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THE ILLUSTRATED  
Journal of Agriculture

Montreal, April 1, 1895.

Table of Contents

NOTES BY THE WAY:

Oats.....	67
Sugar beets.....	67
Winter-dairying.....	67
Ensilage-meeting.....	67
Stone-drains.....	67
Top-dressing.....	67
Box-feeding.....	67
Clay-farms.....	68

FARM WORK FOR APRIL:

Sowing pulse and grain.....	68
Roots.....	68
Ditches.....	68
Horses.....	68
Cows-calving.....	68
Calves scouring.....	68
Ewes and lambs.....	68
Young pigs.....	68
Pastures and meadows.....	68
Præz, a lecture by the Editor.....	68
Podding peas.....	69
Mangels.....	69
Clover-silage.....	69
Flax.....	69
Fresh and rotted dung.....	69
Spring lambs.....	69
Canada cheese.....	69
Cacaline.....	69

ADVANTAGE OF VARIETIES OF  
FARM-CROPS:

Hogs and the dairy.....	70
Tanworths—ILL.....	70

THE POULTRY YARD:

Crossing and its object.....	70
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THE GARDEN AND ORCHARD:

Annual flowering plants.....	71
The farm-garden.....	72
Canning fruits &c.....	72
Cauliflowers.....	72
Fungi and spraying.....	72

HOUSEHOLD MATTERS:—III.

Moths.....	73
Moth exterminators.....	74
Beds and bedding.....	74
"Locating" the bed.....	74
Girl's party dress.....	75
Corner closet.....	75
Dandruff.....	75

THE DAIRY:

Paying for milk by Babcock-test.....	76
Turnips and butter.....	76
The use of facts vs theory.....	76
Butter tests.....	76

CORRESPONDENTS:

S Guèrremont on sugar-beets.....	76
Moore on twice a day feeding.....	76
Mr. Kachran on do.....	76

THE FARM.

Robertson's silo-mixture.....	77
Tobacco.....	77
Facts on polish.....	77
Flax.....	78
Barn-cellars.....	78
Shaw on harrowing.....	78
Early cut hay.....	78
CENTRAL AG. SOC'S CONVENTION.....	78
M. GIGAUT'S REPORT (Continued).....	78

Notes by the Way.

**Oats.**—By a stupid miscalculation, we stated in last month's Journal, that our dear old farm tutor, Wm. Rigden, had grown 148 bushels of oats to the acre. It should have been 140 bushels, as the original phrase ran thus: seventeen quarters and a half.

**Sugar-beets.**—At the Belœil meeting of the farmers of the counties of Verchères and Richelieu, in January last, great satisfaction was evinced with the crop of beets grown in '94

and with the profits derived therefrom. But we must be allowed to say that we entirely disagree with the proposal to grow beets on raised drills. Monsieur Alfred Musy, writing in the "Journal d'Agriculture" of February last, says: "Richness in sugar will be obtained by invariably growing 30,000 beets to the arpent" about 35,000 to the acre. At what distance apart must these be set out? Should they be horse-hoed with the ordinary implement? If so, the drills must be at least 24 inches apart, or the young plants will be smothered. Will the necessary pulling down of the drills, the beets being thereby left partly naked, not render it obligatory to earth them up afterwards?

By the bye, M. Musy says in another part of his communication: "We did not dare to make any deduction on delivery for the necks, leaves, and dirt, that were sent in with the beets, though it would have been justifiable." Now, M. Séraphin Guèrremont, in a letter dated Nov. 21st, 1864, says: "The roots, weighed for the factory at Berthier, with a deduction made of 12 o/o and 15 o/o... turned out to be 35 tons." (1) Why this deduction was made M. Guèrremont does not say, and we should like to know, for it makes a difference of something like \$7.00 an arpent in the return of the crop. Any how the crop paid, and the after-crops will feel the effects of the perfect cultivation from one end to the other of the rotation. See p. 222 of last year's Journal for a fuller statement of the case: in the last line but one, for "quantity" read "quality."

**Winter-dairying.**—The campaign among the Insututes of Winter-dairying has been, we hear, very successful, particularly at those in Rimouski and Lake St. John.

The Ensilage Meeting, as it used to be called, now, "The Central Canada Agricultural Society's Convention,"—which is too long a title to be convenient—seems to have been very successful. As far as we can judge by the papers—our unfortunate deafness renders our attendance at public meetings fruitless—the general discussions appear to have been more largely developed than usual, for, unfortunately, as a general rule, one or two of these present at our agricultural gatherings seem to usurp two large a share of the talk.

Mr. Ramage's paper on "Farmyard Manure" spoke of the advisability of mixing the dung of the different kinds of stock; manuring in the fall was wiser if the manure was not ploughed in too deep. Straw should be chaffed for bedding, as it would in this form absorb more of the urine.

Professor Shutt dealt with the chemistry of farmyard manure. Humus is the decayed vegetable matter left in the soil; after decomposition, it sets free certain gases that exercise a beneficial effect as plant-food. As long as manure is kept moist, it will retain the ammonia, and, so, in the professor's opinion (and in ours) it is desirable to keep the liquid and solid manure together. The lighter the soil, the more thoroughly should the dung be rotted.

Mr. Garth, of Ste-Thérèse and others spoke on this subject. Mr. Brodie advocated the practice (an invariable one in our country) of carting the dung out into a wide low pile, making the horses draw it on to the heap, pressing it down as both cart and horse

(1) Three arpents.

pass over it. This may be seen in practice any day on the farm of the Montreal College in Sherbrooke street, where a hose is constantly kept a work in summer throwing water over the mixture to prevent "fire-fanging."

M. Perreault described the English system of box-feeding, which, in short, is this: the earth is dug out two feet, or so, deep, and divided by rails into a double row of boxes of from 6 x 6 feet, for small Canadian cows, to 8 x 8 feet for big shorthorns, a passage being kept down the middle. In each box, is a trough and a crib, the trough being moveable up and down. Litter is daily put in as needed, and the beast moving about tramps down the manure so tightly that no smell of fermenting dung is ever perceptible. It generally takes about 4 months to fill a 2-foot deep box with dung. The division rails must be wide enough apart to allow of the beast putting its head through and withdrawing it easily, as we remember losing a noble fat steer—in 1851—through his hanging himself between the division rails.

M. Perrault is mistakenly reported we hope, as saying that "the place is kept perfectly dry by means of draining," as that would do away with the chief object, as regards the manure, of this system: the urine is all retained in mechanical combination with the solid faeces, and yet the animal never shows a speck of dirt on its coat. Beast never lie down in dung if they can avoid it. As we wrote in December 1884:

"Many people, who ought to know better, fancy that this plan of box-feeding must be unwholesome. It is not so; the fermentation that takes place is so slow and stealthy (*eremacausis*) that no ammonia is evolved, and the only smell perceptible, even when the boxes are full, is the pleasant odour of linseed, always supposing that invaluable food is employed."

"When well managed, box-feeding prevents any waste, by drainage, of the most valuable parts of the manure; there is no loss by evaporation of ammonia; the manure ferments regularly and slowly; and both liquid and solid excrementitious matters, *neither of which are perfect fertilisers when applied separately*, are preserved together in the most admirable manner." v. Journal, vol. VI, p. 178.

Mr. Fisher spoke of animals doing better at large than when tied up. This is the principle of the *hamils* used in Scotland for fattening beasts, but the enormous quantity of straw required for this system renders it utterly out of the question here. Boxes, on the contrary, take up very little litter.

Sir Donald Smith remembered when the farmers of Manitoba used to throw their manure into the Red River. They don't do so now.

Professor Shutt spoke of special education in agriculture. Agriculture was the oldest of all arts, but as a science, it could only reckon fifty years from birth.

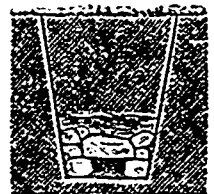
Prof. Saunders drew attention to the fact that the sugar-beet was a comparatively exhausting crop. Of course Mr. Saunders did not mean that the beet is more exhausting, *per se*, than any other root-crop, if consumed on the farm, but it is all exported, and if nothing in the way of artificial manures or foreign food is imported to supply its place, the farms on which it is largely cultivated will soon tell tales.

Canadian farmers, continued Mr. Saunders, have much to learn on the subject of manuring.

Mr. S. A. Fisher was elected President; Mr. Albert Garth, Vice president, and Mr. C. D. Tylee was re-elected secretary-treasurer for the ensuing year.

M. Gigault, Assist. Commissioner of Agriculture, described his tour in Denmark, Britain, France, and Ireland, which, as our readers know is, in course of publication in this Journal.

**Stone-drains.**—If any one will look at the out annexed, he will see at once why stone drains can only be profitably made in districts where labour is cheap and pipes dear. The difference between the weight of earth to be moved in making a stone drain, and the weight of earth to the moved in making a drain with 1½ inch pipes, is enormous. The last 15 inches of the pipe-drain being taken out with the steel semi-cylindrical spade need not be more than 4 inches wide at top and 2 inches at bottom; whereas, the bottom of the stone-drain must be at least 9 to 10 inches wide; and the selecting of the different sizes of the stones, getting them into the drains, and securely packing them, these are no slight jobs.



A STONE-DRAIN.

**Top-dressing.**—Professor Saunders, of the Government Experimental Farm, in his evidence before the agricultural committee at Ottawa, last year, referring to the loss of ammonia in dung spread as top-dressing in the summer, said: It was generally believed that if you dried manure in the sun, part of its fertilizing contents would be lost.

To ascertain whether this view was correct, our chemist dried barn-yard manure until it was quite brittle, and on analysing it he found there was practically no difference, so far as fertilizing qualities are concerned, between the dried manure and the same manure when it was fresh, showing that in drying it lost only water. Any ammonia formed at the time the drying process began would be lost by the drying, but that loss was so trifling that it made no appreciable difference in the results of the analysis. The question of leaving manure in the yard until spring, or drawing it out in the winter and scattering broadcast, was replied to as follows: "I think if the ground is fairly level it is better to set it out. It depends a great deal on the amount of slope the land of a farm has. If delayed until spring it is not always possible to get all the manure out on the ground and ploughed in in good time for sowing. Where there has been snow, the manure should be put out in moderately sized heaps. The frozen ground underneath the heaps prevents the manure from leaching, and when spread in the spring before the ground thaws, you get a more equal distribution of the fertilizing material."

As we have always practised top-dressing young seeds as well as old meadows, and found the benefit of doing so, we are glad to see the practice corroborated by theory, as of course we knew it must be after Prof. Shutt's experiment published in this periodical in 1893, p. 107. This being so, we hope the question is at rest for ever, and that we shall no longer hear

of marks being deducted from compositions for the best cultivated farms, because the farmers do not plough in all their dung.

**Clay-farms.**—According to a very learned article in a U. S. agricultural paper, it is not judicious to plough clays when they are wet! In S. E. England, we went further than that; we would rather turn the men out to play at skittles than allow them to let a horse set his foot on clay land until the exact point between wet and dry had arrived. As we currently say, in that country: a man, to farm clays properly, ought to have been born and bred on a clay-farm. But a clay-soil in England, or a carse-farm in Scotland, is a very different thing to our mild Canada clays. One or two points, however, may be considered established beyond dispute: roll after the plough before harrowing; and a good, heavy storm of rain will do more towards mouldering down clods than twenty strokes of the harrows. The finest crop of white turnips we ever grew were after tares; the land, a heavy, nasty clay on the outlying beds of the London-clay, broke up in clods as big as the horses' heads—it took 4 large horses and a *turn-rice* plough to work it—, the clods lay till quite dried through—they rang, when struck, like bricks—, a heavy rain followed, and the clods melted away after the harrows till the whole piece was like a bed of ashes.

#### FARM-WORK FOR APRIL.

As we write, March 4th, a beautiful East wind is blowing, carrying with it a heavy burden of fine snow flakes, and yet we know that within three weeks, or so, of the present date, April 1st, the fields will probably be, in this district, free from their wintry mantle, and the harrows at work covering in the seed of cereals and pulse. But, we must not forget that the work of spring seeding needs some provision, some foresight. (1) If the fine weather overtakes us with our implements all in disorder, our harrow-tines unsharpened, our plough-irons foul, with the rust of the past season of idleness unremoved, it is not unlikely that a day's work at the forge, when the work of the fields is awaiting us, may be the precursor of a week's forced inactivity at this the most momentous season of the year. For, how often have we seen, in this changeable climate, the first fine day or two succeeded by a week or ten days' rain. In 1874 or 1875, May opened brilliantly; we remember well the worrying delays caused by the rain during the following three weeks, during which no sowing could be done. At Chambly, in 1865, my good friend, Monsieur Breux, was at work in the early morning, sowing pease, on the 28th April; at 10 A. M. the rain began to pour down as from a water-cart, and not another bushel did he sow till the 1st June. So look out in time, and get everything ready.

Do not be afraid of burying your seed a little deeper than is usual here. Pease from 3 to 4 inches; wheat, barley, and oats from 2 to 3 inches. And if you stint anything on your farm do not let it be the seed. We must not forget that the worse the condition of the land, the more seed is required; and the same rule obtains as to the season of sowing: if 3 bushels of oats are thick seeding enough for an acre of land in good fettle in the month of April, 4 bushels will be none too much on poor land in the last week of May.

Tautology against—Ba.

Whether you sow by drill or by broad-cast machine, harrow well before sowing. Never scamp your harrowing.

**Roots.**—Though it is yet early days to talk about the root-crop, there may be a chance, before the end of April, to get a piece of land cross-ploughed, or grubbed, for sugar-beets or mangels. If so, do not forget to draw-out the water-furrows, lest a sharp fall of rain should come, which might lie and soak the land for ten days or more, putting back the season more than if the land had not been touched at all.

Your *ditches* you will of course have looked to as soon as the snow has melted, and see that all culverts, etc., are clear of obstruction from straw, chips, and other floating matters.

**Horses** are now to be prepared for their long campaign; better food, and moderate road-work, until the land will bear them, should be given, for nothing is more injudicious, as well as more cruel, than to plunge an idle, straw-fed horse into a rush of work. A horse thus treated rarely recovers himself all the season. Do not over-work your in-foal mares.

If you still have *cows calving* at this season, as, probably most of you have, remove the calves from their dams at once: they will do all the better and the cows will not blame after them as they do when, after a day or two together, the final separation takes place.

Scouring, in calves, generally arises from giving too much milk at once, or giving it too cool. A calf, at first, should be fed 4 times a day, and with new milk for the first ten days; then crushed linseed, steeped in boiling water, and skim-milk will do very well for rearing calves; but for veal, though linseed and oat-meal with skim milk may fat them, nothing but the cow's full milk will turn out the best butcher's meat.

**Ewes and lambs.**—If you have a few early lambs, there are in Montreal enough wealthy Englishmen who would gladly pay a fair price for a fore-quarter of good, firm lamb for their dinner on Easter Sunday—April 14th.

—When we say *firm* lamb, we mean lamb at least 8 weeks old, and 10 weeks would be better. White pease and a little oske—linseed or cottonseed—would push them along, and the ewes, too, must not be stinted of food. The importation of lettuce from the States begins so early nowadays, that there will be no lack of salad to eat with the early lamb. In England, at all events in the London market, lamb used, 40 or 50 years ago, to sell better when Easter fell about the 20th of April, than when it fell in the last week in March. In the latter case there was no salad, at least it was very dear, and imports of lettuce were unknown.

The young *pigs* need attention in the early part of this month to keep them from chills. A chilled pig never fills up as it ought to do, and the sooner it is slaughtered the less money will it lose. Keep the weanlings well from the first, if you mean them to be good bacon-hogs for England. Remember what Monsieur Gigault found to be required in that market: *long, leanish, young hogs*. It would be well to give them firm food all along, with clover, vetches, &c.; but, at all events, *finish them off on pease for the last month*.

**Pastures and meadows.**—Bush-harrow and roll both pastures and meadows. The chain-harrow is a better implement than the bush harrow, but the latter does pretty well.

A good mixture for pastures is the following:

Perennial clover.....	2 lbs.
Common red clover.....	4 "
Alsike clover.....	3 "
White clover.....	2 "
Trefoil clover.....	2 "
Lucerne.....	4 "
Timothy.....	3 "
Orchard-grass.....	6 "
Pacey's perennial rye-grass.....	10 "
	36 lbs.
	to the acre.

When the above begins to wear out, as all sown grasses will inevitably do here, the natural grasses of the country will be found taking their place. Of course, if you start by mowing for hay, the sown grasses will disappear all the sooner.

We extract the following from Dr Hoskins' paper: "The Vermont Farmer's Advocate:"

"It may be mentioned in passing that the average produce of wheat per acre in Great Britain is between 27 and 28 bushels, which is more than that of any other country in Europe, more than twice as much as the average of the United States, and about as much as twice the average of the whole of the wheat lands of the world."

We fancy the English average here given is nearly correct; at all events, it is not more than one bushel or so too low. This last harvest, according to "The Times," the yield was 31.80 bushels, imperial measure, which is equal to about 33.30 bushels United-States measure; but the quality of the crop of 1874 is very inferior; at least, so much of it as has been threshed up to date. What has still to be marketed will be better, as the frosts of February, and the winds to be hoped for this month of March, will permeate the stacks and greatly improve the quality of the grain. First-rate samples of white wheats, such as Talavera, Chidham, &c. are still worth 28s a quarter = 84 cents a bushel.

#### PEASE.

(A lecture by Arthur R. Jenner Esq.)

I was very much surprised, one day, as I was travelling on the north side of the St. Lawrence, at the sight of some very superior farmhouses, all built of squared stone, many of them three storeys high, with neatly kept yards, brightly painted *jalousies*, and with a general air of comfort and well-doing pervading the whole surroundings. These, succeeding a district occupied by poor log-houses, miserable cattle, and poverty-stricken people, naturally led me to the conclusion that the soil of the former farms was much superior to the soil of the other farms. However, to make sure, as the snow was too deep on the ground to allow me to judge for myself, I asked the driver of the mail-cart, in which I was sitting, if he could account for the wonderful difference, which I pointed out to him, between the appearance of the two lots of farms. "Easily enough," quoth he; where you see those fine stone houses, the land will grow pease; "where the log-cabins stand, it won't." And, no doubt, according to the then (1869)

prevalent ideas, he was right: in those days, it was supposed that to sow pease on light land was a mere waste of seed, time, and labour. A most erroneous conclusion, according to our present notions; for a closer study of the nature of things has led us to the conclusion that the pea is as emphatically a light land plant, as the bean is a heavy land plant. "The pea," says the correct Mr. Stephen, in his Book of the Farm, "thrives best on light land." In clay, it produces a large bulk of straw, and the production of grain depends upon the season. On light land, the straw is not superabundant, but the yield of grain is plentiful. I wonder the Scotch ever sow pease; for the constant moisture of their climate, together with the very moderate amount of sunshine they enjoy, must render the pea a very uncertain crop. In fact, I hear that, even on the borders, where *pease-bannocks*, a very hearty, though to me a most nauseous food, were commonly eaten by the peasants, a field of pease is now rarely seen.

Astonishment is often expressed by Canadians that the English labourers don't eat pease-soup. This is easily accounted for: the English pea won't melt in boiling. In Leicestershire, I believe, and near Tamworth, a few boiling pease are grown, but, as a general rule, they come out of the pot just as hard as they went in; and I know from my own observation, that the Mark Lane corn-factors buy no English white pease without previously sending a sample out to be boiled.

The use of the pea for feeding hogs is common enough everywhere; it is indispensable in the treatment of young stock of all kinds; by far the best addition to skim-milk in rearing calves is a jelly formed by boiling pease-meal with about 20% of linseed. In producing early lamb for such a market as Montreal, nothing is to be compared with the pea, as it gives consistency and firmness (tautology, I fear) to the otherwise too sappy meat.

As a rule, I think a great mistake is made in feeding hogs entirely on pease. My theory is: rear pigs on green stuff, roots, and pease until they are put up to fat; fatten them on corn-meal or barley meal, and finish them off for, say, three weeks, on pease alone. The farmer's pork, in this province, is economical but decidedly too hard for pleasant eating. I should think that hogs 18 months old would have formed all their lean meat and be firm enough without so many bushels of pease as they get here. Anyhow, there is not the least doubt, that barley or corn-meal will fatten much better than pease: Lawes proved that by most careful experiments, as long ago as 1852—v. Journal R. A. S. of England's magazine, vol. 14, part 11. I quote his conclusions:

When pigs are fed freely upon highly succulent food, such as cooked roots, the refuse of starch works, and the like, they are frequently found to give a very rapid increase. But pork, so fed, is found to sink rapidly in the salting process, and to waste considerably in boiling. And although the first batch of pigs so fed may fetch a good price, their character is at once detected, and the market closed against a second sale. On the other hand, when pigs are fattened on the highly nitrogenized leguminous seeds (1)—pease being, however, if not an exception, at any rate much less objectionable than some others—the lean is

(1) By "other leguminous seeds," Lawes means horse-beans, lentils, &c.



said to be very hard, and the fat also to waste in cooking. Common practice, indeed, has settled, that the cereal grains—barley, oats, &c.—with their low percentage of nitrogenous compounds, constitute in the long run the staple food of the fattening pig; and the whole of the results of the experiments detailed in this paper bear testimony in favour of the correctness of this decision." Another instance, by the bye, of practice having preceded scientific investigation; for many years before Lawes was born, it had been the custom of English farmers to fatten their bacon-hogs on barley-meal and skim-milk, and to finish them off on pease; a practice which the experiments of Sir John Lawes show to be founded on sound principles.

