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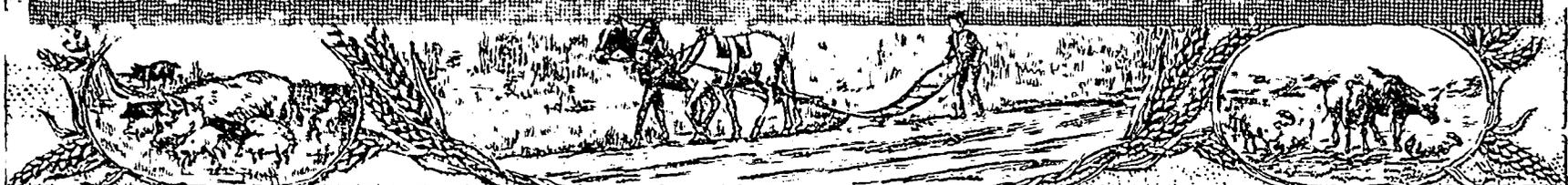
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THE ILLUSTRATED JOURNAL of AGRICULTURE



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

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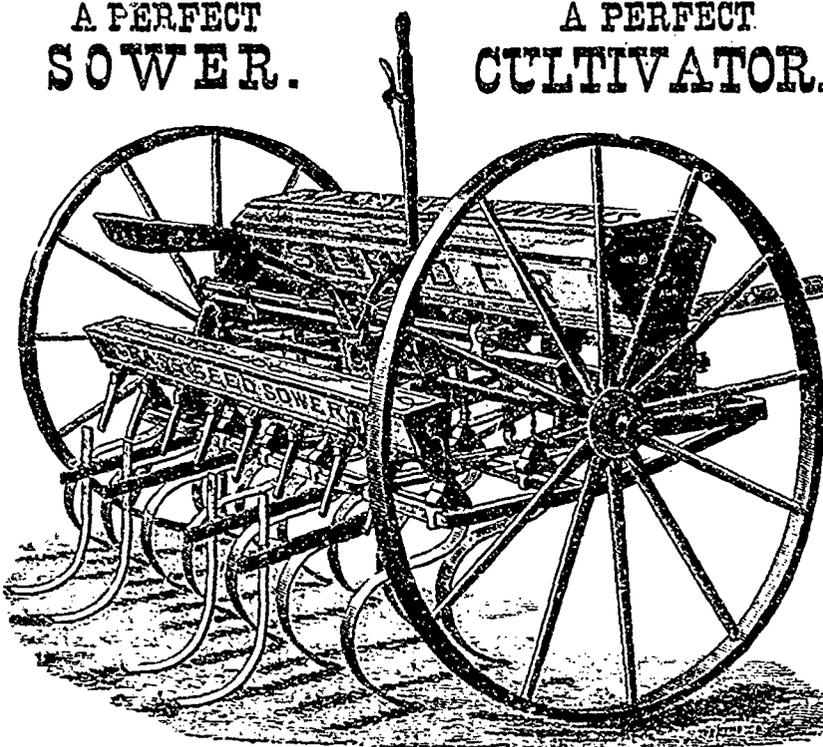
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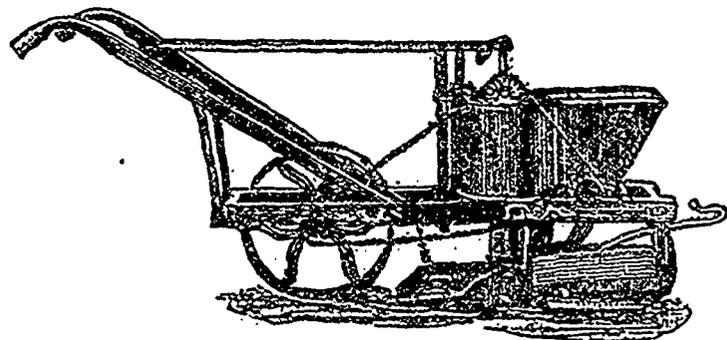
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3-94-31

LA BANQUE DU PEUPLE

Annual General Meeting of Shareholders.

