should rightly be claimed in their behalf. We speak of the "national horse show" as the directors have elected to call it, yet how little it bears out the name. Nine-tenths of the horses exhibited are animals that have been imported, many of them having been prize winners in some foreign country and in no way represent our national horse. Let us be more "American, and when next year comes around show a lot that will represent an American bred animal.—[W. J. Lux.]  
P. and. H.

Important Discovery in Pianoforte making.

Letters Patent have been granted on the 10th of April, to Mr. Antonio Pratte—of the firm of L. E. N. Pratte, Piano Manufacturers, 1676, Notre-Dame Street,—for an appliance to produce in upright pianos a purer and more singing quality of tone, entirely free from overtones and dissonances.

This valuable improvement has been highly praised by connoisseurs who have tried the instruments and should be heard by all musicians and players whose sensitive ears are offended by the lack of these qualities in ordinary pianos.

NOTES AND NOTICES.

—The well-known auctioneers James Stewart & Co., by instructions from the executors of the estate of the late Sir J. C. Abbott sold the entire contents of the stable, on Thursday, April 26.

—The catalogue sale of high class Hackneys, belonging to Hon. Senator Cochrane, Hillhurst Farm, P.Q., will be sold on or about May 17 in the Victoria Skating Rink and will be conducted by James Stewart & Co., auctioneers. The sale will be the most important held hereabouts for sometime past and there is not the least doubt that the attendance of buyers will be large and bidding high. The lot consists of ladies' and gentlemen's saddle horses, hunters, high-stepping harness horses, and registered hackney bitches and stallions. They are in fine form and will make a most attractive show when placed in the ring at the Victoria rink.

—Mr. James J. Jackson, of Montreal Junction, who is retiring from business has decided to dispose of his entire stock of trotting horses and this important sale gives a splendid opportunity to horsemen to secure some standard bred trotters. The lot consists of General Banks (10393), race record 2.29 1/2; Leontes (7843) by Pilot Mambrino, brood mares including Melody, by Walsingham 2166, also standard colts and fillies. The trotting sulkeys, road wagons, harness and stable fittings will also be sold without reserve. General Banks was sired by General Brock, 2.29 1/2, son of Rooker 7415, (sire of Rocky Ford 2.18 1/2, Bonne Annie 2.26, Lady Rooker 2.26 1/2, etc.); dam Minnie Woods, by Imp. Blankin. General Banks was foaled in 1882, and is a handsome bay, standing 15 3/4 hands and weighs 1075 pounds. He is one of the most popular sires in the Province. The brood mare Melody is highly bred, being the get of Walsingham 2166, sire of Latitude 2.16 1/2, Naboth 2.19 1/2, Mount Airy 2.24 1/2, Birenthu 2.25, Jelly by 2.26, Nib'o 2.27 1/2, Lovell 2.26 1/2, Novice 2.28 1/2, Linkwood, 2.29 1/2, Neville 2.29 1/2 and others, dam Fautress, dam of Epthei 2.29 1/2. The chances are that the bidding for these two in particular will be very spirited. The colts and fillies are all fine lookers and ought to bring good prices. The sale will take place at Wood Glen Farm, Upper Lachine Road, on Wednesday, May 9th, and will be conducted by James Stewart & Co., auctioneers. A catalogue of the stock, etc., can be had on application.

Logan Farm Montreal, P.Q.

Mr. T. Irving's name has long been associated with this farm, but, as a large proportion of it has been sold off for building lots, he will soon be forced to secure other property. Mr. Irving has always taken a great interest in the breeding of Ayrshire cattle, and has at the present time a good herd. He exhibited ten head at the World's Fair and secured seven cash prizes. The herd is headed by Lord Lorne 6007. Bessie Bell, Ardgaun Lass, Stately, Gipsy Queen and Nina are among the leading females.

Chickens Hatched by Steam.