The composition of the pea is this:

(a) Water..... 14.5  
Albuminoids. 20.2  
Carbohydrates 55.4  
Fat ..... 1.7

(b) Nutritive ratio. 2:9  
Value per 100 lbs.. \$1.44  
Compared with } \$2.25  
meadow hay...1 }

In the above table, b, the value per hundred pounds — \$1.44 — must be taken for what it is worth. The calculation is from an American publication (Stewart on feeding), and is founded on timothy hay at \$21.80 a ton! I really cannot make anything useful out of the columns on columns of figures given in the new system of values of feeding-stuffs. For example: according to table b, pease are worth, first, \$23.80 a ton; but, as compared with meadow-hay, they represent a value of \$2.25; now, meadow-hay is put in the tables at 64c per 100 lbs. = \$12.80 a ton, ergo, pease should be worth \$12.80 x .25 = \$17.80 a ton. Now, I buy my pease—famous soup-pease too — at \$23.00 a ton, and best timothy at \$6.66, so the tables only succeed in perfectly stupefying me.

**Sowing pease.**—Like every other farm-plant, pease in my days were always sown broadcast. But early in the thirties, the practice of drilling them began to obtain in the south of England, though as late even as 1853, I saw farmers in Shropshire broadcasting their pease. We used to set them about 27 inches apart, and sowed thickly—about 3 bushels to the acre. As soon as they were up, the harrows were passed across the rows, they were then edge-hoed, once—a man got over about an acre a day—and the horse-hoe was kept at work until the pease "shook hands," when a single row of rape was drilled between each two rows of pease, a light dressing of bone-dust or of superphosphate (later) being hand-sown with the rape. This was for sheep-feed, after the crop was carried, and was of great benefit to the land, particularly the lighter land, on which wheat hardly ever succeeds after pease without a sheep folding. After the removal of the pea-crop, the spaces between the rows of rape, where the pease had stood, were horse-hoed once or twice, and the land was left as clean as a garden, and in beautiful tilth. Where land is managed thus, and the season is not too wet, there need be no fear of the results. There used to be in Kent a small machine attached to a one wheeled plough, by means of which beans or pease could be deposited at the bottom of the furrows; in practice, this was set to sow every third furrow, and thus, as the plough turned over a width of 9 inches in its passage, the rows of pease were at the proper distance of 27 inches.

The land should be as carefully prepared for a pea-crop as for any other. An autumn ploughing, well grubbed and harrowed, and the seed deposited 2½ or 3 inches deep, will be found to answer. My neighbour, Mr. Lavallée, ploughed in his pease last spring, and was well pleased with the result. I shall sow my pease with a single row (Mathews) garden drill, 27 apart—a man, if the land is in good state, will get over 2½ acres a day—and horse-hoe them as usual. I want to know this: You sow your beans in rows and hoe them, why not treat pease in the same way? If the quantity of seed per acre were increased, there would not be so many complaints of pease not podding. If I have time, I mean to try an acre drilled up as for mangels, sow the three bushels of pease broadcast, and cover them in with a single tine of the harrows.

**Harvesting pease.**—Whether broadcast or drilled the cutting may be done with a short-bladed scythe better than with one of the ordinary length. The old fashioned Hainault scythe answers capitally for this purpose. When dried enough, they are rolled up in bundles, bound with a drawn-out wisp of their own straw, and carried home to the barn or stack.

Canadians often mixed a few pease with their oats for seed. In England, it used to be the fashion too, but is no longer; the crop was called *maslin*, quasi *meslin*, i. e. *mélange*, from the French *mélér* to mix—formerly spelled, *mesler*. Here it is called *gabourage*, or, nearer Quebec, *goudriole* both of which words are undervivable by me, which is a bore.

**Podding-pease**, as we call them in England, are, of course, pease intended for the table. These must be sown in succession, that is to say, one early and one second early kind put in on the same day to start with, and then sowings made every fortnight or so up to the middle of June, after which time, pease are rather apt to mildew before they are fit to eat. Best sorts to sow are:

- { Bliss' *American Wonder* — quality good—a foot high;
- { Maclean's *Advancer*, ten days later than the A. W.
- { Carter's *Stratagem*—Such pods! succeeds *Advancer*.

As we remarked in February number, no good table-pease ever reach the Montreal market. This is, in part, due to the careless way in which they are gathered and packed. Pease should be gathered when young, and kept out of the sun as soon as picked; baskets are far better than sacks to pack them in, and over the top of the pease, as soon as the baskets are filled, should be placed a layer of fern, or some light thing of that sort; not fresh grass, as that would disrobe the top layer of pease.

All pod bearing plants are benefited by a dressing of plaster; in fact, we should never sow pease, beans (horse or haricot), tares, or the clovers, without a good coat of this manure on the young plant. And we should not stint it to a bushel an *arpent*, but boldly put on such a dose as M. Villa recommends, namely, from 300 to 400 pounds an acre.

The American Wonder may be sown at 24 inches between the rows; the others at, say, 27 to 30 inches; both kinds to be horse- and hand-hoed. Seed for an acre must depend upon the size of the pea: the two earlies are small and would take from 2½ to 2¾ bushels; the *stratagem* should have 3 bushels; ½ less of course to the *arpent*. We have

grown lots of pease for stock and for the table, and never sowed one acre broadcast in our life. Remember that a thick sown crop always ripens at least a week sooner than a thin sown crop, the date of sowing being the same.

If farmyard dung is to be applied to the land for the pease-crop, it is always better to plough it in the previous autumn.

As soon as the pease are marketed, grab the land, cart off the rubbish, give a light furrow, and sow 6 lbs. of rape to the acre broadcast. Turnips might be grown, but as they would come to the hoe in the middle of harvest, rape would be less troublesome as it requires no work at all from the day it is sown to the time it is consumed by the sheep. It is really too tiresome that people will not see that this is the greatest blessing to the Canadian farmer: a crop that requires no labour and yet will fatten ten sheep to the acre. Why, it is made on purpose for the poor farmer who cannot find money to pay for labour.

**Mangels.**—It will be seen from the following that the cultivation of roots has not made much progress in the States:

**"Arc mangel beets injurious?"**—I am a reader of your valuable paper and would like to ask through your paper if mangel beets would in any way harm or injure a cow giving milk, if not fed more than one bushel per day? Bryant, S. D. C. C. O.

A bushel of mangels is supposed to weigh about 50 pounds, of which 90% is water. This would leave only 5 lbs. of solid matter, not enough, of itself, to produce any bad effects. We should not care to feed so much bulk for so little nutriment, and it is possible that that may be some properties in the mangels which would make such large quantities of them objectionable. Never having fed them in this way we cannot speak from experience."

Mangels, as every one who grows them knows, ought not to be used till all the other roots have been consumed; not that young mangels are by any means injurious to stock, but because this root keeps its quality better than any other. By April, a good deal of the water has evaporated, and it has taken nothing nutritious with it. As we have often said in this periodical, the effect of feeding stock on roots is not by any means dependent on their chemical analysis.

**"Clover Silage.**—Can clover be preserved in the silo for feeding during July and August? If so, how should it be handled? We have red clover, and have also a field of Crimson sown last fall that promises a good growth this spring. Which will make the better ensilage? What has been experience in preserving green oats in the silo for feeding sheep during the early winter? Can it be successfully done, and how should the crop be handled? Or would it be better to fill the silo with corn? We should wish to use the ensilage in connection with a grain ration. R. Morris, Ill. [It is difficult, though not impossible, to preserve clover in the silo, and hence this method of caring for it has been almost entirely abandoned, and the same may be said of oats. Both are so easily cured, and so palatable either fresh or cured, that little would be gained by ensiling them. It would be far better to fill the silo with corn, curing the clover and oats. There will be no difficulty in keeping corn ensilage properly put away over into July and

August. But may it not be better to feed green oats and second growth clover in the open pasture at this time of year, rather than to cure it and save it for winter feeding, the very time when the ensilage should be used?]

Well, it is neither difficult nor impossible to preserve clover in a silo: *ecce signum*: Report of the Committee on silage-samples; Dairymen's Ass. Meeting, Sorel, 1890.

"After examining 5 samples of corn-silage, we found that M. J. Damien Leclair's sample of clover-silage was perfect! It contains much more nutriment than either of the 5 preceding samples. Its only defect is that it was not chaffed before ensiling."

We have always held that clover would make better silage than corn, if properly cut and packed; and the weight per acre, if the clover were mown thrice, say, in early June, August, and late September, would be nearly, if not quite, as great as the weight of a crop of silage-corn.

**Flax.**—If you are going to grow flax, you must not raise your expectations too high. Fine flax, i. e., fine fibre, demands very thick sowing—not less than 2½ bushels an acre—and gives but a poor yield of seed. We have grown it in England and succeeded well: our system we will describe next month. One thing must not be forgotten: *Sugar beets* and *flax* being crops that are usually sold clean off the farm, will, in combination with the export of the *cheese*, leave the farm pretty well exhausted unless manure is brought back to supply their place. The retention of the linseed will lessen the detriment, of course, but it is a tempting thing to sell.

**Fresh vs. rotted dung.**—Fresh dung is full of the seeds of weeds, rotted dung if properly worked at a sufficient temperature, has the seeds, but in an effete state.

**Spring lambs.**—March 12th, spring lambs sold for from \$2.50 to \$5.00 a head. Two years ago the best were selling for \$7.50. Eggs are down to 17 to 18 cts for fresh! *Ten calves* fetched \$9.50 the lot.

**Canada cheese.**—Mr. Everett, a well known factory proprietor, of Boston Corners, near Brockville, says that "Canada cheese is the best in the world, and the can produce just as good butter as cheese." *Finest English Cheddar*, Feb. 25th, is quoted at 70s to 72s; *Canadian do.* 50s!

**Sacaline.**—This new forage plant, from Siberia, is said to be a marvel; yields from 90 to 180 tons to the acre; 12 feet of growth by June; cattle cannot destroy it as the roots penetrate too deeply into the soil; equally productive on windy knolls and in swamps.

ANALYSIS.

Water.....	36.00 %
Organic nitrogenous matter.....	19.06 "
Fat.....	4.4 "
Non-nitrogenous extract....	24.64 "
Minerals.....	7.4 "
Phosphoric acid.....	1.57 "

"Sacaline is a new forage plant now being "boomed" by the seedsmen. We advise our readers to touch it lightly, if at all. *Rural Life* says of it: "There has been considerable agitation recently in regard to this alleged new

forage plant. A great deal has been said about it through the newspapers, and some seedsmen have been advertising it extensively. There has been, so to speak, a sort of a boom for sacaline, and farmers have been impressed with the idea that something new had been discovered that would take the place of everything else as a forage crop. Thinking that a little caution might be advisable in regard to the introduction of this plant, and knowing that the Iowa Experiment Station has made some investigations in regard to it, we wrote to Director Wilson for information. His reply was as follows: "The sacaline plant does grow on our campus. It grows 8 or 10 or 12 feet high in a year, but it has never been experimented with as a fodder plant. nor do I believe it ever will be successful in that direction. Prof. Hansen of this college, who travelled in Russia last summer, consulted Prof. Williams of the Agricultural college of Moscow concerning it. They had grown it there and tried to feed it but the principal difficulty was the cattle wouldn't eat it. There is so much talk about it that we will do some experimenting this summer. But I have no hope whatever of being able to add it to our list of forage plants." Sacaline may be all right for certain localities and for certain purposes, but a word of caution seems necessary to those who think of introducing this new plant."

#### ADVANTAGES OF A VARIETIES OF FARM-CROPS.

(Continued.)

##### HOGS AND THE DAIRY.

A most necessary adjunct to a dairy is a good piggery. No need to say that the piggery must be warm in winter and potentially airy in summer, as every child knows that. Troughs of every kind are so commonly shown in the illustrated farm papers, that the only difficulty lies in making a selection. Mills, for grinding grain by horse, steam, or wind-power, are not costly nowadays, and will save the farmer many a long journey to mill in thinly settled parts of the country. In common with all domestic stock, cleanliness is the first thing required by swine after the filling of their bellies. Pigs do not like dirt, though for coolness sake they may wallow in the mire in summer, and the proof that they do not like dirt may be seen in the careful way in which, when there is room enough, all their ordure is deposited in one corner of the sty.

**Breeds.**—Our own experience leads us to believe that there is no one perfect "all round" breed of swine. A farmer who only keeps small Yorkshires would be as unwise were he to make bacon-hogs of them, as the farmer who attempted to make West-end of London porklets (50 lbs. to 55 lbs.) from Tamworths.

Each style of pig has its own place on the butcher's block:

Small Yorkshires for roasted pork, Berkshires for pickled pork and bacon;

Tamworths for bacon;

Poland-Chinas and Chester-whites for bacon, and so on.

I have my own fancy of course, but whatever the breed, I prefer white pigs for markets demanding small pork, and would reserve the black pigs for pickled pork and bacon, and for this reason. However carefully you may scald a black pig, his skin has never the delicate appearance of a white pig. For heavy pickled pork

or bacon, a pig may be swealed, i. e. burned, with straw, but the delicate roasted pork admits of no such rough treatment.

**Profits on pig-feeding.**—No other animal converts so much of its food into useful meat as the pig. Lawes, in his experiments, found that, whereas cattle only utilised 8% of their food, the pig utilised 20% of his.

**Breeding sows.**—Of whatever breed, it is absolutely necessary that your breeding sows be not allowed to get too fat. Long, deep bodied sows, with at least ten teats—twelve are better—and of vigorous constitutions should be selected. While growing, the wash of the house, bran, and a few pease, added to all the green meat she will take, and plenty of exercise room, will be the best treatment.

Sows go with young exactly sixteen weeks; they keep their reckoning to the day, even to the hour. One service—usually a long one—of the boar is sufficient. Eight months is a fair age for the first impregnation.

When her time arrives, the sow should be put by herself in a small sty, with very little straw, and a narrow board should be fastened all round the sty about four or five inches from the floor, to prevent her lying on her pigs. Don't bother her, but let her have her own way, unless she has been foolishly allowed to get too fat.

is not properly fed and consequently becomes miserably poor, and the pigs, not being fed at all while on the sow, are driven away by the dam from the teat and have to be removed.

In England, we are in the habit of sometimes weaning half the litter, intended for bacon hogs, ten days before the rest, leaving the others to suck a little longer to push them into shape for porklets."

(To be continued.)

#### FATTING HOGS.

Food for fattening pigs has been very carefully studied during the past year at Utah experiment station, with the following results:

1. Peas mixed with bran, half and half by weight, proved to be far superior to either wheat, corn or barley, mixed and fed in same manner, both as to rapid gain and to the amount required for one pound of gain.

2. The wheat mixture comes second, with corn and barley following in the order named.

3. The pea mixture gave a gain of nearly 200 pounds more than the wheat mixture, 225 pounds more than the corn mixture, and 259 pounds more than the barley mixture.



AN ENGLISH PRIZE TAMWORTH SOW

in which case she may need assistance. Some sows take a sort of mad tura after parturition; take their young ones away from them at once, and return them when the fit is over. Don't keep a sow that brings fewer than eight at a litter.

Oatmeal gruel is about the best food for a sow during the first few days after farrowing, then she may have house-wash, skim-milk, a little barley-meal or corn meal, and grass, clover, or tares in summer, and roots in winter. I never gave suckling sows pease, as I fancy they would be too heating at first for the little ones, still, a few could do no harm, and would certainly help her individually, as they help a cow after calving.

And now the food of the young ones has to be considered. They will soon learn to share the skim milk with their dam, and when about five or six weeks old, a part of the sty should be railed off for them wherein should be placed a trough, out of the sow's reach; in this should be all sorts of tempting food, care being taken to mix the carbohydrates and albuminoids in fair proportion: ten pounds of pease and ten pounds of corn or barley-meal, is a good ration for the young pigs and with plenty of milk or whey. Wean at seven or eight weeks old. Pigs are weaned much too soon in this country, as a rule, and the reason seems to me to be that the sow

4. While the pigs averaged the same weight, it required, 89'89 of a pound more of the wheat mixture, 1.41 pounds more of the corn mixture, and 1.53 pounds more of the barley mixture to produce one pound of live weight gain, than of the pea mixture.

5. Peas and wheat proved to be excellent feed, fed mixed with bran in the manner described.

6. Reckoning pork at 4 cents a pound live weight, after deducting the cost of the bran at \$10, a ton of wheat fed in this experiment brought 89.4 cents per bushel or \$1.49 per cwt., peas \$1.70 per cwt., corn \$1.26 per cwt., and barley \$1.23 per cwt.

7. On the above basis peas should be worth 13 per cent more than wheat, while corn should be worth 15 per cent less and barley 17 per cent less.

The pigs were pure bred Berkshire, the gains, were only moderately good and not excessive. (1)

It is very clear, from what we read in Hoard's Dairyman, that the farmers of the United States do not understand how to grow pease:

"That pease are among the very finest of foods for both the milch cow and the pig needs no argument. Both of these propositions have been proved over and over again. The real point is how to get the average farmer to

(1) We fancy there is an error here.—Ed.

take hold of the question and learn to grow pease as they should be grown. When once a man starts in he should not become discouraged at lack of success in one trial, but "try and try again." We must produce more of this needed protein food on our own farms.

If they care to study the question, we shall have great pleasure in sending the Dairyman a copy of this number of the Journal, in which we have set down our own poor thoughts on the subject.

We rather think that, as a rule, bran is, relatively, a dear food for pigs. Our mixture, at the present price of grain and pulse, would be for stores:

Wheat.....	100 lbs.
Barley.....	50 "
Pease.....	25 "

with green-meat, as soon as comeatable, of course, or roots in autumn and winter, and as much skim-milk or whey as can be had. Those who like it can cook the food; we do not think it pays.

#### TAMWORTHS.

We reproduce from the London Live Stock Journal—the accompanying picture of a Tamworth sow that has taken important prizes at the Royal and various other shows in England, being generally considered, it appears, a remarkably fine specimen of the breed. Her name is Middleton Mayfly 3330, sire, Middleton Masher 2189; dam, Middleton Madcap, and she was bred and is owned by Mr. Egbert de Hamel, Middleton Hall, Tamworth.

Apropos of this portrait, we clip the following paragraph from the London Farming World, it being a reply to an inquiry about the breed from a correspondent who wrote that he was a comparative stranger to them, but saw nothing in their appearance to induce him to invest. The reply was this:

"I have been a breeder of Tamworth pigs for some time now, and find them very much liked by bacon curers and pork butchers, who find them much less entirely fat, producing much more streaky bacon than the other breeds. A Tamworth boar, used to cross any of the other pure breeds, produces an excellent bacon pig. Great pains have been taken with the breed during the last ten years or so, and they are wonderfully improved in appearance, even the tremendous length of their noses being somewhat improved. They grow and fatten very quickly, and the sows are particularly good mothers, quiet and easy to handle."

#### The Poultry-Yard.

Some crosses and what they were made for—The object in crossbreeding—Seasonable hints—Keep your male birds away from the laying stock.

(A. G. Gilbert.)

Some time ago, I promised to give your readers particulars of certain crosses which have been made at the Experimental Farm during the past three or four years, with the view of improving, if possible, on the thorough breeds at present rated as the standard breeds. Perhaps the expression—stand-

ard breeds—can best be explained, by stating that they are the thorough-breeds best known to the farmers, such as Brahmans, Cochins, Plymouth Rocks, Wyandottes, Leghorns, Minorcas and Hamburgs. And under the governing rules of the poultry standard.

#### THE CROSSES MADE AND OBJECTS AIMED AT.

The crosses made were as follows:

**Plymouth Rock Male and White Leghorn females.**—The object being to improve the size of the Leghorn, add to their hardiness and improve the egg laying of the Plymouth Rock. The cross was certainly successful in bringing out the points aimed at. The females of the cross proved good winter layers of eggs of good size, the fowls were larger in size than the Leghorn while not quite so large as the Plymouth Rock: Some of them were speckled in plumage and others white. The chickens were vigorous, healthy, and rapid growers. The hens were decidedly better layers than the Plymouth Rocks and as good as the Leghorns. The cockerels did not make as good market chickens as their parent, Plymouth Rocks, which was considered rather a serious drawback. The cross the reverse way viz: White Leghorn male and Plymouth Rock females, was not quite so satisfactory.

**White Leghorn male and Light Brahma females.**—The females of this cross turned out splendid layers of an egg of medium size. The fowls were smaller than the Brahma hens but considerably larger than the Leghorns. Plumage almost white and all the birds had more or less feathers on their legs. The cockerels made tall lanky birds with rather too much frame for a rapid flesh former. They did not make as good chickens for market as Plymouth Rock cockerels usually do.

**Plymouth Rock male and Coloured Dorking females.**—This made an excellent cross for market purposes. A cockerel of this cross made development of one pound and a quarter per month, which is certainly remarkable and satisfactory flesh forming. Further experiments are being made with the females to find out their merits as layers.

**Black Minorca male and Langshan females.**—This made an excellent cross for producing large fowls and good layers. The pullets grew rapidly, developing into fowls of large size, some showing more of the Langshan type than others and *vice versa*. They proved good layers of a richly coloured egg. The cockerels did not make as good market chickens as Plymouth Rocks, but they were an improvement on the Minorca. The females are very much admired by all who see them. They are certainly the most promising cross yet made as far as size of body and egg laying properties are concerned.

**Indian Game male and Light Brahma females.**—The pullets turned out of fairly large size and promising appearance but only moderate layers. They may do better as hens. The chickens made rather slow development. The cockerels made fair market chickens, but might have done better had they been pushed. It was thought best to allow this, as well as other crosses, to show progress under ordinary treatment rather than by pushing. The cockerels showed rather too much bony frame, to make rapid flesh formers. It has been noticed on birds

of large bone structure, that while the frame is growing it is very hard to get much flesh on it.

**Indian Game male and Coloured Dorking females.**—The pullets of this cross turned out tightly feathered, compact and solid in construction of the Indian Game shape. They promise to make hens of heavy weight. It may be said that the cross was made more with the object of producing market chickens than laying hens. However, careful note will be taken of the egg laying properties of the hens, for if a fair layer is the result with the flesh development attained, a good cross will be the result. The cockerels made fair development, rather slower than anticipated, but the flesh produced was in satisfactory quantity and of rather superior quality. Further experiments will be made with this promising cross. It may be remarked that the development of the cockerels of this cross was not so great or so rapid as the Plymouth Rock male with hens of the same breed.

#### THE OBJECT OF CROSSING.

It may be asked what is to be gained by crossing when so few results are obtained equal to thoroughbreds? It must be admitted that few crosses have been made that have proved superior to the Coloured,—or indeed any variety—of the Dorking family and few—if any—crosses have been made that have exceeded the rapid development of Plymouth Rock, Wyandotte or the heavy adult Indian Game. On the other hand it must be admitted that certain breeds have been improved as flesh formers by judicious crossing. Intelligence must be used. For instance, if we have a breed deficient in breast meat, but good in thigh development; it will likely result in improvement, if we cross with a bird large in breast meat, and may, be, lacking in what the other has in greatest quantity. It may be that the result will be a happy compromise. Much has been spoken of a cross of Indian Game and White Wyandotte, but that is an experiment yet to be made. For the production of a prolific layer the first cross has always been found best. I may have something more to say about experiment in the way of crosses in another letter.

#### SEASONABLE SPRING WORK.

The hatching out season is upon us. Indeed, those who have incubators, brooders, or brooding houses have been at work some time and no doubt have lots of chickens out. But the ordinary method of the old hen is yet most in vogue, and it should now be the duty of the farmer to select a certain number of his best layers and mate them with a vigorous male bird. If his breeding stock are two years of age he will get better results by mating a cockerel and if pullets an older bird will be best. By no means should a male bird be allowed to run with the laying stock from which eggs are gathered to sell for eating purposes. It is a matter of little difficulty to shut up a breeding pen of hens with the male bird. When sufficient eggs are obtained from the breeding pen, the cock bird should be either killed, disposed of, or shut up apart from the hens. This will take some trouble you say. Certainly it will. No satisfactory results can be obtained in any department of the farm without trouble. And certain it is that as long as the farmers allow the male birds to run with the hens at large, so long will a large number of the eggs sold by

farmers during the summer season be partially hatched, added, or of inferior flavour. And under any circumstances, the farmer should make it a rule to collect the new-laid eggs once, or twice a day, and to get them off his hands within a few days. He should remember that if through carelessness, or by accident, a broody hen is allowed to sit on a new laid, fertilized egg, if only for one night, or one day, that the flavour of that egg is ruined. The moral is to have your eggs non-fertilized; to collect them frequently, and to get them off your hands as quickly as possible.

### Garden and Orchard.

#### MONTREAL HORTICULTURAL SOCIETY

AND

Fruit Growers Association of the Provinces of Quebec.

Montreal, 12th March, 1895.

*The raising and cultivation of annual flowering plants for the garden.*

These can be obtained at much less expense and with far less attention and trouble than plants which have to be kept over and propagated from cuttings; and for the amount of bloom, and the bright appearance they give during nearly the whole flower-producing season, they well deserve to have the care bestowed on them which they require to bring them to perfection. Every one with a garden of any pretension has a corner where some of these beautiful annuals could be accommodated, and where they would well repay any attention given to them. This short paper is intended for amateurs in the flower growing line, and I will give a few plain directions of how to make a hotbed for the tender annuals (with a list of these most suitable), the manner in which the seed should be sown and the attention required in the hotbed, the transplanting of such as require it in the hotbed, and their final transplanting to where they are to remain for the season, and flower. The preparation of the soil for this as for any other crop is most important, and with good soil and good cultivation the results will be satisfactory. The hotbed may be of one or more sashes according to the number of plants required, and in any case the preparation of the material 'hot stable manure' is the same. One chief mistake amongst amateur hotbed gardeners is in commencing too soon in the season. The earlier you start the more difficulties you have to contend with; and as the greater number have other vocations during the day to attend to, courting any more difficulties than can be avoided is not to be thought of. The material generally used for hotbed making is stable manure. It should be collected about two weeks before the time for building the hotbed, thrown into a heap and allowed to heat slightly before giving the whole a turn, that is commence at one end or side and carefully mix all the material together by turning the whole pile over on to another part of the ground contiguous. In doing this, all the outside material should be placed in the centre of the pile thereby making it as uniform as possible. About the beginning of April is quite soon enough to collect the material, and in about two weeks with frequent turnings will be in a good shape to

build the bed. About two ordinary cartloads of the common stable manure usually obtainable will be sufficient for each sash of your bed. With proper turnings this will be reduced to about one common cart load by the time it is required for the bed. It might be as well to mention here that in turning over the material it may be necessary to add water to make it heat properly. There should never be any dry patches (fire-fang) allowed in hotbed material, or in fact in any material required to be used as manure, it is useless afterwards.

The material to form the hotbed being now, say about the middle of April, in first class condition, turn the whole over on to the place, making it one foot larger each way than the box to be placed on it, shaking and mixing the whole as it is put on. Make it firm with repeated taps with the back of the fork; when finished, the manure should be firm enough to carry a man without his foot sinking more than about three inches into it. This sort of a bed will not blaze up and burn every thing that will be sown in it; then ultimately you might trace the cause of all the disappointments to your seedsman, who, honest man, does not know, and should not be blamed when perfectly innocent, for the disappointments sure to follow in trying to grow seeds in a place, nine times out of ten, constructed on improved principles to kill everything of vegetable nature. Very few seeds will stand more than 90°; and almost all annuals will succeed much better if never subjected to a higher bottom heat than 75°. The soil is another consideration of some importance, not that it requires to be extra good, but light and friable being more suitable. In fact, any good garden soil will answer very well with the addition of sand if of a stiff nature to make it free and open. The quantity has more to do with success than quality, and in no case should less than four inches to six inches be used. The sorts of annuals requiring the greater heat might be sown on the part where the four inches is used, and plants of a hardier nature such as Stocks, Asters, &c., sown on the thicker part of the bed. Shading, airing, and watering being about all that is required after sowing until some of the small seedlings may require to have a first transplanting. Many plants are improved by this transplanting, giving them not only more root, but more head space. In fact, it is about impossible to produce good healthy plants of many of the different sorts of both flowers and vegetables without transplanting them. Shading the hotbed before the seedlings appear above the soil is good practice, in as much as plants do not require light to germinate, and it also has the further advantage of retaining the moisture, or at least not allowing the soil to become parched by the sun. Watering should be done only when necessary, and this done efficiently through a fine rosed watering pot as many of the small seed or plants would be washed out if done too roughly. Ventilation is also one of the imperative attentions demanded to secure success in the hotbed. It is better to err on the safe side here; as to neglect giving air for a couple of hours on a sunny fore-noon would most likely finish every thing. The giving of air less or more, according to the state of the weather must by no means be neglected.

Below is a list of tender, and half hardy annuals and plants generally used as such; followed by a list of hardy annuals which are better to be sown where they are to remain and



flower. These latter require thinning out only: as the seed is not expensive it is better to sow liberally and thin out. Many of our first favorites belong to the class of hardy annuals.

LIST OF TENDER ANNUALS AND HALF HARDY ANNUALS TO BE RAISED IN A HOTBED—VIZ.

Asters in variety	II H. A.
Balsams "	T. A.
Calendulas "	H. H. A.
Cannas "	T. P.
Carnations, Marguerite	H. H. P.
Colosias in variety	T. A.
Coxcombs "	T. A.
Dahlias "	T. P.
Dianthus "	H. H. A.
Gillardias "	II. H. A.
Globe Amaranth in variety	II. H. A.
Ice plant	T. A.
Lobelia in variety	T. P.
Maize variegated	T. A.
Marigolds in variety	T. A.
Mimulus	H. H. A.
Nasturtiums, dwarf	H. H. A.
Nicotiana affinis	H. H. A.
Pansies in variety	II H. H.
Petunias "	T. A.
Phlox Drummondii, in variety	II. H. A.
Poppy Iceland	H. H. A.
Pyrethrum	II. H. A.
Ricinus, or Castor oil plant	T. A.
Rodanthe in variety	T. A.
Stocks "	H. H. A.
Verbenas "	H. H. A.
Zinnias "	II H. A.

The above list could be enlarged but that can be left to the taste or requirements of the grower. Many of the plants mentioned are not annual, but they can be successfully treated as such, and could be ill afforded to be left out, instance pansies.

LIST OF HARDY ANNUALS TO BE SOWN WHERE THEY ARE INTENDED TO BLOOM IN WELL PREPARED GROUND—VIZ.

Alyssum in variety
Ammobium alatum
Anagallis
Amaranthus in variety
Asperula
Calendrina "
Carduus "
Catch-fly
Campanula
Candytuft "
Centranthus "
Centaurea Cyanus in variety
Clarkia "
Coreopsis "
Collinsia "
Convolvulus, dwarf
Daturas
Dianthus
Erysimum
Escholtzia
Eutoca
Fenzlia
Gillia
Godetia
Gypsophilla
Jacobias
Larkspurs
Leptosiphon
Linum
Love lies bleeding
Lupins
Malope
Mignonette
Nemophila
Nigella
Nemesia
Oenothera
Oxalis
Poppies
Saponaria
Sanvitalia
Silene
Sweet peas
Sun flowers
Venus looking glass
Virginian stock.

GARDEN OF THE FARM.

Seeds for the Kitchen Garden.—It is a good plan to order all the seeds that are wanted for the year at this season, so that they may be ready for sowing when wanted; and another advantage is, the seedsmen are almost sure to be able to supply any particular variety that may be ordered thus early in the year; but later on they are often sold out of some kinds. It is always best to depend on new seeds, although old ones of many kinds of vegetables will grow. In the following remarks on different varieties of vegetables I can only mention a few that are well known to be reliable kinds. I shall begin with dwarf beans, or French-beans, as they are often (1) termed. One of the earliest and best of these is "Ne Plus Ultra." This is of compact habit of growth, and very prolific. For main or general crop, "Canadian Wonder" is excellent, lasting a long time in good condition. These two will give a long and continuous supply of beans if sown at different times during the season. The tall or runner beans make fine objects when grown as pillars in the garden. They can be grown 5 or 6 ft. apart. "Mont d'Or," or Golden Butter beans, should always be grown, as this is so distinct from the ordinary scarlet runner beans. "Large White" is another good kind for general crop. There is a new variety, very highly recommended, which is well worth growing. It is called "Veitch's Climbing Ranner" bean. It grows about 6 ft. high, and it was awarded a first-class certificate by the Royal Horticultural Society last September. Onions: This is a very important crop, as they keep so long that it is very necessary to secure a good crop each season. One of the earliest of all is called the "Queen" onion, and although it is not one that will keep long, it is well worth growing for its extreme earliness. "White Spanish" is excellent for early autumn use, being large and of mild flavour. "Brown Globe" and "James' Keeping" will continue the supply until late in the spring. Spinach is a useful vegetable, and by making successive sowings during the summer it can be had in good condition for many months during the year. "Victoria" spinach is excellent for summer or winter supply; it should be allowed ample room, as the leaves are larger than the older varieties. Vegetable marrows: "Custard" is free-bearing, and of good flavour. "Bush or Cluster" is a useful kind, taking up little space, and producing fine dark-green fruit. "Pen-y-Byd" has almost globular fruit, which are produced very freely. Turnips: The best for an early supply is "Extra Early Milan." This we find far better than the "Early Munich," which was much grown for some years. "Early White Stone" is still excellent for main crop, and also "Red Globe." Celery: A red and a white variety of this should be selected. "Sandringham White" is an excellent kind, remaining a long time in good condition. "Leicester Red" or Major Clarke's "Fine Solid Red" are two of the best for general crop. To those who prefer a large-growing variety I would recommend "Ivery's Nonsuch Pink," and for a white grow "Wright's Giant." The two first-named varieties keep well during the winter.

J. SMITH.

Mentmore, February 7th.

(1) No one, at polite tables in England, ever asks for anything else but "French-beans!"—Ed.

Montreal, Dec. 1st, 1894.

To HON. LOUIS BEAUBIEN,  
Comr. of Agriculture, etc.,  
Quebec.

Sir:

I received instructions in your communication of the 9th of June last "to visit Ontario and the State of New-York in order to gather information on fruit culture, the fruit desiccating industry and the best means of preserving and utilizing fruits; to make a report of my observations, and include suggestions deemed proper to promote fruit culture in our province." These instructions were very general, but, after a great deal of consideration, I concluded to devote my attention more especially to the fruit preserving, fruit desiccating industry.

Canning factories for preserving fruit, etc., are established at different points in Ontario on a line between Windsor in the West to Kingston in the East. There does not appear to be any factory of importance much further north than the latitude of Toronto, and the greater number are situated at points west and southwest of that city in the great fruit growing districts between Lake Ontario and the northern shore of Lake Erie. The following is a list of the principal canning factories of Ontario: Aylmer Canning Co., W. J. Badder, Ste. Catherine, Delhi Canning Co., Erie Preserving Co., Flynn Bros. Ste. Catherine, Lakeport Preserving Co., Kingsville Preserving Co., Niagara District Fruit Preserving Co., Phoenix Canning Co., Simcoe Canning Co., Strathroy Canning Co., West Lorne Canning and Evaporating Co., W. Boulter and Sons, Picton, Belleville Canning Co., A. C. Miller and Co., Picton, Miller and Co., Trenton. The largest factories are those in the Lake Erie district, where a great variety of fruit is cultivated, such as pears, peaches, apricots, quinces, etc., which the factories east of Toronto do not appear to pre-serve to any extent because such fruit cannot be cultivated profitably or successfully in their vicinity. Therefore, as the group of Eastern Ontario factories at Picton, Trenton and Belleville, are situated nearer to our own province, where the climate is much similar to that of the District of Montreal, it appeared to me that more desirable information could be gathered on the subject mentioned in your letter, by visiting them, than those in Western Ontario. In this connection, therefore, about the end of July, I visited the town of Picton, Prince Edward County, Ontario. W. Messrs Boulter and Sons, who are proprietors there of the principal canning factories willingly gave me every opportunity to see their factory in operation. Messrs. Boulter do not now evaporate fruit, but devote their attention to the canning of fruits and vegetables, viz.: apples (quartered), pears (quartered), strawberries, raspberries, plums, blueberries (huckleberries) gooseberries, currants, tomatoes, corn, peas, beans (in the pod), pumpkins, etc., etc. When I paid my visit to their factory they were busy canning raspberries—the Cathbert and Shaffer, mixed—; the latter variety was added, they said, to give the preserved fruit a darker color and more of the flavor and appearance of the wild raspberry. I can testify to the excellent system of preserving, using fifty pounds granulated sugar to one hundred pounds of fruit. A pailful of berries was first put into a copper kettle, then half the weight of sugar, and so on, until the kettle was full; then the steam was turned on, not to cook the fruit, but only to dissolve the sugar. The fruit was then put into cans, seal-

ed, and afterwards the cans were boiled in water for about five minutes. This was all the cooking required, that the fruit might retain as much of its natural flavor as possible. At first, Messrs Boulter canned both wild strawberries and raspberries, but, owing to the difficulty of procuring sufficient quantity of them in the vicinity, they have had to make large plantations of the cultivated kinds. Last season, they had on their own place over eight acres of raspberries under cultivation. The Boulters formerly evaporated apples largely, but now they can them all, and there seems to be a large and growing demand for canned apples, which are quartered and cored, and then cooked in their own juice in the can. The crop of apples from Mr. Boulter's orchard of two thousand trees is disposed of in this way. The Duchess apple is, I believe, a favorite for canning; the Fameuse is not used, being considered too soft.

Mr. Archibald Miller, M.P., of the firm of Miller and McAuley, Picton, and Miller and Co., Trenton, is the largest evaporator of apples in Prince Edward Co. Only fall or winter apples are used for evaporating. I believe summer apples are not used, partly because there are so many other fruits and vegetables ready for preserving in August, and because they do not evaporate so profitably as the later varieties. The Fameuse is not considered a profitable variety for evaporating, but any good sour apple even seedlings or unbruised windfall that are fully matured and that do not measure less than two to two and a half inches in diameter are considered satisfactory. The prices paid for apples for evaporating range from fifteen to thirty cents per bushel. The hard and firm varieties make more product than the soft kinds. The former make 5½ to 6½ lbs. of evaporated fruit to the bushel, whereas the soft kinds only yield 4 to 5 lbs. per bushel. The apples are pared and sliced by machinery, great care being taken to extract all the core. The fruit is then run through the bleacher (an oven burning brimstone) until it is white, and then passed into evaporators. Considerable attention must be paid to prevent the fruit being burnt or colored by too much heat. A small evaporating plant costs about six hundred dollars (\$600), exclusive of building; such a plant will evaporate seventy-five (75) bushels per day, making about four hundred and fifty (450) lbs. of fruit. About fifteen hands would be required, twelve of them girls. Such a plant works by hot air.

Evaporating by steam takes more money. The plant would cost two thousand five hundred dollars (\$2,500), exclusive of building. Many farmers in Prince Edward Co. run small evaporators successfully, and dispose of their product to large dealers like Messrs. Miller and McAuley. It is in the bleaching of the fruit where skilled labor is required.

GENERAL REMARKS.

The proprietors of the Canning and Evaporating Factories in Prince Edward Co. are first of all agriculturists. They were farmers before they began to establish canning factories. As a rule they keep large herds of cattle, and, besides growing large quantities of fruit and vegetables, they contract with farmers to cultivate considerable areas of sweet corn, peas, tomatoes and fruits for their factories. It appears to me that one of the most lucrative products of the farm, and at the same time the most beneficial, is sweet corn. The canning of corn is an immense industry. One factory alone

will contract for the crop of several hundred acres. The proprietor of the factory being, as said, a farmer, knows the value of Ensilago, therefore, instead of throwing the refuse cobs and husks on the manure pile, he carefully packs them into siloes, as they come fresh from the factory. He is thus able to fatten, in connection with his canning industry, a large number of cattle every winter, principally on this cob and husk ensilage. The farmers also with whom he has made contracts obtain paying prices for the corn (about \$25 per acre), at the same time have the cornstalks for making ensilage, and therefore they can fatten a greater number of cattle than would be the case if there was no ready and convenient market for the corn. There is no doubt but canning factories in these districts are mutually advantageous both to the farmer and to the proprietors of the factories. From information I have been able to gather, I conclude that the canning of fruit is much more profitable when joined to the canning of vegetables, as the factory is thus able to begin with early fruits, going straight a head to the end of the season with vegetables and fruit as they mature in succession. I am sure that the establishment of similar factories in certain districts in this province, where fruit and vegetables may be grown cheaply, and a point where the goods may be cheaply and conveniently shipped to distant markets, would be of immense advantage to the farmers of those particular districts. We are certainly able to grow nearly if not all the fruits, and all the vegetables which are grown in Prince Edward Co., as well, and I believe, more cheaply too. It is probable also there are some remote spots in the province where the canning of small fruits might be made profitable. The canners admit that wild raspberries are more appreciated when canned than the garden or cultivated varieties. We have districts to the north and north-east where these wild fruits abound, the preserving of which could be made a profitable industry. There are also certain districts where seedling apple orchards are numerous, whose products it is difficult to dispose of to advantage, which could be made profitable if small evaporating works were established. At the same time, we must bear in mind that in this province of Quebec, the fruits growers have not yet to any extent at least been obliged to dispose of their apples (even culls) at twenty to twenty-five cents per bushel, because we do not begin to grow sufficient fruits for our own consumption. On the contrary, our friends the fruits growers of Ontario send us many more bushels of apples than we produce, and they find our city market perhaps the best in the Dominion. The evaporating factories consider twenty-five cents per bushel for apples a maximum price, and that for large sized apples from two to two and a half inches in diameter, a price that growers here consider altogether too low because they are accustomed to dispose of such fruit at better prices. Therefore I think the time has scarcely arrived to recommend the establishing of evaporating factories throughout the fruit growing districts of the province. But canning factories for fruit and vegetables could be worked in one or two districts to the great profit and advantage of both farmers and fruit growers.