The introduction of the Excelsior Incubator by George H. Stahl, of Quincy, Ill., and its improvement from time to time, marks a new era in the poultry raising industry. Built upon the best lines, fitted with improved automatic device, that never fail to accurately regulate the temperature and the moisture as demanded by the laws of nature, it can always be relied upon to hatch a much larger percentage of fertile eggs than the ordinary hatcher, at about two-thirds the cost and trouble. Another advantage that strongly recommends this incubator is the low price at which it is sold, and the high guarantee of perfection and durability that accompanies each apparatus. Those who are now engaged in poultry raising, and those who are studying its possibilities as a source of profit, will do well to send 6 cents to Mr Stahl for his catalogue. It contains much valuable information about incubators, brooders, and poultry raising in general.

Ashton Grange Farm.

This farm is situated at St. Laurent, about six miles from Montreal, the property of Wm. Tait. His father, Mr. Alexander Tait, came from Scotland over fifty years ago, and soon after located there, and, by industry and careful management, has accumulated considerable property. For many years they have kept a large herd of milch cows and delivered milk in the city of Montreal. About eighteen months ago Mr. Wm. Tait purchased a number of Large Yorkshire and Berkshire pigs. The foundation of the Yorkshires are Walker Jones' and Sanders Spencer's stock. Ashton Hero, his stock hog, secured first prize last fall in Montreal; he also got first, second and third on sows, namely, Jessie, Village Girl and Ashton Pride. In another pen we noticed two good young sows, Markham Beauty and Markham Daisy; they carried off first and third prizes in the class under six months. These he purchased from John Pike & Sons, of Locust Hill. He has ten Yorkshires breeding sows and two Berkshires, fifty young Yorkshires varying in age from ten days to two months. Among them are some promising things for the fall exhibitions.

Mr. Tait called in the office, Friday, 27th April, to change his advertisement, stating that all his young stock was sold through his advertisement in the Journal of Agriculture, and he has letters daily from parties having seen those already sold, want more of the same kind.

LEE FARM.

This farm was settled in 1797 being among earliest settlements in Stanstead County it is now in the front rank as it always has been since the early pioneers made the clearance. It is one of the fine old homesteads of Stanstead County situated only a quarter of a mile from the old village of Stanstead plain and three minutes walk from the village of Rock Island.

The spacious house built in 1810 is a model for comfort, with commodious outbuildings, stables and barns.

The Jersey herd was established about 1870 by the late Mr. Albert P. Ball, by purchases made from Mr. Romeo Stephens, of St. Lambert, who aimed to breed the best that judgment, experience and money could produce.

The quality of the cattle kept by Mr. Ball may be judged by the fact that the following animals have been owned by Lee Farm, viz.:

Ida of St. Lambert, No 24990 tested 30 lbs 2 1/2 oz. in 7 days.

Althe of St. Lambert, No 24991 tested 24 lbs in 7 days.

Cupid of Lee Farm, No 5997 tested 14 lbs in 7 days.

Besides these may be mentioned Miller and Sibley's celebrated bull Ida's Rester of St. Lambert advertised by them to stand at a service fee of \$1,000.

Now at the farm are ten or twelve grands cows, some ten heifers of all ages, with bulls and calves number upward of thirty head of registered cattle.

Dr. Ball, Son of the late A. P. Ball, is managing the farm, and breeding grades with several crosses of pure blood. The experiment has proved highly satisfactory, and shows what can be done by crossing Jersey bulls on grade cows.

Leo Farm has for sale at all times bulls, cows and heifers both registered and grade Jerseys.

A Jersey bull can do more dairy missionary work and is more benefit to a community than the same money invested in any other way.

FOR OVER FIFTY YEARS.

AN OLD AND WELL-TRIED REMEDY—Mrs. Winstow's Soothing Syrup has been used for over fifty years by millions of mothers for their children while teething, with perfect success. It soothes the child, softens the gums, allays all pain, cures wind colic, and is the best remedy for Diarrhoea. Is pleasant to taste. Sold by Druggists in every part of the World. Twenty-five cents a bottle. Its value is incalculable. Be sure and ask for Mrs. Winstow's Soothing Syrup, and take no other kind.