I was surprised to learn of the immense importance the canning industry of Ontario has reached. The canning factories have got (like most

other large industry of the country) their combine to regulate prices. Many of the large factories export their goods to Europe, as well as to the Pacific Coast, and trial shipments have been made to Australia. The North-West Territories and Manitoba are large consumers of Ontario canned goods, and great strides have recently been made in introducing canned corn and tomatoes into Great Britain. In fact it seems to be a growing and important trade and although the proprietors of canning factories assert (like other manufacturers) there is no money in it, I was able to gather the information that one large and important factory at least, for canning fruit, was established at Toronto this season.

We have not, I believe, in the province of Quebec, a Bureau of Industries giving reports of agricultural statistics, such as they have in Ontario, showing the value of the product of the farm from year to year, and the acreages and yields of different farm crops, information which is of immense advantage to the agriculturists of that province. Without the aid of such a Bureau, we cannot estimate the extent of areas under cultivation of such crops of fruits and vegetables as are suitable for canning. The report of agricultural statistics of Ontario for 1893 gives the area in orchard and garden for the province as 199,060 acres, which shows what an enormous quantity of fruit is grown there and how valuable such an asset is for Ontario farmers. The increase of orchard area since 1889 was 16,294 acres, while grain crops, such as wheat, barley, rye, peas, have decreased in area, showing clearly that the cultivation of fruit is still considered a paying industry in Ontario.

No doubt the areas of orchards in this province have increased very considerably the last decade, but without such a bureau or official information, it is impossible to estimate the rate of increase. Our fruit growers have, until recently (in fact very recently) imagined that they cannot grow hard or winter apples. We have too many summer and fall varieties under cultivation, and too many unprofitable varieties. The Fameuse, which until a few years ago was our most profitable variety, is becoming unprofitable owing to the fungus disease. The Provincial Pomological Society is doing a good work in bringing before the notice of fruit growers the advantage of spraying to overcome the fungus, but it will be years before spraying the trees will become general, and in the meantime the growers of Fameuse here are getting discouraged. It seems to me that fruit growers who contemplate planting out new orchards should set out varieties which are not liable to spotting and which are hard and firm enough to be exported, or that may be used for canning or desiccating, so that they may always be sure of a fair return for their product. Many of the new Russian varieties of apples are admirably for desiccating or canning. But it is with in the province of the Provincial Pomological Society to recommend and instruct those who contemplate planting orchards as to what varieties to plant, and that society has here a field for disseminating a great deal of useful information.

It is not generally known that Mr. J. W. Windsor, the owner of several flourishing Lobster and Fish Canneries in New Brunswick and in Gaspé County, Quebec, has been established in Montreal canning vegetables in summer for about fifteen years. Mr. Windsor says:

"Our first pack of tomatoes only amounted to 1700 cases, (2 doz. each.) which was done in a primitive way. We were groping our way in the dark. Since that our business has grown steadily and we have adopted the most modern machinery as it came on the market. Up to the year 1889 we had but one factory in Montreal. We found our business increasing and we erected a fine building at St. Eustache, Quebec, and equipped it with the most modern machinery. Our output that year was about 30,000 cases of vegetables and fruit. Since that time, we have not increased in canned vegetables but have added many other lines to our business."

Mr. Windsor complains of the keen competition from Ontario but he also is a member of the Cannery's Combine. He goes on to say:

"Western farmers have studied the requirements of the market, and grow nice red stock, while but we have a number of good farmers here who do grow as good tomatoes as they do in the west, and I believe as good as anywhere, yet there are quite a few who have to be educated to a more careful study of the cultivation of these vegetables."

Mr. Windsor says that notwithstanding keen competition and lower prices for the manufactured article, he pays the farmer 25 cts per bushel, the same price that was paid several years ago when prices for the canned goods were much higher. No doubt he is able to do this because of the improvement in the system of canning, owing to the introduction of more perfect machinery. Mr. Windsor lately imported from Germany a machine that fastens the covers of the cans without solder, by a system of double joints which works admirably, and which so far, I believe, has not yet been introduced into the Ontario factories. The waste corn cobs and husks at Mr. Windsor's factory St. Eustache are not utilized for ensilage, but are thrown on the manure heaps. This is because Mr. Windsor is a canner or manufacturer, and not a farmer; but it seems that a large amount of valuable material for making ensilage is allowed to go to waste which the farmers in the vicinity of St. Eustache factory might utilize for feeding purposes.

Mr. Windsor recently began to manufacture Tomato Catsup. He says:

"We can produce as fine a quality as any of the United States, at a very much less cost. Our output of this class of goods this year (1894) will not be less than 5,000 cases. Formerly this business was supplied from the United States and Ontario factories. Our output of gallon (1) apples has been 1,500 cases, also plums, peaches, pears, tomato soup, and sauces."

Mr. Windsor admits that he has to bring almost all his fruit from Ontario, and that by far the larger portion of the apples canned here (viz. 1500 cases) was brought from Ontario, which goes to prove my former assertion that we not grow enough apples, or of the proper kinds for canning factories. Small, spotted fruit of which we have a large quantity, not being suitable for canning or evaporating purposes, might be utilized for making cider. Mr. Windsor concludes his communication to me thus:

"We think we should be encouraged in every possible way by the Government, as well as by the co-operation of farmers."

Owing to numerous business engage-

(1) This probably means of "gallon cans of apples."—Ed.

ments cropping up during the months of August and September,—the two months when the business of preserving of fruits is most actively prosecuted,—I was unable to visit the State of New-York, as I fully intended doing, but I am much indebted to Prof. Craig, of the Ottawa Experimental Farm, for giving me the names of several firms in that State, who are interested in the drying and evaporating of fruit, particularly the desiccating of small fruits which is an industry that does not appear to be yet established in Ontario.

I have the honor to be,

Sir,

Your obedient servant,

(Signed) R. W. SHEPHERD, JR.

## THE CAULIFLOWER.

BY FRANK GARDINER.

This vegetable is generally considered a very uncertain and unprofitable sort, so that most gardeners leave it entirely out of their pecuniary consideration. Yet, where it can be grown, it usually returns a large profit, though the growing of a crop is attended with all the uncertainty incident upon investment in a lottery ticket. The culture is, however, increasing, as gardeners are making a study of the plant's requirements, and giving it the soil and handling it demands.

The cabbage, cauliflower, kale, brocoli and Brussels sprouts, dissimilar as they are, are derived from the wild cabbage (*Brassica oleracea*), which is indigenous to the sea-coast of Europe and Great-Britain, from Norway to the Mediterranean Sea. In its wild state this plant is entirely destitute of a head, but the edible nature of its stems and leaves has been known for ages. Pliny (1) knew it, but probably only in a semi-improved state; while Rullius, in 1536, refers to a cabbage with heads eighteen inches in diameter.

Of the development of cauliflower, Vilmorin, an eminent French authority, says: "The sprouting or asparagus brocoli represents the first form exhibited by the new vegetable when it ceased to be the earliest cabbage and was grown with an especial view to its shoots; after this, by continued selection and successive improvements, varieties were obtained which produced a compact, white head, and some of these varieties were still further improved into kinds which are sufficiently early to commence and complete their entire growth in the course of the same year; these last named kinds are now known by the name of cauliflowers." But authors disagree as to which, broccoli or cauliflower, first originated from the wild plant. Vilmorin predicates his views on the coarser nature and longer season of the broccoli. That the cauliflower is an ancient vegetable is proven by the writings of Heuze, who says it was cultivated in Spain in the twelfth century. It was known in Egypt, Cyprus, Greece, and Turkey, in the early part of the sixteenth century and the close of that century saw it cultivated in England.

The cauliflower is much more extensively grown in Europe than in this country, and with much greater success there; in fact, owing to soil and climatic conditions, a crop of cauliflower is raised with as much ease, almost, and with quite as much cer-

(1) No dependence can be put in Pliny's nomenclature. He would just as soon call a cabbage a carrot as not.—Ed.



tainty as one of cabbage. Erfurt, Germany, is famous for the excellence of its cauliflower seed; the swampy land about the city is specially adapted to its cultivation, and great care is taken to produce fine heads. Water from the irrigating ditches is applied to the plants every day, and pains taken which would be impossible where labor is less cheap. Angiers, in France, sends forty car-loads to Paris every day during the season, and gardeners, in a good year, often net \$300 per acre from the crop. In the United States the consumption of this vegetable keeps so close to the supply that whoever can raise a good crop is sure of a good price. Suffolk county supplies the New-York market, chiefly, and in 1889 the crop worth \$200,000 to her growers, and the acreage has since been widely increased. The Chicago market seldom is adequately supplied, and the same is true of Philadelphia, Washington, Buffalo, Cincinnati and other cities; while the pickle factories may always be relied upon to take a possible surplus, or discoloured or malformed heads. But probably the reason of the good market is simply that growers do not quite understand the details of cultivation, and as soon as these are known the supply will force price to a lower level.

The intending cauliflower-farmer should look for a spot of strong, sandy loam. The chief requisites are fertility and moisture. Heavy clay and lightsand are unsuitable. Muck is often planted with good results. A virgin soil is especially desirable, as the growth is better than on any old land, no matter how well cultivated. The usual precaution, not to follow a crop of cabbage with another, is to be observed with cauliflower also.

The land can hardly be made too rich, and barnyard manure, well rotted or composted, is best, though commercial fertilizers are useful, to aid the formation of heads. As the original plant is a native of the sea shores, common salt is usually regarded as a help. One precaution is to be observed,—apply all fertilizers to the soil several weeks before transplanting.

The easiest way of starting the plants is to sow the seed in the open (1) ground, in drills, first preparing the bed by giving a dressing of commercial fertilizer, and raking in a light coat of lime or ashes. Set the drill to sow thinly, for seed is expensive. Sow half an inch deep and firm the soil after sowing. A very important thing is to get the seed in while the ground is fresh, and cover before it dries out. It is usually recommended to cover the bed with cloth to prevent drying out, removing as soon as the seed germinates, and also at night. Transplanting makes the plants strong and stocky, and is essential to success with early varieties; but for a late crop, by sowing thinly and thinning out, may be omitted.—*Farmer's Adv.* (2)

(To be continued)

THE SUBJECT OF FUNGI.

Professor Panton has found in his dealing with the students that knowledge can be most readily imparted through the eye, in conjunction with an explanatory talk. Charts were therefore used, showing the nature, kinds, modes of development and des-

traction of the various fungus troubles with which fruit-growers have to battle. Some general principles were given to be observed in a successful war against these most subtle enemies of horticulturists. The first was that of prevention, which we long since learned was better than cure. In this the importance of destroying all affected material was dwelt upon, such as the destroying of old dried plums, which may be left hanging in trees, bearing millions of spores to perpetuate plumb disease the following season. In this connection the importance was emphasized of burning all black knots on plum or cherry trees before the 1st of February, as the winter spores, which carry the trouble from one season to another, mature and spread from the month of February onward. Cultivation was dwelt upon as an important remedy for fungus diseases, as by it the tree or bush is kept in first-class, vigorous tone, enabling it to withstand ravages of disease with much less disastrous results than if in a weakly condition. Under this head were mentioned drainage, the addition of fertilizers, etc. The application of fungicides was the last and most directly effectual method of overcoming fungoid trouble. Bordeaux mixture was decided by the practical audience to be the great panacea for all fruit diseases, as it not only destroys the disease, but materially invigorates the foliage. A lively discussion on the subject brought out the points that Bordeaux mixture acts farther than the point of contact, as the good effects are seen over the entire tree, whereas when other applications are used, such as potassium sulphate, and copper carbonate, many spots that escape a touch of the mixture seem to have received no benefit. Several growers testified to the lasting benefit of Bordeaux mixture, as the greatest effect was often seen the second year of application, resulting largely from prevention of attacks by having done away with the disease.

IT PAYS TO SPRAY.

A paper given by Professor Craig, of the Central Experimental Farm, on the effect of fungicides in carefully conducted experiments, showed conclusively that the difference between the effects of spraying and not spraying might easily result in failure or a very successful yield. The Professor, after reading a very interesting and instructive paper, referred to a prepared chart, which showed exactly the result of spraying and not spraying. The chart was prepared from the returns of several reports of experimenters in different parts of the Province:

		1st. quality.	2nd. quality.	3rd. quality.
A. G. Russet.....	Sprayed .....	38 per cent.	35 per cent.	27 per cent.
" .....	Unsprayed.....	15 "	55 "	30 "
Baldwins .....	Sprayed .....	75 "	20 "	5 "
" .....	Unsprayed .....	25 "	75 "	0 "
Greenings.....	Sprayed .....	64 "	25 "	11 "
" .....	Unsprayed .....	8 "	35 "	57 "
N. Spy .....	Sprayed .....	53 "	40 "	7 "
" .....	Unsprayed .....	12 "	42 "	46 "
Average .....	Sprayed .....	44 "	36 "	20 "
" .....	Unsprayed.....	22 "	40 "	38 "

Prof. C. C. James, Deputy Minister of Agriculture, in a talk on the benefits of the proper care of orchards, showed that if one cent a tree could be added to the present returns of the orchards throughout the Province, \$10,000 would be the gain produced.

Now, when we notice the teaching of Prof. Craig's table, surely an increase of ten or twenty cents per tree is not too much to expect as a difference between the present returns of the apple crop and what might be obtained from a proper care, or, indeed, a very slightly improved care of our trees.

Household-Matters.

The fight between the good house-keeper, and her enemies must be sharp and sure just now, for any negligence on her part, will be followed by dire results. First, comes that little pest the moth, carrying destruction in its path, and woo to the careless people who neglect to look after their household goods. At this time of the year, they are on the look out for any article of clothing wherein to deposit their eggs, and nothing suits them better than a dark place, for they seldom touch anything hung up in the light; hence, careless people who will keep their rooms dark, and never well aired, are for ever complaining of carpets, and curtains being destroyed. If curtains are shaken and tapped all over with a stick during the spring and summer, and carpets well swept, with salt once or twice a month, the world, with plenty of fresh air, be little troubled with moth-eaten carpets. Valuable furs should at once after a good shaking, and tapping all over, be put into a bag, with a little camphor. The bag must be free from a single hole; new unbleached calico is best; sew up the sides and hem round the top, put a couple of strong loops in the centre of the hem each side, catch one of the loops through the hanging loop of the cloak or coat, drop the garment into the bag and tie the mouth securely. Do not forget you have to deal with a little creature who can creep through a pinhole almost, so look that your tying is sure. Make your bag the length of the garment, and you will find it come out uncrushed in the winter; hang it up, or put it in a chest for the summer.

Tar paper is good for packing numerous articles in boxes, but it should be put between paper as you put your clothing in finishing with some on the top; cover all over with plenty of paper and finish up with a cloth of some sort well tucked in over, also be sure to turn out all pockets and well dust them. Articles, such as mitts, over stockings and anything washable, after being washed and dried, can be put into a bag and tied up with the greatest security. A little trouble at this time of the year will save many a valuable garment from utter destruction.

one of the hospital convents have tried everything else without success, and their experience is valuable, as they have so much clothing of the sick who go there; and strangers, when dying there, often leave quantities of clothing, &c. They had a room full of feathers, which were sent there for pillow-making, and they were in despair, as they could not exterminate the moths, until they were advised to use common table salt. They sprinkled it about, and in a week or ten days were altogether rid of the moths. They are never troubled now. In heavy velvet carpets, sweeping them with salt clean and keeps them from moths, as particles of salt remain in the carpet and corners. Salt is not hurtful to anyone, and has no bad smell. Here is a little hint I add, which, perhaps, everyone does not know: For cleaning wash-basins, baths, etc., use common dry salt. Rub a little of the salt with your finger on the basin. Often a sort of scum is noticed in the basins, in a marble wash-stand, in the bath-room; the salt takes it off easily, and leaves the basin shining and clean.

Beds and bedding.—These should be looked to and cleansed at least twice a year. And just now is the time to catch, kill and exterminate that unpleasant pest the bed-bug. Now, early in the spring, before the eggs are hatched is the time to attack the foe, before it gets the mastery. Nobody likes the unwelcome task, but it must be done, and that thoroughly, or the work will have to be gone over again soon. Wash and clean, as well as you can, every part of the bed; when quite dry apply, with a feather or brush, a good dose of turpentine; do not omit the smallest crack or split in the wood, for it just in such spots they are most likely swarming. A bit of tape drawn through such places will tell you by its smell if they are there. Keep drawing the tape up and down till you have cleaned the crack, and then fill up with putty. Carbolic acid will kill everything, but people do not like to have it about the house where there are children.

Like most things, this pest can be got rid of by cleanliness, and just now when everything is coming into life, is the very time to set to work to destroy the obnoxious and cultivate the beautiful.

"Locating" the bed.—A Task Requiring the Exercise of Considerable Judgment.—There is considerable difference of opinion as to the necessity to the health of sleeping in a bed placed north and south. The old fashioned idea that the currents of electricity going from pole to pole affect the sleeper is now supposed to be a superstition.

Yet the habit that most of us have acquired of placing our beds, wherever it is possible, with the head to the north will probably cling to us. (1) One thing, however, that is of importance is that the bed should not be placed against the wall, but should be accessible on both sides. The old fashion of placing the bed in an alcove, which cannot be ventilated as well as a large room, is considered to be an unhygienic one. An excellent reason why a bed should not be placed against the wall is that the person who sleeps at the rear of the bed is likely to have his face, during sleep, so near the wall that his breath, striking the wall, will be rebreathed again.

So large a portion of existence is necessarily spent in sleep that the lo-

(1) Bosh—Ed.

(1) In a hotbed, here, and transplant into a cold-frame.—Ed.

(2) Cauliflowers should be transplanted at least twice in this hotbed and twice in the cold frame.—Ed.

I have just found another proof as to the great value of salt as an exterminator of moth, which I add to my own.

Moth Exterminator.—For moths, salt is the best exterminator. The nuns in

cation of the bed, the bed covering and bedding and the furniture of the bedroom should be the subject of consideration and thought. As it is, too often this is the last room considered. In many families a good sized closet, with no opening into the outer air, is considered good enough for a bedroom. Not only should the bedroom be thoroughly ventilated and exposed to the rays of the sun, if this is possible, but the bedclothing should be taken off and hung in the air and sun for several hours before the bed is made up. The fashion of the double bed is rapidly passing out of use. Where two persons occupy the same room two single beds, or twin beds placed side by side, take its place for two persons can rarely sleep together without one of them feeding ill effects. It is a most injurious practice for a child to sleep with an adult, but it is equally bad for a strong, vigorous child to sleep with a delicate nervous one. The stronger person may sometimes draw strength from the weaker, but usually this is reversed, and the more vigorous person is the sufferer.—N. Y. Tribune.



This sketch is taken from a little girl's party dress. It is made in cream coloured silk, the neck and lower part of the sleeve being made of figured satin; a very thin thread of gold is the only thing used in it as a trimming.

If it were made up in the same style, out of the many pretty dress goods now on offer, it would look well, and nothing can be cooler for the summer than a loosely fitting dress like this. It will take about 3½ yards of dress goods, 36 inches wide, to make it.

Notice, that a very pretty pinafore could be made by leaving out the sleeves, and the neck part.

**Treatment of Dandruff.**—Extract from a Lecture By Dr. J. H. Kellogg, of the Battle Creek Sanitarium.—Dandruff, if excessive, is a species of dry catarrh of the skin or scalp, which is characterized by the throwing off of dry, white scales too profusely. Man is a scaly creature like a fish, as is proven by the microscopical examination of the epidermis. These scales are rubbed off by the clothing and are visible upon anything black. When one takes a Turkish bath, the perspiration softens up this epidermis and the shampooing which follows takes it off, so, to a certain extent, one is skinned while taking a bath of this kind. Now this process is going on all the while and the parts which have the most attrition with external bodies, those which are most exposed, are kept the most thoroughly clean and free from this condition. For instance, we do not have these scales upon the palms of the hands

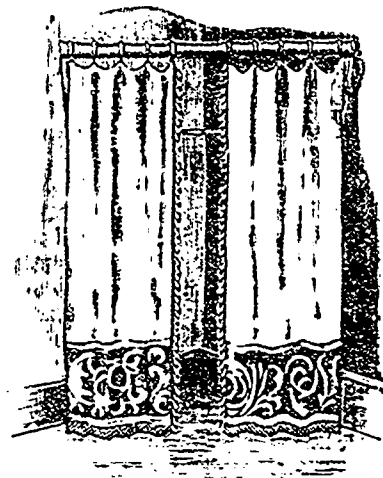
because the frequent contact of the palm of the hands with various objects keeps the dead scales rubbed off. For obvious reasons the scales upon the skin of the scalp are more liable to accumulate than elsewhere, even when the skin is healthy. When hats and bonnets are constantly worn, the scalp is so protected that though the dead scales are thrown off they are not shed and these make an accumulation of dandruff.

In this case the remedy consists in brushing the scalp—most people make the mistake of brushing the hair, when it is not the hair that needs friction, but the scalp. You will notice a barber put the hair aside with his fingers and follow the parting with his brush. In this way the scalp can be thoroughly cleansed. The scalp needs such a brushing three or four times a week in order to keep it free from the scales which are constantly being thrown off. Cleanliness will cure dandruff unless it is really a case of catarrh of the scalp. Equal parts of alcohol and castor oil, applied after a thorough shampoo, two or three times a week is an excellent remedy.—Reported by Helen L. Manning.

**A corner closet.**—How to improvise a Charming Nook for Storing Clothes.—Lack of closet room in a house is a fruitful theme for complaint in these days of contracted space. Architects there are who are willing to sacrifice every consideration, not excepting in ternal utility, for picturesque outside effects.

In such cases recourse must be had to wardrobes, but as these are expensive the busy fingers of the housewife must be depended upon to improvise substitutes. If there is a corner in the room with sufficient space (sometimes the architect denies us this small boon) it may be utilized in the manner herewith described and delineated.

Two strips of wood as long as you desire and 4 inches wide by 1 inch thick are screwed in the angle of the wall about 6 feet from the floor: boards are



A CORNER CLOSET.

out off to fit in the corner and resting on these strips; this will form the roof. A brass or wooden rod is then run across the front of this board from wall to wall and from which the curtain is suspended by rings. Crotonne chintz or printed cotton will make a good list to choose from, and are inexpensive. One may screw upon the under side of the roof and on the cleats as many hooks as are required, and, if desired, a shelf may be introduced about 15 inches below the roof, and on that attach the hooks. Such a emergency closet will often be found a great convenience, and the cost will be trifling. It will be well to stretch a piece of muslin or paper across the upper side of the roof to keep out the dust.—Vt. F. Advocate.

**PAYING BY BABCOCK TEST AT FACTORIES.**

At the present time, many are advocating the paying for milk by the Babcock test. Is it just, is it fair? Quite a number have little objection to it at the creamery, but quite a number say it is not a fair basis at the cheese factory. Now, I propose to advocate it at all factories, and to show that it is more just and equal than any other plan, and certainly will bear no comparison with the old plan so long in use, viz: paying by weight. Dr. Babcock, an eminent man in his profession both in science and chemistry, knowing the difficulties that surrounded the testing of milk, after a very careful study of the whole situation, found by taking a small sample of milk (17.50 c.c.) and the same quantity of sulphuric acid (17.50 c.c.) that the acid would burn up everything in the milk, but have no effect on the fat; the acid being the heavier of the two. In whirling the bottles the fat is forced to the top, where they, i. e., the bottles, are graduated and you can tell how much fat is in each 100 lbs of milk. This invention was given to the public free, without any patent, so that the public should thank him as benefactor. Now, since we have established the exact fact in milk we will proceed to show that milk should be paid for accordingly. Butter contains principally 2 elements, fat and water: good butter should have 85 per cent of fat in it, so that by very careful skimming and churning it is possible to make 115 lb. of butter from 100 lbs of fat, but this is rather higher than can be expected at a creamery. A good fair average is 112 to 113 lbs for the season, and as butter fat is worth 150 times as much as skim milk—a person bringing 100 of milk testing 3 lbs fat another has milk testing 4—in one case you should have 97 lbs of skim and butter-milk and in the other 96.—Then again in milk testing only 2 per cent of fat, you will only have about 2 lbs of butter, as you have the same loss in skimming and churning as you would have in 100 lbs of 6 per cent milk, in which you would have nearly 7 lbs of butter; so that paying by butter-fat at a creamery, is not exactly right, as rich milk hardly gets its just due, although it is certainly much fairer than by weight. You would hardly have such variations in milk at a creamery, but I merely bring them forward to show the sceptical the folly of their arguments.

Now, as regards the cheese factory, many hold that we have milk that has a great quantity of caseine and therefore is better suited for cheese making than butter. This argument should drop out immediately, as this cheese could only be quoted as skim-cheese: it takes the fat to give it quality. At the World's Fair in 1892 they offered a large amount of money to the breed of cattle that could furnish milk at the lowest cost for cheese-making purposes. Three breeds entered, Jersey, Guernsey, and Shorthorn. Now, for the sake of comparison, we will take the Jersey and Shorthorn; the Jersey gave the richest milk and the Shorthorn the poorest. There were 25 cows of each breed for 30 days, the Jersey milk averaged: 4.55 per cent of fat, and the Shorthorn 3.58; now it took 9.11 lbs of milk to make a lb. of cheese with the Jersey milk and 11.34 lbs. for the Shorthorn or nearly 2½ lbs of more milk to make a lb of cheese. Now selling the cheese at, say, 9c clear of all expenses, the Jersey milk would net 98.66 or, say 98¢ per 100 lbs of milk, and the Shorthorn

79½ nearly 19½ cts. of difference. Now, this is, calculating that the Shorthorn cheese was of the same quality as the Jersey, which I doubt very much. Had the milk being pooled; the price of butter fat would be 21.89 per lb. What is now the price of fat, the Jersey fat is worth 21.68 and the shorthorn 22.13 per lb. less than ½ of account per lb astray or perhaps at the very outside less than 1ct. per 100 lb of milk astray—the average by the old way of paying would be about 89c. per 100 lbs of milk—and, paying according to fat, the Jersey milk would bring 99.55 and the other 78.35. How easily it can be seen how near this is to the actual results 99.66 and 79.25. It is a well known fact that the richer the milk the better the cheese. To prove this, at the World's Fair in the October exhibit, Brome and Missisquoi took 65 medals and the rest of the Province only took 40; but there was only one lot scored 99½ points (the highest awards made) from Brome and Missisquoi, while there were 3 in the latter. (1) Do you suppose these 3 makers knew their business any better than the makers in the district of Bedford? No, I am sure they did not. Then it must have been on account of the richer milk, for it is a well known fact that the Canadian cow gives very rich milk.

Now, in conclusion, I should like to submit a synopsis of the many experiments made by Prof. Van Slyke, of the New-York Experimental Station in 41 different factories.

Months.	Fat in milk.	Green cheese per lb. of fat.
April	3.43 %	2.72
May	3.67	2.70
June	3.48	2.72
July	3.61	2.72
August	3.87	2.64
September	4.06	2.65
October	4.21	2.78

Now you will see that the greatest quantity of cheese was made out of the richest milk. But the Prof. adds that the weather and the condition of the milk, when received at the factory, and mistakes by the cheese makers, had more to do in causing variation in yield per lb. of fat than did the per cent of fat in the milk.

Now if it can be conclusively proved that paying by fat is within a cent per 100 lbs of an error, why not adopt it? As the poor milk has had the benefit of from 5 to 20 cts the last 20 years, give the rich milk, a benefit of say 1ct. and we shall certainly find a better way than at present, before the next 20 years roll around—if we pay for the poor milk the same as for the rich, the poor we shall always have with us. As I said, the rich milk at a creamery does not quite get its just due, and at a cheese factory gets say one cent per 100 lbs. at the very outside too much. Let it be adopted; as on the whole, where we make cheese during the summer and butter in winter the two will be equalized, just in about the right proportion—and perhaps when cheese buyers pay for cheese more strictly according to its quality, the dawn of better days will follow in the dairy line.

Yours respectfully,

PETER MACFARLANE,

General Inspector.

Chateaugay,  
9th March, 1895.

(1) "The latter", we presume, means the rest of the Province.—Ed.

## FEEDING TURNIPS IN BUTTER-MAKING.

We have always fed turnips in the fall and winter when making butter, and have sent our butter to Toronto, Peterboro and other markets, and have always obtained first prices for it, with the statement: "butter, first class." Since your inquiry was made I have had the opinion of an expert on our butter, and he says if I want a certificate he will give me one stating that he could detect no turnip taint, that it was very fine in make and of first-class quality.

The manner of making is this: We are very careful to have the milking attended to so that the milk shall be clean and free from anything which could in any way taint the milk, as this would be retained in the cream. As soon as possible after milking, we pour boiling hot water into the milk until it attains about 125 degrees Fahr., then we set in the common creamers or pans. The creamers we run off every 36 hours and the pans every 48 hours, and as soon as the cream is ripe or turned a little sour, we temper it to 60 degrees, and about 10 minutes before churning we dissolve a teaspoonful of prepared saltpetre in warm water and stir into the cream and then churn. We use the Dairy Maid churn, and as soon as glass is clear the butter is all right and in granules. We let it stand a few minutes and then run off the buttermilk and wash the butter in the churn until the water is clear, and then salt with fine salt, one ounce to the pound of butter.

JOHN B. STONE & SON.

As you request me to furnish your readers information as to the quantity of turnips fed, would say that I gave each cow about half a bushel twice a day, fed after milking. I have an underground, stone milk-house with stone floor. The milk keeps sweet for three days in the hottest time in summer. We use mostly shallow pans; skim every twenty-four hour; pans kept well scalded and clean; churn in the fall from 60 to 64 degrees. If I were giving each cow two bushels a day I would dissolve some saltpetre and put in the cream. I knew of hundreds of tubs of butter made in the Old Country from turnips and straw, which brought the first price at that time in the English market.

ROBERT WARE.

"Beautiful butter" can be made if the cows are allowed only a very small ration of turnips after they are milked, at first, gradually increasing the quantity. The milk was set in pans, and two or three quarts of ice cold, pure water put in the pan and the milk strained into it. The butter was beautiful; not the least unpleasant smell or taste of turnips was noticeable.

Farmer's Advocate.

S. M., Blackwood, Assa.

## A CONCENTRATED GRAIN RATION.

ED. HOARD'S DAIRYMAN. I have gleaned a great deal of information from your valuable paper, and I take the liberty of asking you a few questions. I keep one barn of 42 head, consisting of Guernsey, Jersey, Ayr-

(1) All right; but we put the saltpetre into the pail, and milk on to it.—Ed.

shire (1), and Holstein grades for milk alone, the same being sold to an institution for drinking and cooking purposes. The average yield per cow is 21 pounds per day, which tests, with Babcock, 4 0/10. The grain ration is from 8 to 14 pounds per day, in two feeds, of the following mixture, according to their power of assimilation: 150 pounds Buffalo gluten, 200 pounds best middlings, 125 pounds old process rinsed, and dry corn fodder *ad libitum*, which is about 17 pounds.

People looking through the barn remark on the good condition of the cows, and when told the ration, exclaim: What heavy feeding!

I do not consider the above to be such a concentrated mixture, and appeal to your good judgment in the matter.

I have tried all kind of mixtures, but cannot obtain as good results with any of them as from the above. I consider the oil meal as important, to keep the stomach (2) of the cow in good order, as fruit is to the human family, and the effect on cows is very manifest if I happen to be out of it for a couple of days. If you will give me your opinion on the above you will greatly oblige.

Frauningham, Mass.

N. I. BOWDITCH

We never voluntarily kick against the sharp point of a fact. With cows in good condition and yielding over a pound of butter fat per day we haven't the courage to advise any radical changes in food or care. Theoretically we should look upon the grain mixture above described, as being too concentrated for best results, and if Mr. Bowditch had reported his cows as being not quite "thrifty," or otherwise not in the best condition, we should have suspected the cause to lie in the highly concentrated form of the food. Probably, however, the dry corn fodder is cut or crushed and the meal mixed and distended with a portion of it. And, yet, we know that all animals have great powers of adaptability. They can come to accommodate themselves, by judicious training, to wide variations from their natural demands, both as regards food and drink. Perhaps Mr. Bowditch's cows, due regard having been paid to their powers of assimilation, from calf-hood to maturity, have acquired a second nature which enables them to take more concentrated food than would agree with most cows. As a general proposition we should prefer to use bran, rather than middlings, with gluten feed and oil meal, but if Mr. Bowditch has tried this and finds his present mixture to give better satisfaction we submit to the fact.

The ration above reported, even when the maximum of grain is fed, is unusually low in the digestible carbohydrates, or heat producing elements; but as an offset to this it may be said that Mr. Bowditch keeps his cows in warm, well ventilated and abundantly sun-lighted stables.

## BUTTER TESTS.

One of the most interesting features in the London, Eng., dairy show is the competition among different breeds for the Lord Mayor's gold cup and suitable money prizes. The best record ever yet made was by a Polled

(1) Mr. Andrew Dawes, of Lachine, tells us he has reverted to Ayrshires, as being the most profitable cow for his purpose, i. e., for milk and cream selling.—Ed.

Angus cow, 1, this year a Shorthorn has distanced all competition. The awards are made by points and the Shorthorn won, the points going as follows:

Shorthorn .....	140.1
Ayrshire .....	121.4
Cross or Mixed .....	119.2
Jersey .....	100.8
Red Polled .....	41
Guernsey .....	78.5

The butter tests were this year confined to the Jersey and the Shorthorn. The Shorthorn first prize winner, Mr. Merry's Beauty, a five-year-old cow, 10 days in milk, yielded 5 1/2 lb. 6 oz of milk, which churned 2 lb. 10 oz. of pale, soft butter. The gold medal Jersey, Mrs. Blackwell's Flandrine II, 9 1/2 years old, 36 days in milk, yielded 35 lb. 13 oz. of milk, which turned 2 lb. 2 1/2 oz. of good butter. Four Shorthorns made more points than the 1st prize Jersey.

## Correspondence.

Monsieur.—M. Masu says that he has only made a fair (légitime) deduction from the price of the sugar-beets (for dirt, leaves, neck, &c.). I do not know what he has done elsewhere, but at Sorol,—not speaking of my own beets—the deduction has been too great on some lots that I saw myself, and which I noted as having been carefully prepared. That such was the case is proved by the fact that the people say they will not sow any beets this season.

Tout à vous,

S. GUYERMONT.

(From the French).

M. Masu says, in his article, (v. February number of the *Journal d'Agriculture* (French edition), p. 274): A la réception, on n'osait pas leur faire une réduction, bien légitime pourtant, pour les collets, les feuilles, et la terre qu'ils livraient avec leur récolte.

## FEEDING TWICE A DAY ONLY.

Dear Mr. Editor,

I notice in your February issue of the Journal an article upon this subject and find in a foot note that you favour the idea of the farmer who feeds his cow when she is hungry. Of course this is correct but if a cow is properly fed in the morning will she be hungry at noon? I trow not. In my ramblings, I came the other day to where there was a herd of cattle fed only twice daily, and a better looking herd I seldom see, and the milkers were yielding most satisfactorily.

This question of twice feeding interested me and I questioned the proprietor Mr. W. Wilson, of Wilson's Mills, Leeds, Co. Megantic, as to his practice, and this is the substance of his reply: "I feed my cows regularly twice daily; in the morning, with good timothy hay, and in the evening with sweet corn ensilage. I study the feeding capacity of each animal and soon discover what is her sufficient ration, this she gets and no more; at noon, my cattle are all or nearly all resting and peacefully chewing their cud, and do not worry until feeding time comes again in the evening when they are on the alert for their supper,—you can judge for yourself as

(1) This cow is, of course, quite an exceptional one.—Ed.

to the success of the method." This set me to thinking, as I always like to study the "raison d'être" of all apparently successful methods.

I thought then that the natural habits of the animals under consideration as regards to feeding would be our best guide; now, if we notice, we shall see, that when we turn our cattle on to the pasture they immediately commence feeding, and at noon we find them resting in some shady spot, and not feeding again until the evening. I therefore conclude from the effect produced and the natural habit of the cow that Mr. Henry who is said to be a noted breeder, know what he was doing. Mr. Rogers makes a positive assertion on the same line, and I fail to see why the fact that Mr. Rogers' cows are kept all the time in the stable qualifies it. Then again Prof. Henry says that there are two seasons of feeding, and here comes another of Mr. Woodward's "buts": they get each time three or more rations, so that practically, they must have been eating pretty nearly all day. Now in my opinion a cow, unlike a gourmand of the human species, knows when she has had enough, or why does she lay down after eating her fill when out to pasture, where if she were so inclined she could eat incessantly? Then if we take into consideration that the cow is a ruminant, is it not reasonable to conclude that she does not require such frequent feeding as a non-ruminant? and that she has to take time to chew the cud before digestion and assimilation of her forage is complete. I offer these as a few deductions which have occurred to my mind and think that a discussion of a subject, so important in the economy of time, if nothing more, would be very useful in the columns of the Journal.

Yours faithfully,

GEO. MOORE.

SIR,

In answer to yours, I consider that feeding cattle only twice a day is contrary to both theory and experience. The digestive organs of cattle demand that food be taken into the stomach in small quantities and frequently. A very common error men fall into, in adopting the twice a day system, is to overfeed; and this same stuffing after causes indigestion and other derangements. When an animal, after such an interval as is recommended, is given as much as it can eat, distention of the rumen will naturally follow. This partially paralyses the coats of the rumen, rumination is interfered with, and, in many cases, indigestion, or even *hæmorrhage* is the result, so that, on physiological grounds, I must condemn the system.

Yours, very sincerely,

W. McEACHRAN,

M. D.; F. S.

The above letter is from Dr. Wm. McEachran, Dr. Donald McEachran's brother. The latter we saw to-day—March 15th—He told us he agreed with his brother's opinion in all points, and that: "No one who had ever watched cattle feeding in pasture or on a ranche could advise feeding them only twice a day, as it was clearly opposed to their natural habit."—Ed.

For ourself, we must say, that we prefer following the practice of all the great English feeders, a practice we always found highly satisfactory.

Ed.



The Farm.

THE ROBERTSON ENSILAGE MIXTURE.

HOW TO PLANT THE CROPS.

EDS. COUNTRY GENTLEMAN—A correspondent in a late number of your paper asks a question about the quantity of grain he should feed in combination with the Robertson ensilage mixture. The answer intimated that as no analysis of this ensilage was ever made, the required information could not be supplied. The Robertson ensilage mixture, as its name implies, was formulated by Prof. J. W. Robertson, Dominion Dairy Commissioner, and is designed to put into the silo plants of varying nutritive ratios, so that the mixture will form a complete ration without the addition of grains of a high albuminoid and fat nature. So far Prof. Robertson's efforts have been a success. The late lamented Prof. E. W. Stewart wrote me that the coming ensilage would require no additional grain or other matter to make a perfectly balanced ration.

Prof. Robertson's mixture is a combination of Indian corn, horse beans and sunflower heads. The common corn ensilage is found to be lacking in fat and albuminoids. The common horse bean, *faba vulgaris*, var. *equina*, has over twenty per cent. of albuminoids, and the sunflower, *Helianthus annuum*—the head only—has a large proportion of oil and fat.

To make a perfect mixture, the proportion should be 10 tons of Indian corn, 3 tons of horse beans, and 1 to 1½ tons of sunflower heads. In order to grow these proportions in the right quantities there should be 1½ acre of sunflowers, ½ acre horse beans to each 1 acre of Indian corn.

The statistics of a crop grown at the Ottawa Experiment Farm, with analysis, are:

	Albuminoids, lb	Carbohydrates, lb	Fat, lb
Indian corn, 2 acres, say 30 tons .....	1,092	10,302	324
Horse beans, 1 acre, say 8 tons .....	435	1,210	111
Sunflower heads, ½ acre, say 3½ tons .....	170	1,189	364
Total, 3½ acres, say 41½ tons .....	1,703	12,698	799

In the eastern provinces, the corn and beans are mixed together and planted in rows 3 feet apart, with 2 to 4 grain per lineal foot. In the upper provinces, and probably in the greater part of the United States, the corn and beans are to be planted separate. (1) The preparation for each crop is to be the same, and they may also be planted at or about the same time. The beans are to be planted in rows 2 feet apart, and from 4 to 6 grain per lineal foot or row. The corn, of course, will be planted thinner—say from 2 to 3 grains per lineal foot or row.

The sunflowers are to be planted moderately early in the spring, in rows 3 feet apart, and one plant allowed to grow in each foot of row. The heads only are put into the silo. A fair distribution of the mixture can be made at the time of filling the silo. No difficulty is experienced in this way. A man in the silo distributes the mixture as fast as it leaves the elevator. The cutter is set to cut the corn, beans and sunflower heads from one-half to three-fourths of an inch in length.

(1) The beans should be planted separately and as early as possible.—Ed.

The Robertson ensilage mixture is to be fed with 4 lb. less grain or meal per 50 lb. than with ordinary Indian corn ensilage. Prof. Robertson thinks that ordinarily it does not pay to feed more than 6 lb. rich meal to dairy cows, then 2 lb. meal would be ample to feed with the Robertson silage, and with ordinary cattle no grain is required to feed with the Robertson silage mixture—a wonderful saving and a more wonderful discovery.