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All my Young Stock are Sold. I am now Booking orders for Fall Litters. I ship to order and guarantee satisfaction. Personal inspection preferred. Wm. TAIT, 3-94-01 St-Laurent (near Montreal.)

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We also are agents for Myers Cattle Food Spice, a most valuable adjunct to all stock foods and which is extensively used by the leading stock raisers of Europe and America. We carry a full line of Garden and Farm tools and Seed Drills, Wheel Hoes, Cultivators, and labour saving implements and tools of all sorts, as well as Insect and Fungus remedies and appliances. Flowering Bulbs, Plants, Shrubs and Fruit Trees.

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Price for Strawberry plants, 6 sorted varieties, 32.00 for 100. Delivered by Express. ED. A. BARNARD, L'Ange Gardien, Montmorency Co. 6-94-jno

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Cows and C-calves registered a first class in the Strub Book.—My health being impaired, I am obliged to sell most of my cattle. Terms very satisfactory for Farmers' Clubs and Agricultural Societies.

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THOMAS IRVING, Montreal, Importer and Breeder of Clydesdale Horses and Ayrshire Cattle. A very fine Clydesdale Stallion for sale. Montreal Champion 1893; Clydesdale Stud Book of Canada. Color, bay, star on forehead, hind feet, white. 3-94-12i

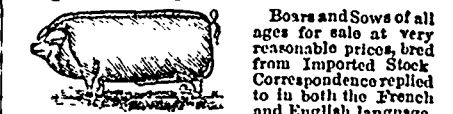
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Young stock of both sexes, sired by Silver King 6809, and Chiefstain of Barchoskie 6362, for sale at reasonable prices. Write for prices or call and see my stock.

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**SHEAR IMPORTED RAMS.**

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We lead as usual, and we have sold every spring pig

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Send in your orders for young pigs at twenty dollars

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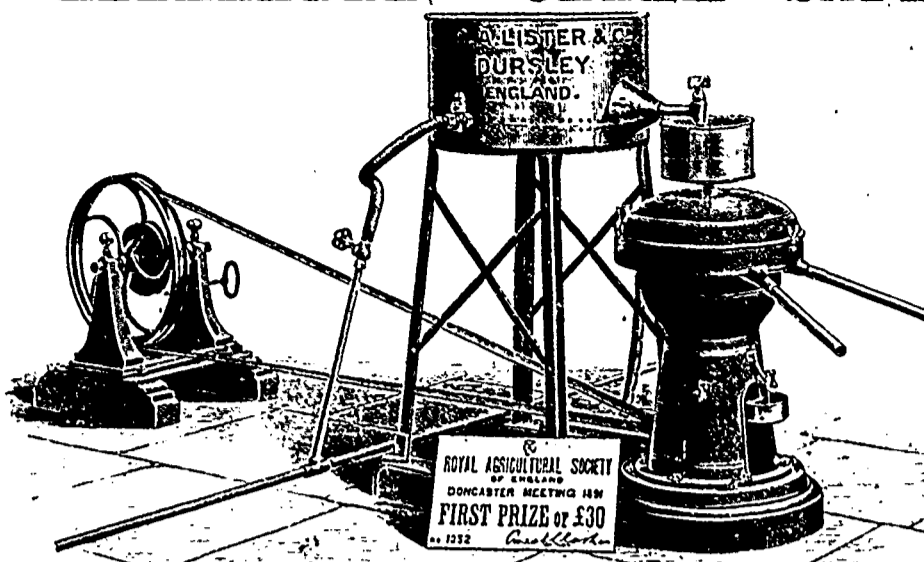
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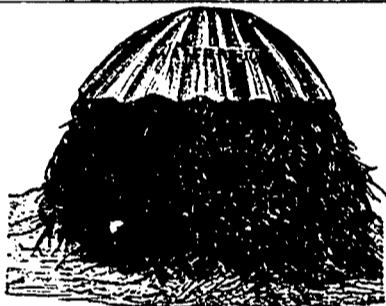
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With the improved Excelsior incubator.