J. A. MACDONALD

FROM CENTRAL CONNECTICUT.

TOBACCO-SETTERS—A NEW PLAN FOR HANGING TOBACCO—A NOVEL DRYING SHED.

EDS. COUNTRY GENTLEMAN.—On page 67 "J. I." has information about tobacco-planters, of which I made mention in some of my letters. He wishes to know where they may be procured, and "would like to hear from your correspondent as to their utility." Any dealer in agricultural implements should be able to say where and how these machines may be obtained. There are several different makes of tobacco-setters, but the principle is the same in all, and each kind does about the same work in nearly the same way. Their utility is undoubted. The tobacco-setter, up to date, is a heavy and rather clumsy-looking affair, but it is an ingenious mechanical contrivance. It is drawn by two horses, and three persons are required to manage it; one to guide the horses, and the others, two men or a man and a boy, to feed the plants. The machine is regulated to receive and dispose of plants at regular distances apart, from 16 to 24 inches, according to the variety of tobacco, and the ideas of the grower. The machine as it passes along opens a cavity in the ground, drops the roots of the plant into it, and draws the soil around them. At the same time water from a barrel carried on the machine is thrown to the bottom of the cavity, where the plant gets the full benefit of it. (1) Slow and steady horses are required; fast walkers or nervous animals are quite out of place attached to a tobacco-setter. (2)

Cabbage and other plants can be set out with as much facility as tobacco plants. The backache and weariness incident to the old way are avoided, and transplanting made tolerably easy for the driver and onlookers, but the feeders can't stop to watch the clouds. The machines cost some \$50, more or less. What is needed is a lighter and cheaper implement that small tobacco growers could better afford, and that might be easily drawn by a single horse. Here in Connecticut most of the large growers now have tobacco setters. The smaller planters who do not feel disposed to buy a machine, which they would use only a day or two in the year, can hire men who own these implements, and make a business of transplanting tobacco during the season. With the fields all prepared, they furnish everything except plants, and do the work for \$5 an acre, or less. It is worth considerably more to transplant an acre of ground to Havana than to seed-leaf.

A gentleman in Homer, N. Y., sends me some cuts which illustrate a new plan which he has devised for hanging and drying leaf tobacco. As this

(1) Water is not needed where the land is well prepared.—Ed.

(2) After setting, a man should walk along the rows and tread the plants in firmly.—Ed.

is a subject of much interest wherever leaf tobacco is produced, I will briefly describe the plan. Planks seven inches wide, one and a half to two inches in thickness and fourteen feet in length are used instead of poles in the sheds. Notches are cut out of the planks on either edge at alternate distances. Catches of sheet iron are nailed to the planks over the notches. When tobacco is hung, the stalk near the butt end is slipped into the catch, and is held in place and prevented from falling out by three sharp points. With the stalk grasped with both hands it is readily drawn into the catch. When ready for taking down, it is said one sweep of the arm will remove the stalks from the catches as fast as a man need move along the sides of the planks. The planks are adjustable as to distance apart, and may be moved into place one by one as they are filled. When not in use they may be packed away in little space, leaving the shed free for other uses if desired. By this plan the plants must all be placed at equal distances apart, and careless helpers are prevented from hanging the stalks so that the leaves can touch each other. This gives a free circulation of air around each plant, causing them to dry evenly, of uniform color, and with less danger of pole sweat. This plan is the devise of Chas. O. Newton of Homer, N. Y., who believes that his system of hanging tobacco would so improve the color and quality of the leaf as to add materially to the selling value of crops. The catches are patented. (1)

Mr. Newton has some notion about handling and curing tobacco that at least possess the merit of novelty to some extent, although similar methods have been suggested by others. After tobacco is cut and wilted, he thinks it should be laid carefully upon a low-down wagon, with spring and padded platform. When conveyed to the drying house, each stalk should be taken off in the order in which it was laid on the wagon, and handed to the man who is to hang it. Such care would prevent bruising or breakage of leaves.

A curing shed, high enough for hanging two tiers of tobacco plants, he thinks might be built quickly and cheaply by covering the sides with with heavy burlap curtains and the roof with tent cloth. Between where the curtains are fastened at the bottom and the ground, a space may be left open to permit a free upward circulation of air through all the hanging plants alike. This, he believes, will insure a better and more uniform circulation than can be obtained by open doors at sides and ends; but if such a method is preferred, the curtains can be folded back so as to leave frequent openings.

Invention are being developed, and improved methods thought out, for obtaining better results in the culture and manipulation of tobacco. The field is a broad one. Here, in Connecticut a bill is now before the legislature providing for a special appropriation of \$10,000 to the use of the State Experiment Station, a considerable part of which is to be devoted to experiments in raising and curing tobacco. Growers of tobacco cannot fail to be encouraged by the close study and attention now bestowed by scientific and practical men upon their long neglected branch of agriculture.

Hartford County, Conn.

S. B. KRACH.

(1) Worth attending to.—Ed.

FACTS FOR CANADA FARMERS.

The agricultural papers are well supplied with standing advertisements of dealers in Canada hard wood ashes, and to us at a distance the question occurs "where do all these ashes come from." Not from the marts of trade, because the fact that they are ashes indicates a large destruction of the products of the soil of Canada. They must come from the farms of Canada, but one can hardly understand why the Canadian farmers should thus sell for present advantage the fertilizing elements from their soil which sooner or later they must buy back at a much greater cost, for although the Canada ashes cost the consumer at a distance far more than their percentage of potash is worth, we are told that the price received by the Canada farmers for these ashes from collectors is very low. We once bought a car load of these ashes, which analyzed much higher than the samples now offered for sale. They were delivered to me for \$15. per ton. With the freight taken off the actual price paid to the importers was not over \$5 per ton, at which price the actual potash they contained was cheap enough. But if the importers were satisfied to get this price, for how little a sum must the Canada farmer have parted with the fertility of his soil, for the expense of the collection and storage and importation of these ashes must be very heavy. So I have figured out in my mind that the Canada farmer got not over two cents a pound for the actual potash sold in his ashes, to say nothing of the lime parted with. Now when he finds his cultivated soil getting deficient in potash as he inevitably will, he must buy back that potash at four and a half to five cents per pound. At the same time the purchaser of the Canada ashes, as now sold at a guarantee of five per cent potash pay exceedingly dear for the whistle. It looks to me like a hard bargain for the farmers on both sides of the line. The farmer on this side can buy his potash in the form of potash salts much cheaper than in the ashes, and the Canadian farmer is parting with his potash for less than half what he or his children must pay to get them back. In selling off these mineral elements of fertility, lime and potash, the farmer sell what he must buy back in some shape. We lose enough of these matters in the crops we sell, which is unavoidable, but when we add to this the sale of the products of combustion, by-products, that should go back to the land, we are burning our candle at both ends, and will reach the point of exhaustion sooner. Canada farmers as we look at it, cannot afford to sell these ashes at the price they are paid for them, and American farmers can buy their potash at vastly cheaper rates. Out of the difference the importers grow rich, while the farmers pay the bill. While we have had good results from the use of these ashes, we have become satisfied that we got the results at a far greater cost, even considering the value of the lime, than we could have got the same results by purchasing lime and potash in other forms. When these things are transported by rail long distances the freight becomes the chief item of the cost. We once freighted ten tons of a cost of \$80, and got 1200 lbs of actual potash (more than the average amount). We could have freighted 10,000 lbs., of potash in the shape of muriate from a nearer point for half the money. And this is the very point we would like to impress upon the producers of potash on the other side of the Atlantic, the immenso saving

of the cost of potash to the American farmer living far from the sea coast, by relieving him of the necessity for freighting so much useless material to get the potash he is after. They should send us more of the concentrated article, for the freight over the Atlantic is but a small part of the inland freight in very many instances.

W. F. MASSEY.

## FLAX.

*Linseed and linseed cake—Linen fibre—  
Linseed oil.*

The cotton factories having almost entirely done away with the home manufacture of linen fabrics in this province, the cultivation of flax, once prosperous, has in consequence been abandoned, and is no longer to be reckoned of any importance among our farm products. To be convinced of this, it is only necessary to look at the statistics of trade for 1893. Out of a sum of \$117,143 00 received for flax exported from Canada, the province of Quebec only figures for \$375.00.

In fact, those in this province who are engaged in the manufacture of goods derived from this plant, are obliged to import from Ontario and other provinces the greater part of their raw material. And, so, M. C. E. Dubord, of Beanport, was obliged to supply his linseed oil factory, last year, by importing 30,000 bushels of linseed from Ontario, not being able to get that much here. (1) This quantity enabled him to keep his mill going for four months, and if the raw material could have been found in the province, his mill, which can work up 200 bushels of linseed a day, could have been kept going for the whole year, and have consumed 100,000 bushels at \$1.00 a bushel.

The demand for linseed-oil and cake appears to be unlimited. The whole of M. Dubord's cake is sent to Glasgow, Scotland, at \$1.30 to \$1.60 per cental. (2)

As may be easily shown, the cultivation of flax, exclusive of the preparation of the fibre and the manufacture of linen, may be productive of profit to the farmer, and M. Dubord thinks it should be encouraged. Still, to ensure its success, our farmers must still more seriously lay to heart the necessity of taking care of their manure and increasing its production, for flax is an exhausting crop, and requires a rich well worked soil. (3)

It must be observed at the same time that growing flax would cause the production of plenty of cake, so useful as food for cows, and this would of course tend to increase our dairy-products, to say nothing of the improvement its consumption would work on the quality of their dung; for it is a well known fact that cake-fed dung is always very rich.

These few hints are enough to encourage the resumption of a crop now too much neglected. It must not be forgotten that the exportation to England of flax from Canada, last year,

(1) The cake is a by-product, and used to be thrown away, till a cow was seen to feed upon it and get grossly fat.—Ea.

(2) The quality must be wonderful to bring the latter price, as the highest quotation on the Liverpool market last month was \$23 50, while \$1.60 a cental—\$35.84 a ton of 2240 lbs. in each case.

(3) So exhausting is it, that on most of the great estates in England the tenants were forbidden by their agreements to grow it. This clause, like many others, is now expunged from the writings—there are no traces, or hardly any, in Southern England. Ea.

amounted in value to \$124,082, and of cake to \$174,143. Those goods are all ways sure of a profitable market, and it is our business to secure it.

*Journal d'Agriculture.*

*(From the French.)*

## CELLAR BARN.

Referring to *barn cellars*, a writer in the same paper says: "I am not the owner of a barn cellar, and unless I change my mind greatly, I don't care to be the possessor of one. Perhaps some one on the off side of the question will say, 'that fellow don't know what he is talking about.' I have eyes to see and ears to hear, and have the same advantage of learning by observation as those who own barn cellars. The statement has been made that a barn cellar affords a large amount of store room at small first cost which must otherwise be provided by other and more costly structures, or words that effect. Now if this statement was exactly reversed it would tell the thing just as it is. It is misleading. It is unreasonable. I have had an experience of nearly twenty years in the building business. I fancy I know a little something what such work costs compared with wood construction. A cellar built with granite walls, as most of them are, is an expensive affair and is out of the reach of the farmer of moderate means.

"Then there is another extra expense in connection with the barn cellar. The main floor is generally from four to six feet from the ground, and in order to reach this, stone-walled drives have to be built and many of them are pretty sharp grades which make extremely hard work for horses especially in haying time, when we want to load heavily. All of this is done away with when your barn sets down on the ground. The principal objection to a barn cellar is its unhealthfulness as a place for stock of any kind, whether they are kept in the cellar or the barn over it.

"Ventilate as you please you cannot make it as healthful as a barn without a cellar, and I will venture to make the statement that six out of every eight cases of tuberculosis are found in barns with cellars or basements under them, and this brings to my mind one of the points brought out at the late meeting of the Massachusetts Board of Agriculture, which was that 'Barn cellars are not desirable.' This speaks volumes against barn cellars when we stop to consider that in Massachusetts to-day the leading agriculturists are busy trying to find out the cause of so many cases of tuberculosis within its border.

"Many of the writers thus far seem to have the idea in their heads that in order to save all the dressing, both liquid and solid, you must have a barn cellar sure, no other receptacle will do. Now a more absurd idea never existed. If you save it all, what more is there to save? Use a liberal amount of bedding under your stock, as every farmer should use. Put your horse manure in the trench behind your cattle to absorb the liquid manure, then shovel it all out into warm, well lighted and well ventilated one-roofed hog sheds, running along the sides of your barn, with stone floors, and the wall planked up and down to protect the frame, with plenty of hogs to work it over and good common sense is enough to convince any one that you can save it all, and that too, at one-half the cost of the same capacity of your granite-walled cellar. Then you have no running up and down stairs, your work is all on one floor."—Ea.

## PROF. SHAW ON HARROWING.

The harrow has never been used to anything like the extent to which it ought to be in our systems of agriculture. The necessities of some of the prairie soils of the far west are compelling many farmers to do what science and good judgment should have taught them long ago. I refer to the harrowing of the grain after it has appeared above the surface of the ground. (1) Owing to the persistence with which they have grown wheat on the same lands from year to year, those lands are becoming foul with weeds. Two ways of cleaning them have been devised. The first is through the instrumentality of the bare fallow, and the second is through the free use of the harrow after the grain has appeared above the surface of the ground. The latter practice has not been resorted to very generally, but some farmers have tried it, and with results that are most encouraging.

When the grain appears above the surface, numberless weeds present themselves at the same time, and these grow to such an extent as to seriously interfere with the yield of the grain at harvest time. Those weeds, if left alone, will steal from the grain what it ought to have by way of nutriment, hence it must be injured just to the extent to which the weeds draw from the soil. Introduce a harrow of the right make at such a time. The teeth will put those weeds into a tribulation from which they will never recover. The whole surface of the ground will be so stirred that the weeds, which are shallow rooted at such a time, will be torn from their place, and in consequence will perish in the hot rays of the sunshine. Another advantage follows. The surface of the ground having been thus stirred and mounded, the dust blanket formed in this way arrests the ascension of ground moisture; that is to say, it prevents its escape, and holds it for the advantage of the crop.

This is just what THE NOR-WEST FARMER has been trying for years to impress on readers, and the soundness of the doctrine is yearly becoming more apparent.

## CONCERNING EARLY CUT HAY.

My Dear Editor:—You ask for the experience of farmers in relation to Vermont's best time for cutting hay for cows.

My experience goes back fifty years, to the time when I commenced spreading hay upon the ancestral farm. It was usual to begin haying about the middle of July, and on the average farm the season would last a month or more. I think that grass is in a condition to cut earlier now, owing to the fact that it was quite common at the time to feed meadows to some extent in spring. (2)

Farmers have learned better than this now, indeed the conditions as well as the practices are quite different from what they were then.

It was not long after I succeeded my father in the work upon the farm, which was many years ago, the earlier cutting of grass began to be considered by progressive agriculturists, and somehow I fell in with the idea, as it seems to be worthy of attention and trial. I commenced haying by the first of July, and as the farm was

(1) Some people know the benefit of this. Ea.

(2) In S. E. England, meadows are never fed after 1st February.—Ea.

only of moderate size, would get through in very good season, indeed. In this way the grass was secured when in pretty nearly its best condition for cows, young stock, and indeed for most animals on the farm.

I was laughed at somewhat and considered a "little out" in my departure from the old way; but this did not disturb me very much. The hay seemed to stand well, and the meadows were not injured for future crops by this early cutting, as some would fain have me believe. As evidence that this was the fact, nearly all of my neighbors came to me during these first years to borrow a load of hay in spring to help them out. As the years passed, these farmers became convinced that it was better to secure the hay crops earlier, until now there has to be a little hustling to see who will get into the field first.

It is my experience that the early-cut hay is decidedly the best for the dairy, and, that, with us, is what it is largely wanted for. A few days' delay in cutting will make quite a difference in the quality. I remember that one year, long ago, the crop was secured in ten days, commencing from the first of July. I calculated that during this short time it deteriorated in quality equal to one per cent a day, for dairy purpose. This may look a little strange to some, but I had substantial reasons for my conclusions.

Our crops of hay still continue to be good, which leads me to conclude that the practice of early cutting, with suitable management, is not bad for the meadows.

We always grade our hay, putting that which is wanted for particular purposes by itself. I would stimulate the meadows by proper care and manuring, to a profitable production, and would have as far as possible, a mixture of the best grasses, as timothy, red and alsike clover, (1) considering this better than either alone.

Vt. F. Ad. E. R. TOWLE.

## PROCEEDINGS OF THE CENTRAL CANADA AGRICULTURAL SOCIETY'S CONVENTION.

The Progress Made in the Theory of Farming.

Mr. S. A. Fisher, of Knowlton, Que., vice-president of the Association, occupied the chair at yesterday afternoon's session of the Central Canada Agricultural Association's convention. The attendance was larger than in the morning, and the proceedings were very interesting. Mr. T. Ramage read a paper on "Farm Yard Manure." He prefaced his remarks with an allusion to the importance of the subject. The better cattle were fed the better the direct advantages which resulted, while, indirectly also, we benefited by the improvement in the quality of the manure. In Scotland great care was taken to mix the horse and cow manure properly. Vigilance was also exercised so that none of the liquid manure should go to waste. The speaker believed that more manure was lost by evaporation than any other way. He favored manuring in the autumn and not ploughing too deep. Different farmers employed different methods of applying manure, and an intelligent man would have to consider all the conditions before adopting any particular method. In order to preserve as much as possible of the liquid manure, it was advisable to cut the straw for bedding. He did

(1) And others too, we hope.—Ea.

not favor covering the manure heap. In conclusion he summed up his remarks as follows: Save the liquid manure, mix the horse and cow manures well, let the farmer use his common sense in the application of the manure, which should not be buried so that it would not be seen again, and let the farmer feed the land well, if he

#### EXPECTED IT TO FEED HIM.

Professor Shutt, of the Central Experimental Farm, proceeded to deal with the "Chemistry of farm yard manure" The necessity of manuring, he considered, need not be discussed. It was too generally admitted. Every crop took a portion of its food from the soil, and to restore what was thus taken away fertilizers had to be used. Every farmer ought to know what was meant by nitrogen, potash and phosphoric acid, which were the essential elements of fertility. It was of these three elements that the growth of crop exhausted the land most particularly. These the manure restored to the soil, and thus it paid the farmer to use his own crops upon the farm as much as possible, as they represented actually part of his capital. The professor then described the offices performed by what is called "humus" in fertilizing the soil. "Humus" is the decayed vegetable matter which is left in the soil, and, as it decomposes, thus manuring the land, it also sets free certain gases which exercise a beneficial effect as plant food. A soil rich in "humus" was favorable to the growth of vegetable bacteria. As farm-yard manure was valuable in so far as it contained varying quantities of the essential elements mentioned, the quality of the manure depended upon

#### THE CONDITION OF THE ANIMAL,

the proportion of the horse manure to the cow manure and the manner in which the liquid manure was preserved.

By means of tables, the professor showed the proportions of potash, nitrogen and phosphoric acid in liquid and solid horse and cow manure respectively. He showed that sheep manure was the richest in all the essential elements.

He next explained the purposes of litter. The first of course was to keep the animal clean and comfortable; the second, to absorb and preserve the liquid manure. The absorbing capacities of different kinds of litter varied. But that was not the only consideration. The greater the amount of nitrogen in the food given to an animal, the richer the manure. If an animal were kept down to minimum rations, the quantity of manure is small. If the minimum refers to the quality of the food alone, the manure will be still inferior in quality and quantity. The richest manure was produced by adult animals at rest and not giving milk. It was very unwise to put the manure heap under the eaves of the barn. Whenever a storm occurred, the rain swept off the roof on the pile and washed away gradually all the liquid manure. For one thing the plant food in it was more readily soluble than in the solid. In the fluid which ran through the sewer pipes, polluting our streams and our drinking water, there were a great many valuable fertilizing agents which could be utilized if the sewage was directed in the proper way. The bad smell and smarting sensation which sometimes assailed our noses and eyes in badly-kept stables indicated that the ammonia in the manure was fermenting and escaping with the nitrogen in

it. This resulted from the drying of the manure. As long as the manure was moist it

#### WOULD RETAIN THE AMMONIA.

It was therefore desirable, in the professor's opinion, to keep the liquid and solid manure together. On a light soil the manure should be supplied in a partially rotted condition. Frequent and light applications were preferable to other methods.

Mr. Brodie asked what fertilizing qualities were retained in manure that had fermented, (1) and was informed that the nitrogen had disappeared, but the other elements remained. Cow manure did not ferment so readily as horse manure on account of the presence of water in larger quantities.

Mr. A. E. Garth, Ste. Thérèse, stated that he had covered the manure in his pit, with good results, and he recommended the practice.

Prof. Shutt said that it depended upon circumstances. A large amount of the ingredients of manure were soluble and would be washed away by water. In a rainy climate or locality therefore it would undoubtedly pay to cover the manure. But in some places they did not have enough moisture, and under such circumstances a covering was no longer necessary, except to protect against drying out winds.

Mr. R. W. Shepherd wished to know if it was a better plan to cart the manure out into the fields in large heaps, than to leave it in the barnyard.

The professor said it depended upon circumstances; but the consensus of opinion, he thought, was against the practice of carrying out large heaps to the fields. The distribution was uneven. Spreading manure over the snow retarded ploughing. (2) Besides, the heavy spring rains, which occurred often before the frost had come out of the land, frequently washed out the liquid manure and carried it off.

Mr. Robert Reford asked if the manure should be thrown into a pit on top of the liquid.

The professor replied that he would puddle the bottom of the pit well and then cover with a layer of sun dried clay. The liquid and solid manure could then be kept together. This was advisable in

#### A CLIMATE LIKE OURS

for reasons already explained.

Professor Craig expressed himself in favor of the application of green manures whenever practicable as being a saving of labor. (3)

Mr. Brodie said he found the best way to keep manure from fire-fanging was to make a wide low pile by getting teams to go over it, pressing it down as they went.

Mr. Fisher said he used two-thirds of his horse manure to bed his hogs. He regretted that he could not get more manure from his hogs than he did, and he thought that the regret was shared by a good many farmers.

In reply to a question Prof. Shutt said that in Germany it was the practice not to remove the old litter each day; but to add fresh, all through the winter, so that in spring the animal had sometimes as much as four feet of solid compact matter under it, which cut just like cheese. Strange to say,

(1) Over-fermented, Mr. Brodie means fire-fanged.—Ed.

(2) Quite right; but where roots are grown, large mixens, treated as below by Mr. Brodie, should be made.—Ed.

(3) We hope Mr. Craig means fresh or recent manure; not ploughing in green crops that might be eaten by stock.—Ed.

the animals never suffered. That would not do in Canada

Mr. McBean also discussed the question of having the animals trample the manure during the winter.

M. Perrault described the English system of box feeding. The animal is put into a large box, and fed there during the winter. In time the box is filled with perfect manure and the animal has not suffered, the place being kept perfectly dry by means of draining.

Mr. Fisher related a case where animals which had been given freedom during the winter had given better results than those which had been tied up.

The session adjourned until the evening.

#### Evening Session.

Several ladies were present at the evening session, attracted no doubt by the interesting programme which had been prepared and the hall was crowded when the proceedings opened. First of all Mr. C. D. Tylee, the energetic secretary of the Association, put in a few words upon behalf of that body. He mentioned the advantages which membership offered, and explained the desire of the Association that as many life members as possible should be enrolled, so that the exchequer might receive a needed benefit. The life membership fee was ten dollars. The society offered prizes to the amount of \$25 for competition among members in essay-writing upon agricultural subjects.

Sir Donald Smith, who was warmly applauded, was then called to the chair, and delivered a brief opening address. He expressed his gratification at seeing so many ladies present and hailed it as an encouraging sign. He thought that the value of such associations as the Central Canada Agricultural Association could not be too highly estimated. Sir Donald could look back upon fifty years or so of Canada's agricultural history and could recall the erroneous ideas which had prevailed then among farmers, ideas which such societies as the present had done so much to eradicate. He remembered when the farmers of Manitoba were so much addicted to the practice of throwing their manure into the Red River, that the Legislature had had to

#### PASS A LAW TO STOP IT.

The farmers knew better now, and no law was necessary to keep them from wasting their manure. Sir Donald alluded particularly to the progress the Province of Quebec was making, especially in the dairy industry. He had no doubt that the Association's call for additional life subscriptions would be warmly responded to, and that they would soon be able to increase the modest amount which they offered this year for competition among members.

Professor Shutt then spoke upon the necessity of special education in agriculture. All true progress depend upon the acquisition and the application of knowledge. It was true of every profession and occupation, and of the agriculture as well as any other calling. True progress included the elevation of the standards of true citizenship, mental culture and individuality. He would consider knowledge, that evening, under two heads, theoretical and practical. It was on a combination of the two branches that success in agriculture depended. Canada was essentially an agricultural country, and his hearers, city residents many of them, were interested in the

subject of his address, as one of common interest, Canada was a fertile country, and had a fertile virgin soil, favored by climate and other essential elements. The population was sparse. The people were sparing and industrious. With all these advantages, education was necessary to enable them to avail themselves thereof. Hitherto the theoretical side of the agricultural art had been too much contemned. Practical farmers were inclined to sneer at any knowledge that was not practical. Now if Canadian farmers were to take their proper place among the agriculturists of the world, a more diligent study of the

#### THEORY OF FARMING

was demanded. *Tempora mutantur, nos et mutamur in illis*; and Canadians should recognize that the methods which had succeeded in the past would have, in some instances, to be modified to meet altered conditions. The farmer was an agent who used the forces of nature with skill—and without skill, and it was in proportion to his skill in directing the forces at his command that he would succeed at his calling. Agriculture was the oldest of all the arts; but, as a science, it was only about fifty years old. The "science" of agriculture was made up of chemistry and botany, and others of the "exact" sciences. The science of agriculture taught economical farming. Economy did not mean parsimony; it meant getting the most out of the things placed in our hands. The professor then showed how science had made discoveries which could be applied to the utilizing of many substances hitherto neglected, especially in direction of improved, and more economical methods of fertilization. He referred also to what had been achieved in connection with the dairy industry. He next pointed out that we were far behind European agriculturists in the theory of farming. We did not understand how to apply scientific knowledge to the improvement of our farms. How different was it in European countries where the universities had in many cases placed agricultural courses upon the same footing as classical and scientific courses, a clear proof that there the pursuit of agriculture was not looked upon as derogatory, but as ennobling as any of the other callings of life. In order to reach that happy position here, we should commence by endeavoring to have courses on agriculture established in our schools. Elementary text books in chemistry, biology, physiology and botany should be placed in the hands of our youth, and thus a prosperous future might be arrived at.

Mr. Saunders took occasion to draw the attention of those present to the fact that the sugar-beet is a comparatively exhausting crop. Fifteen tons of sugar beet take from the soil 71.85 pounds of nitrogen, 28.80 pounds of phosphoric acid, 135.90 pounds of potash of fertilizing constituents valued at \$21.02 as compared with from \$9.17 to \$10.16 worth of constituents extracted from the soil of an acre of ground by the grain crops.

The lecturer drew attention to the fact that the farmer cannot afford to sell any of the fertilizing constituents of his farm. There is much for Canadian farmers to learn in connection with this question of manuring. Canada could learn from Britain in this respect. There land has been under cultivation for 1200 years and can yet produce double the quantity of wheat and oats as can be produced on Canadian soil. This is simply because our farming has not been as careful as it



is in England. In Britain they keep more than double the number of cattle and sheep to the acre than we do in Canada and annually import over 400,000 tons of artificial fertilizers. The English farmer realizes the fact that if he feeds his soil it will feed him, and the soil is the very foundation of agriculture and of national wealth.

The election of officers of the Central Canada Agricultural Association took place this afternoon. Mr. S. A. Fisher, of Knowlton, was elected president; Mr. Albert Garth, vice-president, and Mr. C. D. Tylee, secretary-treasurer (re-elected).

**REPORT OF MM. G. A. GIGAUET AND J. D. LECLAIR.**

(Continued.)

In 1893 England imported over fifty-five millions of dollars worth of bacon and ham, which brings that importation up to a figure almost equal to that of butter.

IMPORTATION OF BACON IN ENGLAND IN 1893

Country whence Imported.	Cwts.	Value.
Russia .....	16,823	£ 43,947
Sweden .....	65,339	163,693
Denmark .....	711,871	2,148,138
Germany .....	9,741	29,890
Holland .....	24,679	69,599
United States of America .....	2,177,293	5,523,447
Other foreign countries.....	2,405	5,887
Canada.....	193,773	495,166
Other British Possessions.....	17	48
Total.....	3,198,887	£8,479,815
Equivalent to .....	\$11,681,433.00	

IMPORTATION OF HAY BY ENGLAND IN 1893.

Country whence Imported.	Cwts.	Value.
Denmark .....	7,270	£ 23,161
Germany .....	1,116	1,841
Spain .....	118	992
United States of America.....	920,961	2,686,613
Other foreign countries.....	299	2,435
Canada.....	57,780	172,148
Other British Possessions.....	7	29
Total.....	998,111	£2,890,252

	Cwts.	Value in £.	Value in \$.
Importation of Bacon.....	3,198,887	8,479,815	11,368,133.00
Importation of Ham .....	988,411	2,890,252	11,065,893.07
Total.....	4,187,298	11,370,067	22,434,026.07

IV.

APPLES.

In 1893 we exported to England 482,957 bushels of apples, valued at \$747,539.47. The total importation of apples the same year by England was 3,459,984 bushels, of which 1,010,440 were furnished by Belgium alone. This latter country increases every year its exportation of apples to England. They, there, encourage the cultivation of fruit-bearing trees, not only to increase their agricultural productions, but also to make the appearance of the rural districts more attractive, and thus create a love for a country life.

Our apples are held in great esteem in England and we could increase considerably our exportation thither. This year, the fruit crop in that country promises to be slight, and the consequent demand for Canadian apples will be large. Our "fameuse" apples, the excellence of which we know, are nevertheless not much sought after by the traders, because their very tender texture is liable to be bruised in the transportation. An auctioneer, who

had often sold them, recommended that they should be sent in small boxes placed in large cases, somewhat like those used for oranges. Tomatoes, shipped by vessel from Spain, which we saw packed in this safe manner, were in a perfect state, although quite ripe. If our "fameuse" apples could be thus delivered on the English market, and without any bruising, there is no doubt they would there command a high price. They want apples sufficiently large and of good quality and appearance. They should be tightly packed in barrels, and attention should be paid in the filling of each barrel to only put in apples of the same size. The small apples should be entirely put aside, when it is a question of exportation, for they can only command an insignificant price. Our apples should be shipped, at latest, in October, before the close of navigation.

The varieties that sell the best are the following: Baldwins, Northern Spies, Greenings, Russets, Orange-Blenheims, Ribston Pippins, Fall-Waters, Canada Red, and generally the different varieties of winter apples sufficiently firm to stand the voyage without being bruised.

The Nova-Scotia apples appear to be more in favor than ours, and, we believe we have every interest to adopt here the cultivation of the same apples that grow in the Maritime Provinces. We were advised not to consign all our apples to the same town, but rather to divide them among the principal commercial centres of England, the same thing also should be done with our poultry.

We attended a fruit sale by an auctioneer, and we noticed that he never sold a lot without first emptying a barrel or case before the purchasers, and if it is seen that the inside of the barrel does not contain fruit of uniform quality and size, it is very injurious to the sale. Note should be taken of this fact, and, consequently, great care be taken in the packing of the apples.

IMPORTATION OF APPLES BY ENGLAND IN 1893.

Countries whence imported.	Cwts.	Value.
Denmark .....	8,117	£ 2,144
Germany.....	59,977	15,378
Holland.....	587,663	117,912
Belgium.....	1,010,310	30,239
France.....	561,085	109,281
Portugal.....	95,157	20,820
United States of America.....	475,274	143,777
Other foreign countries.....	4,416	1,123
Channel Islands.....	48,536	11,954
Tasmania.....	121,314	61,367
Other Australian colonies.....	1,715	810
Canada.....	482,997	153,604
Other British possessions.....	343	140
Total.....	3,159,981	£843,532
(Equivalent to \$3,105,189.07.)		

The only preserved fruits that Canada seems to be in a position to export with profit, are apples and tomatoes.

V.

HAY.

This year's hay crop in England was very plentiful and the demand for foreign hay promises to be very small. All the same, we took information concerning the quality of hay preferred on the English market and the best methods of packing it. The people interested in the trade whom we consulted are not all of the same opinion on that point; some prefer pure timothy, others would rather have a mixture of clover. As to the packing (embalage,) they seem to prefer the iron bonds.

IMPORTATION OF HAY BY ENGLAND IN 1893.

Countries whence Imported.	Cwts.	Value.
Russia.....	17,691	£150,318
Denmark.....	4,252	20,658
United States of America.....	101,132	506,564
Canada.....	63,175	348,013

VI.

POULTRY.

Amongst the documents published in the appendix to this report the readers will find interesting details on the subject of the poultry trade. Some traders want to have the fowls with the feathers and intestines, so as to do the dressing themselves. Others prefer to have them otherwise prepared. Little turkeys do not command as high a price as big ones. (1) At Liverpool, they advise the sending of poultry before the 17th December, so as to have them for Christmas, at London, it is held that, at Christmas, the market is overloaded, and that poultry should be sent thither before or after that date. The boxes used for exportation should not be too large, and should contain only two ranks of deep poultry.

They should be cooled off (not frozen) before packing. If they are plucked, straw should be placed between the rows to prevent the touching, and therefore sweating, of the meat. (To be continued.)

FARMERS' CENTRAL SYNDICATE OF CANADA,

30 St. James Street, Montreal.

President: Hon. J. J. Ross, President of the Senate.

Spring Seeds.

Send as soon as possible the quantities and qualities of seeds required, so as to make one large order, thereby enabling us to obtain better prices. Bear in mind that the more the orders, the lower the prices, therefore do not wait until the last moment to write to the

Farmers' Central Syndicate of Canada, 30 St. James Street, Montreal.

FARMER'S SYNDICATE OF THE PROVINCE OF QUEBEC.

Office 23 St. Louis Street, Quebec.

President: His Grace Mgr. L. N. Bégin.

General secretary: Ferd. Audet, N.P. Treasury: P. G. Lafrance, cashier of the National Bank.

Every farmer should become a member of our Syndicate or be a member of Farmer's Club affiliated to our Society.

Subscription of ordinary members..... \$ 1.00 a year.

Subscription of a Farmer's Club..... 10 00 "

Send at one your orders for grain seeds.

Orders for artificial manures, phosphates, &c, should be sent in before the end of April.

The Farmer's Syndicate buy for its members live stock for breeding purposes of all kinds: horses, cattle, sheep, pigs, fowl. Send in your orders before the end of May for agricultural implements.

(1) Turkeys weighing 40 lbs. sell for £10 a piece for the great feasts of the City Companies.—Ed.

Our members will always find in our syndicate an intermediary for the sale of their farm produce and purchases of all kinds.

Our society does its best to settle any difficulty arising between its members.

All informations given without delay.

MARKETS IN ENGLAND.

	p. quarter.
March 2nd.—Wheat, average 19s. 10d.	
Barley.....	21 9
Oats.....	14 0
	p. 8 lbs.
Top prices of Beef.....	4 8
Mutton.....	6 6
Pork.....	3 6

Best English malting barley is worth 42s; best foreign (Moravian) 40s.

Rape-seed firm. Fine samples of white wheat are fetching 27s a quarter.

Note.—Quotations of prices of meat are for the London stone of 8 lbs. dead weight of carcass, sinking the offal.

In reviewing the bacon trade of England during the past year, the Gros reports increasing supplies, notably from America, Irish and Danish produce being quoted at 60s. to 72s. per cwt. in the earlier months: 54s. to 64s. later on, and 46s. to 50s. at the close. "Another factor in the situation has been Canadian peafaced bacon, which has come into close rivalry with the salted meats of the Continent, by being both plentiful and at a moderate figure, and has been strongly preferred by buyers when Danish and Irish cures have been held for an advance, the top quotations for first quality at no time going higher than 54s. to 55s., now and then receding to 50s. and 48s., and closing at 36s. to 40s. per cwt."

BANQUE DU PEUPLE.

ANNUAL MEETING OF THE SHAREHOLDERS.

Favorable Reports Read.—Shareholders satisfied with the year's business.—The management congratulated.—The President's Address.—The Financial Statement.

The annual general meeting of the shareholders of La Banque du Peuple took place in the boardroom of the bank yesterday at three o'clock. The president, Mr. Jacques Grenier, occupied the chair; Mr. J. S. Bousquet, the cashier, acted as secretary.

In opening the meeting Mr. Grenier remarked that in accordance with precedent, though, perhaps, it was hardly a law, he would take the chair, if that were the will of the stockholders, and Mr. Bousquet would act as secretary.

Mr. John Crawford said if there were to be a choice out of all the stockholders, Mr. Grenier would be the man whom they would place in the chair.

Mr. Grenier said that for the past two years it had been the custom to conduct the proceedings in English only, most of the stockholders being English. If there was no objection, they would follow that practice to-day.

No objection being offered, Mr. Grenier read as follows the

ANNUAL REPORT OF THE DIRECTORS.

The Directors beg to submit to the Shareholders the statement of the affairs of this Bank for the year ending 28th February, 1895.

The net profits of the year, after providing for all bad and doubtful debts and deducting cost of management, amount to \$114,280.18.

Out of this sum we have paid dividends at the rate of seven per cent. per annum, amounting to \$84,000, and placed to the credit of Profit and Loss \$30,280.18.

The business of the Bank, both at the head office and branches, is steadily progressing, and the number of current accounts annually increasing.

We find that the convenience afforded to the public by the local branches is appreciated and forms a valuable aid in the maintenance of the bank's relations with clients in the outlying parts of the city.

It is the desire of the Directors to employ the Bank's resources as fully as possible in the locality whence they are derived, so as to assist, in every legitimate way, the commercial and agricultural interests of the country.

All our agencies, have been thoroughly inspected during the year, and we notice a large increase in the volume of transactions, they are working very satisfactorily.

We are happy to bear sincere testimony to the industry and attention displayed by the officers of the general staff and branches in the conduct of the affairs of this institution and fully appreciate their efforts in assisting your Board to promote the best interests of the Bank.

The whole respectfully submitted. J. GRIGNON, President. Montreal 1st March, 1895.

AUDITORS' REPORT.

We, the undersigned auditors, named at the last general annual meeting of the shareholders after having examined the books, verified the specie and legal tenders on hand, in a word, after having taken cognizance of the assets and liabilities of the corporation of 'La Banque du Peuple,' have the honor to report that we have found the whole to be correct and deserving our approval.

P. P. MARTIN, NOLAN DELISLE, LOUIS ARMSTRONG, Auditors.

Montreal, 1st March, 1895.

Mr. Bousquet then presented the following:

STATEMENT OF PROFITS FOR THE YEAR ENDING 1st MARCH, 1895.

Table with 2 columns: Description and Amount. Includes Dividend 3 1/2 per cent, paid September 1st, 1894 (\$42,000 00), Dividend 3 1/2 per cent, payable March 4th, 1895 (42,000 00), Balance of profit and loss carried forward (42,857 60), Total (\$126,857 00).

Cr.

Table with 2 columns: Description and Amount. Includes Balance of profit and loss account 28th February 1894 (\$12,577 42), Net profit of the year after paying expenses and providing for all bad and doubtful debts (114,280 18), Total (\$126,857 60).

GENERAL STATEMENT CLOSE OF BUSINESS, 28th FEBRUARY, 1895.

Table with 2 columns: Description and Amount. Includes To Circulation (\$746,793 00), To deposits not bearing interest (1,256,050 99), To deposits bearing interest (5,367,856 02), To amount due to other banks (150,554 14), To capital paid up (\$1,200,000 00), To reserve fund (600,000 00), To profit and loss (42,857 60), To dividend No. 95 payable 4th Mar. 1895 (40,000 00), To unclaimed dividend (4,209 67), Total (\$9,410,385 92).

Cr.

Table with 2 columns: Description and Amount. Includes By specie (\$69,251 10), Dominion notes (487,435 00), Circulation redemption fund (42,313 06), Notes and cheques on other banks (272,452 84), Balances due by other banks (18,538 89), Call and short loans on stock and bonds (752,818 39), Total (\$9,410,385 92).

Table with 2 columns: Description and Amount. Includes Immediately available (\$1,642,609 28), Loans and discounts current (7,297,210 40), Notes and bills overdue, secured (24,032 69), Notes and bills overdue, unsecured (15,042 12), Mortgages and hypothèques (80,240 06), Real estate (71,251 38), Bank premises (28,000 00), Total (\$9,410,385 92).

J. S. BOUSQUET, Cashier.

MR. BOUSQUET'S REVIEW.

Mr. Bousquet—I will simply add a few remarks by way of supplement to what the President has said, as I do not intend to make any retrospect of the commercial situation of 1894, as I used to formerly.

To say that 1894 has been a period of depression in trade and industry is to say what everyone knows from personal experience.

The trade of the Dominion in common with that of all other countries, has sustained of late a check. The movement of merchandise has not enlarged this year, while the bane of falling prices in many important commodities has discouraged ventures that otherwise would have been undertaken, and rendered returns to producers less profitable.

After the commercial disturbances of 1893 in the United States, which reflected to some extent on Canada, it would have been unreasonable to expect that 1894 would display buoyancy, but, at least, one would have been justified in supposing that the year would be period of decided recuperation and recovery. This has not been; on the contrary, the prostration of industrial interests became deeper and more pronounced as the year progressed.