Simple, Perfect, Self-Regulating. Thousands in successful operation. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other hatcher. Lowest priced first-class hatcher made.

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*Thoroughly Waterproof.*

The most practical cheap and efficient Hay and Grain Cap yet introduced—Not necessary to fasten down—Almost indispensable on grain when using a self binder. One will cover 16 sixteen binder sheaves. Vegetable and flower covers for transplanted plants. Stack covers—made in five sections—diameter at bottom 18 feet and about 6 feet deep. Send for prices and circular with testimonials, to

**SYMMES HAY AND GRAIN CO.**  
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**400 Helderleigh Fruit Farms Nurseries**

(Four Hundred Acres in Extent.)

ESTABLISHED 1882.

There is no place in Canada where the season is longer than here. Hence we get trees brought to the fullest maturity, capable of withstanding the severest cold. Having one hundred acres in fruit, from which cuttings, buds, scions, etc., are taken, I can safely guarantee the purity of my stock to be equal, if not superior, to any other nursery. The soil is specially adapted to produce vigorous, hardy trees, a grand lot of which are now growing and for sale. All the leading sorts of both old and new varieties deemed worthy of propagation. Catalogues free on application.

Agents wanted in every township.

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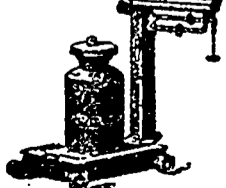
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A specialty.

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The only one on the market, which the horses can run without their walk being bridged.

It affords us great pleasure to have it known that the improvements brought to our hay press "LA CANADIENNE" have made it superior to all other horizontal presses working in the shape of half a circle. The fuller's course is 33 inches, that is from 6 to 9 inches longer than in any other horizontal press, which gives a wider opening to put the hay in and more speediness. Three men will do more with our press "LA CANADIENNE" than with any other press in the shape of a half circle, while it is much less tiresome for the horses. The materials employed are of the first quality, with the exception of two pieces of chilled cast iron, all the other parts are of steel and malleable cast iron.

We guarantee our press to work at the rate of 10 to 13 tons of hay every day without the horses being tired.

We manufacture four sizes of presses:

14 x 18	16 x 18	16 x 20	16 x 22
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We will send this press for trial to any responsible party. Write for our catalogue and list of prices.

**"LA CANADIENNE" Patented and Improved.**



The thrashing machine represented in the above engraving is our vibrating machine. It has a run of 23 inches long with teeth in steel guaranteed so that they can bend without breaking as the threshing.

The iron work that support the dills is all in wrought iron which is very advantageous and economical as any blacksmith can make it, so that all long delays are avoided.

The sieve of our vibrating machine is longer and wider than all the other machines of the same kind manufactured in Canada. This new shape facilitates the cleaning of the grain and the sieve is less exposed to spread its contents outside. We give seven passes with this sieve.

The horse power runs on cast iron rails, all the shafts of the bridge are in steel and measure 4 of an inch which represents half a line of a larger size than those employed by the other manufacturers. All the shafts in the separator, the sieve and the horse lower are in steel. We never use any iron shaft. Our machine is acknowledged to be the easiest to run and the one which lasts the longest.

Write for a catalogue and list of prices.

We also manufacture a Canvas Separator with improved Railroad Horse Power; Railroad Upright Hay Press, Rod Upright Hay Press; Straw Cutter No. 9, 11, 13; Spring Harrows, 16 teeth; a Washing Machine patented May 1892.

We want active and responsible agents in all the localities where we have none yet. Any farmer shall find it an economy and be certain to have the most improved machine in applying to us. We allow a special discount for orders sent by mail.

**J. B. DORÉ & FILS,**  
MANUFACTURERS  
**LAPRAIRIE, QUEBEC.**