I do not mean to recall in detail and give a summary of the facts and conditions which have tended to disturb and suppress industrial movements during the year, but, after considering the terrible strain endured in every line of business, the thought will find general expression amongst our shareholders that the results are not nearly as bad as the year's advent prepared the public to anticipate.

To interpret our report correctly the constitution of the field of our operations must, I repeat, be recalled and the strain those events have caused be borne in mind. When so considered no one can hesitate to accept the statement as satisfactory.

The energy of the President, directors and managers is, of course, as a natural consequence of the responsibilities of their duties, devoted to the legitimate advancement, progress and development of the affairs of this institution. No opportunity has been lost by them of making any step forward, in the way of business, accommodation, extension of commercial relations and other facilities to the trade auxiliary to improvement in view of putting this bank on a standing equal to the requirements of its customers.

I am glad to state that, as a result of their endeavors, our business has increased materially during the year, and a number of depositors and new accounts have been added to our list so that our deposits stand \$6,623,936.51.

After some remarks from several of the shareholders present and the adoption of the Auditors' report, the proceedings concluded with votes of thanks to the President, Directors, cashier and the auditors.

Lewis' Combination Spray Pump—60,000 in use—This outfit makes three complete Spraying Machines. It is a Spraying Pump, Agricultural Sprayer and Veterinary Syringe combined. Everything screws together and can be easily taken apart and cleaned. Will throw fine or coarse spray or solid stream as desired. A valuable illustrated book on our Insect Foes and How to Destroy Them is given to each purchaser. Goods guaranteed as represented or money refunded. I will deliver one of the above described Spraying Outfits and illustrated books to any express station in Canada for \$8.50, express paid. Circular on application. W. H. VANTANNE, Belleville, Ont.

(From the Farmer's Advocate, May 1st, 1894.) We have made a careful test of the Lewis' Combination Spray Pump which is offered for sale by Mr. W. H. Van Tassel, of Belleville. It is all made of brass, except the hose or four feet of strong hose and the parts all screw together. It is handy, strong, simple and will serve half a dozen purposes. It throws a solid stream 25 or 30 ft. high, large or small, which can be changed instantly, without stopping, to a fine or coarse spray. There is a special nozzle for spraying low bushes, such as Roses, Currants, etc., and can be used to apply Emulsion to Cattle. As a Veterinary Syringe it is also very useful. Practically there is nothing about it to get out of order, and Mr. Van Tassel will express them to any one cheap. We can heartily recommend the Lewis' Sprayer.

P.S.—For 50 cts. I will send by mail, prepaid, a Complete Singer for Singing Horses and Cattle. Keep this advertisement.

E. T. Home of the Ayrshires. CERCLES AGRICOLES AND BREEDERS OF AYRSHIRES.—A. McCallum & Son offer for sale Two Spraying Machines, two years old. (one used by Robert's celebrated Golden Guinea, one by the famous old bull Duke of Rothsay. Two yearlings sired by their imported bull Baron Renfrew, both first-prize calves 1894. These are all out of milkers of high percentage of Butter Fat. Apply early. A. McCallum & Son, Danville, Que. 4 95 121

Maple Shade Herds and FLOCKS. We are still breeding DEEP MILKING SHORT HORN'S, CHESTER WHITE PIGS, from Ohio Stock, SHROPSHIRE SHEEP from imported stock. A choice lot of young Bulls, Sheep and Pigs for sale. 4 95 1. J. B. EASTEN, Lacolle.

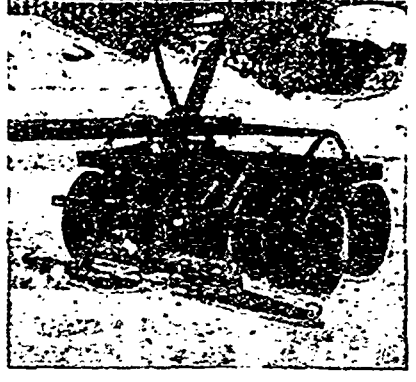
POTATOE SEEDLINGS.

Raised last summer from the flower seed ball of a valuable New Brunswick Potatoe. One pound will contain from 10 to 20 new unnamed varieties, interesting both in color and shape. Price, \$1 per lb. mailed free. Apply to a specialty, small fruits, etc. Sugar Maple for park or avenue. Address, E. J. KENNY, St. Vincent de Paul Nurseries, St. Vincent de Paul, P. Q.

BE. PP. Trappistes Fruit Nurseries. TO FARMERS.

We are informed that dishonest persons, acting falsely as our agents, unjustly make use of our credit to cheat farmers on pretended sales. Let everybody know that all agents representing our nurseries have a letter of identification. According to our orders, they will sell to purchasers varieties most suitable to their locality, and which, in the meantime, shall best answer their needs either for local market or exportation. H.E. PP. Trappistes, 4 95 31. Oka.

DOUBLE DISC HARROW



Manufactured at Beamsville Agricultural Implements, Engines and Boiler Works. Write for prices and Circulars to H. TALLMAN, Beamsville, Ont. 4 95 61

Pomological & Fruit Growing Society of the Province of Quebec.

ANNUAL FEE \$1.00 Members for 1895 will receive copy of Annual Report in English or French, 10 apple root grafts of varieties suited to their district, 25 plants from the Experimental Farm, Ottawa. Send subscriptions to W. W. DUNLOP, Secretary, Oatremont, Que. 3 25-1

Ayrshires for Sale

A 1, Bull and Heifer calves at fair prices, sired by "Glenholm III" (imported), prize winner at the Ayr Show, Scotland. Pleas'd to give full information. Correspondence solicited.

HAWKINS' BRONZE TURKEYS.

Weight 35 to 40 lbs. Settings of eggs \$5.00 per 13. Order early. Still a few good birds for sale.

SILVER LACED WYANDOTTES.

Eggs \$2 per setting. Hawkins' cock bird heads the pen. A few first-class cockerels still left. Imported American and English strains. JAMES BOWDEN, Manager for St. Anne, Ste. Anne de Bellevue. 1-25-11

A. J. C. C. for sale.—Three young bulls fit for service.

Two bull calves, 50 opp Victor Hugo, all solid fawn, a few heifers and young cows. Also, high grade cows and heifers, Baron Hugo, of St. Anne's, heads the herd. First prize winners at Ottawa, Toronto and London, 1893. Prices moderate. For sale.—Two choice DAIRY FARMS about 125 acres each, well located. H. F. WILLIAMS, Sunny Lea Farm, Knowlton, Que. 3 25-61

IF YOU WANT TO BREED Cows for Butter

Buy a Pure St. Lambert Jersey Bull. Why? Because for size, strong constitution and great production of Milk, Butter and Cheese, they are the Best in the World. Get one from the Ste-Anne's Herd, The Largest and Oldest Herd of pure St. Lambert Jerseys in Canada. Prices low. Write or come and see them. Apply to W. A. REBURN, Ste-Anne de Bellevue, P.Q. 3 25-3

FOR SALE.

AYRSHIRE CATTLE. SHROPSHIRE SHEEP. AND BERKSHIRE PIGS. YOUNG PIGS, BORN 4th JANUARY LAST. A. HOUSSEAU, Berthier, P. Q.

ISALEIGH GRANGE FARM DANVILLE, P. Q.

Guaranteed.—Bull calves (only two left) fit for service in spring, bred by best imported Bull in Canada. Worthy to head any herd. Shropshires.—A few choice ram lambs left and a grand lot of ewe lambs by imported Rams. Imp. Large Yorkshire Swine.—Booking orders for Spring pigs from 30 breeding cows. Have a few of both sexes, 3 to 5 months old, send in your orders. Address, T. D. McCALLUM, Manager, Danville, P. Q. 1-25-121

FRUIT AND ORNAMENTAL TREES, Vines, Orn. Fruit, Plants, ROSAS, &c., at one-half Agents prices. Send for new Illustrated Priced Catalogue. CATALOGUE FREE. It pays to order direct from the CENTRAL NURSERY. A. G. HULL & SON, St. CATHERINES, Ont. No Agents—Mention this paper. 3 25-31

McGILL UNIVERSITY.

FAULTY OF Comparative Medicine and Veterinary Science. (Late Montreal Veterinary College.) This School affords the advantages of a full University course. The laboratories and other appliances of the University are open to the students of this faculty, thus giving opportunities of acquiring a thorough scientific training. For calendar giving full information apply to C. McEachran, V.S., Registrar, 6, Union Ave., Montreal. 9-24-121

FOR SALE, Ayrshire Cattle, Bulls, Cows, Heifers and Improved Yorkshire Pigs, bred by "Ashton Hero" 1063 and Colswold Sheep. Stock guaranteed. Complete satisfaction. Address: ELIE GYQUARD, Ste-Victoire de Richelieu, P. Q. 3-24-31

A BANK ACCOUNT.

The advantages of bank account are numerous. There is safety, there is convenience, the money always ready and always out of harm's way. We offer depositors all the accommodation consistent with strict business principles. We open accounts for as small an amount as \$25. and receive deposits of \$1 and upwards. Interest paid on time deposits. We have time to talk to you about it, or will send our last statement if you care to see it. It will pay you to open an account with LA BANQUE DU PEUPLE ESTABLISHED IN 1835.

Capital Paid-Up..... \$1,200,000 Reserve..... 600,000 Head Office, ST. JAMES ST., Montreal. BRANCHES: Montreal:—Notre-Dame St. West, corner Richmond J. A. Plean, Manager. St. Catherine St. East, corner St. Armand.....Albert Fournier " Quebec, Basse-Ville.....P. E. DuMoulin " " St. Roch.....Nap. Laviole " Three Rivers, Que.....P. E. Panneton " St. Jean, Que.....H. St. Mars " St. Basile, Que.....C. Bédard " St. Jérôme, Que.....J. A. Thérberge " St. Hyacinthe, Que.....J. Laframboise " Savings Banks at all branches, interest allowed at 4 per cent. Agents in all parts of Canada, United States, England and France. 4-24-121 J. S. BOUSQUET, Cashier.

J. G. MAIR

REEDER AND EXPORTER OF Improved Large YORKSHIRE PIGS. Stock of all ages for sale including a choice lot of young sows now ready for lifting. My prices will be found very low. All enquiries (in both French and English) cheerfully replied to. RAILWAY STATION and POST OFFICE 4-24-121 Howick, Que.



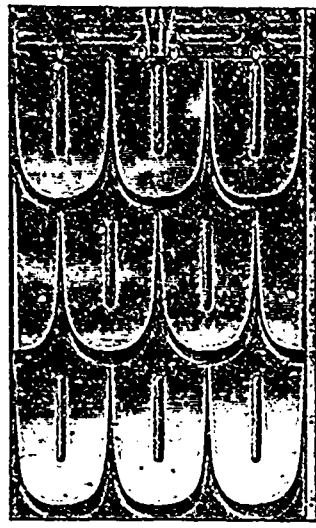
How to make Dollars out of Wind

It will Save Many Dollars in Time and Trouble if you buy a CHATHAM FANNING MILL. With Bagging Attachment. It Cleans Aside Clover to Perfection; also Marrowfat and Black Eye Peas. 1,000 Mills Sold, 1884 1,350 Mills Sold, 1885 2,000 Mills Sold, 1886 2,500 Mills Sold, 1887 2,500 Mills Sold, 1888 3,500 Mills Sold, 1889 4,000 Mills Sold, 1890 4,500 Mills Sold, 1891 5,000 Mills Sold, 1892 6,000 Mills Sold, 1893

More than have been sold by all the other factories in Canada put together and doubled. St. Germaine de Basile, May 26th, 1894. Mr. MANSON CAMPBELL. I have bought one of your Fanning Mills from your agent, Mr. Michel Lesage, and after having tried it, I am compelled to say that I consider it as being superior to every other in use to-day. I recommend it very strongly to all farmers desirous of laying in the soil a good seed and thus secure a good crop. LA. DESJARDIN, Notary.

MANSON CAMPBELL, Chatham, Ont. 17-24-121

A BARN SHINGLE.



Water, Wind, Storm, Fire and Lightning Proof.

The only steel shingle made in Canada, that is designed especially for barn roofs. It embraces all the desirable features of other metal shingles, as well as many new features never shown before. Sold under a guarantee. Send for our new Catalogue for you place your order.

The Pedlar Metal Roofing Co. Office and Works: OSHAWA, ONTARIO.

"POSTITE" prevents and checks Mildew, Black Rot and Leaf-blight

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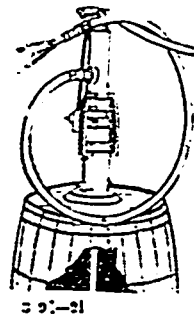
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Having two stock bulls, I will sell either of them. First-class animals. Good stock getters. Yorkshire Boars fit for service, sows in farrow and a grand lot of Spring pigs.

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Simple, Effective, Reliable, Cheap. AGENTS WANTED, Write for information.



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THE LEADING HOGS OF AMERICA.

W. & H. JONES, Mount Elgin, Ont., Breeders of Improved Poland China. Winners of sweetstakes and Herd Prizes at all the principal Fairs of 1893 and 1894. Choice stock for sale at all times.

MAPLE HILL HOLSTEIN-FRIESLIANS

This herd gained 3 first, a second and a fourth and a third in Dairy Test, at Toronto, this year. Our 4 years old Stock Bull "Arta Aggie Prime" for sale, also some young stock of both sexes.

G. W. CLEMONS, St. George, Ont. 10-94-121

\$40,000,000

Bear in mind, INVENTORS that the Bell Telephone PATENT has paid \$40,000,000 in 1891. To acquire a good PATENT, apply to J. A. MARION, Civil Engineer and Mechanist, No 185 St. James street, Montreal. 2-94-121

Improved Yorkshires and Berkshires

I have for sale some very fine young stock of both sexes. Also some choice breeding sows. All stock registered, bred from imported stock. My Herd in 1894. Also 3 litters of Fines Pigs ready for shipment. JAMES H. LLOYD, St. Lm, P.Q. 1-95-121

DOMINION PRIZE HERD

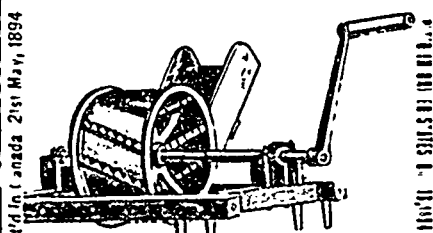
PURE BRED AYRSHIRE CATTLE

RECORD FOR 1893 54 PRIZES 37 FIRST - 11 SECOND

With Gold, Silver and Bronze Medals Montreal, Toronto, London and Ottawa. This herd has always taken the lead, they are of large size, and of good milking strains.

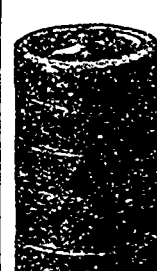
JAMES DRUMMOND & SON, Petite Côte, MONTREAL, P.Q. 2-95-121

J. A. Gosselin's Curd Cutter



This machine is the most perfect in the market. A man can use it with one hand as easily, and make with it more work, than two men could do with any other machine, without any curd undivided. The Crank and the Hopper being so closely at hand one man alone can put the machine in motion. These points render it advantageous to all factories. In some factories where there is ordinarily but one man employed, this machine gives him the power to cut the curd, unaided, and, on the contrary, in others it is quite sufficient for the whole work. Each machine guaranteed to have all the qualities claimed in this advertisement. Ask for prices.

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Milk, Creamer, Railroad and Delivery Cans.

MILK CANS made from the McCLARY MANUFACTURING CO'S TRIMMINGS are the Best and Strongest Milk Can made.

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Makers of the Celebrated "MODEL" Cook Stove for Farmers.

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Seeds of the very best qualities suitable to our soil and climate. Write us for samples and prices. SPECIAL CONDITIONS to Cercles Agricoles and Agricultural Societies.

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Cheese, Butter, Calves.

Beaver Manufacturing Co., Galt.

Gentlemen,—I have fed Herbageum according to directions and found it to be profitable. I fed my three cows 4 lbs each, costing 50c. per cow. I commenced 3 weeks before they came in, and fed for about three weeks after, and then put them on grass. My neighbors had full better cows, yet on no better pasture, mine at the end of the six months delivery. Nov 1st, returned me from \$4 to \$6 more per cow. One of them had 30 cows. I urged him to test Herbageum. He replied, "It costs too much." Mine returned me over \$6 per cow more than his, and apparently \$15 invested for them in Herbageum would have returned him \$165 extra profit. I find it equally good for calves and horses. E. M. YORK, Belrock, Nov. 27th, 1894.

REPORT CONFIRMED.

We are the cheese manufacturers to whom the milk from the cows above referred to by E. M. York, Esq., was delivered. We have examined our books and find the above reported differences correct. VANLUVEN BROS. Moscow, Nov. 27th, 1894.

N. B.—The cost for Horses, Cows, Beves and Hogs is only 1 cent per day. Fo Calves, Colts, Sheep and Young Pigs, about 3 cents per week. It is valuable for hens and turkeys and for their chicks. If not sold in your town or village write to

THE BEAVER MFG. CO. GALT, Ont. 2-94-121

Home Grown Seed. Our farmer friends, you know you greatly lessen your risks when you buy seed directly from the grower. We raise seeds of the earliest sweet Corn, the earliest and best Yello and Bush Beans, the best earliest and best late market Beans, the best Cucumbers, the best of the earliest and latest Drumhead Cabbages, the earliest of all the Wrinkled Peas, the best Dwarf and standard the best of the Marrow fat, the best early and late squashes, the best market carrot, the earliest and the very best of all the Yellow Onions. We offer these and numerous other varieties, including several valuable new Vegetables, in our Vegetable and Flower Seed Catalogue for 1895. Sent free. J. J. H. GREGORY & SON, Marblehead, Mass.

POTATO "MAGGIE MURPHY" WHICH OBTAINED THE FIRST PRIZE AT THE WORLD'S FAIR CHICAGO, 1893. Price 1 lb. mailed free of expense . \$0.25 " 5 lbs. " " " " " " 1.00 Also 25 kinds of the best varieties for sale. I have also some fine Black, Red and White Grape Vine Plants at very Low Prices. Address: J. J. GAREAU, St. Roch l'Achigan, P. Q. 2-95

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THE NEW QUAKER BRICK MACHINE For Steam and Horse Power makes either 5 or 6 Bricks to the Mould. Brick Moulds made any size to order for any make of Machine. Also makers of the Celebrated Kells Patented Combined BRICK and TILE MACHINE

H. C. BAIRD & SON PARKHILL, ONT. 2-94-121 ROLLER MILL MACHINERY, PORTABLE SAW MILLS, PORTABLE ENGINES, WATER WHEELS, ELECTRIC MOTORS, LEVED TREAD POWERS, DUPLEX FEED MILLS. Correspondence invited.

THE JOHN ABELL ENGINE & MACHINE WORKS CO. 10-94-11 Toronto, Ont. WILLIAM NICHOLS—STAYNEVILLE, AGRICULTURIST, Que., breeder of high class Berkshires pigs and Improved Yorkshires. Young pigs for sale now; also sows due to farrow in February, March and May, pairs and trios not akin at all seasons. Also, a fine lot of Shropshire Sheep. Orders booked for Lambs Shearling and ewes. Inspection invited and satisfaction guaranteed. 2-95-101

JAMES COTTINGHAM, Riverside Farm, ORMISTOWN, Que., Breeder of Ayrshire Cattle. My herd was established over twenty-five years ago and are of the best milking strains. I have a few choice young bulls for sale, including a first prize winner at the leading Fair. Also, one aged bull of fine quality, bred by James Drummond, of Montreal. Prices to suit the times. 2-95-41

Land Plaster When using Laud Plaster in the Stable it absorbs all Ammonia (which otherwise escapes), it makes manure from stables superior to any fertilizer, equal to ten dollars per head of cattle otherwise lost. Send for circulars giving full particulars. Sold by all General Stores and Groceries. MANUFACTURED BY G. L. MALTBY OFFICE . . . 309 St. James St., 2-95-31 MONTREAL.

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ASHTON - HERO - 1069 - IMP. My Breeding Stock are imported from the celebrated Breeder Sanders Spencer, Holywell Manor, England. I am now Booking orders for Spring Litters. Have now on hand a choice lot of young pigs of both breeds. Am breeding 36 choice sows for spring trade, parties wishing early pigs for show purposes will do well to send in orders as early as possible. All orders carefully filled and satisfaction guaranteed. Personal inspection preferred. Four fine Berkshire Boars fit for service, at low prices. W. M. TAFT, 3-94-61 St-Laurent (near Montreal.)

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For SHAPLY, SQUISHTUM, CIDER, and FRUIT JELLIES. Has a regulated fire over firebox, doubling boiling capacity; small interchangeable stryp pens (connected by spibones), easily handled for cleaning and stryping; and a perfect automatic regulator. The Champion is as great an improvement over the Cook pan as the latter was over the old iron Kettle hung on a fence rail. Catalogue Free. THE G. H. GRIMM MFG. CO., HUDSON, Ohio, & MONTREAL, Quebec 12-94-121

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