The annual meeting of the shareholders of La Banque du Peuple was held in the bank premises, Monday, 5th March last. The president, Mr Jacques Grenier, occupied the chair, and among those present were Hon A. W. Ogilvie, Messrs. J. Y. Gilmour, H. Beaugrand, William Francis, W. S. Evans, John Morrison, John Crawford, Nolan DeLisle, G. B. Muir, L. Armstrong, Chas. Lamothe, Chas. Wittman, Arthur Provost, A. W. Stevenson, Alph Leclair, H. B. Warren, J. B. R. Sther, Samuel B. H., N. B. Desmarieau, G. S. Brush, Chas. Lacaille, Michael Burko, P. P. Martin, and D. Masson. Mr. J. S. Bousquet, cashier, acted as secretary of the meeting.

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, 1894.

The net profits of the year, after having provided for all bad and doubtful debts and deducting costs of management, amount to \$108,915 49.

Out of this sum we have paid dividends at the rate of six per cent per annum amounting to \$72,000.00 and carried to the reserve \$50,000.00, which raises that fund to \$600,000.

The demand for money for mercantile purposes has kept our capital fully employed at remunerative rates of interest.

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 have also to acknowledge to the shareholders the efficacy of services rendered by our staff of officers, their fidelity and attentive work have reflected credit to the Institution. The whole respectfully submitted.

J. GRENIER,
President.

Montreal, 1st March, 1894.

General Statement.

The secretary submitted the following general statement.—

STATEMENT OF PROFITS FOR THE YEAR ENDING 1ST MARCH, 1894.	
<i>Dr.</i>	
Dividend, 3 per cent, paid September 1st, 1893	\$36,000 00
Dividend, 3 per cent, payable March 6th, 1894	36,000 00
Amount carried to Reserve Fund	60,000 00
Balance of Profit and Loss carried forward	12,577 42
	\$134,577 42

<i>Cr.</i>	
Balance of Profit and Loss account, 28th February, 1893	\$25,661 93
Net profits of the year after paying expenses and providing for all bad and doubtful debts	103,915 49
	\$134,577 42

GENERAL STATEMENT CLOSE OF BUSINESS, 28th FEBRUARY, 1894

<i>Dr.</i>	
To Circulation	\$ 813,250 00
To Deposits not bearing interest	1,643,680 21
To Deposits bearing interest	4,369,928 38
To amount due to other banks	156,367 84
To Capital paid up	\$1,200,000 00
To Reserve fund	600,000 00
To Profit and Loss	12,577 42
To Dividend No. 96, payable March 6, 1894	36,000 00
To unclaimed dividends	4,111 17
	1,852,688 69
	\$8,737,216 02
<i>Cr.</i>	
By Specie	\$ 64,988 35
By Dominion notes	290,340 00
By Circulation Redemption Fund	40,000 00
By notes and cheques on other banks	154,228 72
By balances due by other Banks	51,637 66
By Call and short loans on stock and bonds	929,515 38
Immediately available	\$1,640,910 11
By loans and discounts current	\$6,671,608 52
By Notes and Bills overdue, secured	21,014 18
By Notes and Bills overdue, unsecured	18,627 32
By Mortgages and hypothecues	83,465 06
By Real Estate	68,779 38
By Bank premises	100,910 44
	\$8,737,216 02

J. S. Bousquet, Cashier.

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, 1894.

The President's Address.

The president then rose and said:—As you will have observed, gentlemen, I have taken the same position as other banks do. Hereto-

fore, we used to have a meeting to appoint directors, but there is nothing in the charter which binds us to do so, and I thought that, like the president of other banks, I would take the chair. I have asked the cashier to act as secretary. With regard to some other things I want to do the same as they do in other banks. It has been usual in this bank that the adoption of the report of the auditors, as well as that of the directors, be moved by individual stockholders, but, as you are aware, in other banks, the adoption of the report is moved by the president and seconded by the vice-president or one of the directors. I will take the same course this year, and hereafter it is understood that this will be followed. I will move, seconded by Mr. Brush, vice-president, "That the annual report of the auditors, as well as that of the directors, now submitted, be received and adopted," and to save as much of your valuable time as possible I will subsequently ask the cashier to give, as usual, his annual address on the general business transactions. I will only take the opportunity to give you some comparative figures with regard to the progress of the institution. Although you must have observed that increased securities generally have diminished among some of the other banks some \$2,000,000 or \$3,000,000, the circulation of this bank has increased \$61,510. The deposits not bearing interest have increased only a very little, but when you consider the hardness of the times during the year, and that cash was scarce, you will see that the object was to try and keep as small a balance as possible. The increase of the deposits not bearing interest was \$6,297, an amount which shows the progress of this bank and which also shows the confidence the public have in it. The deposits bearing interest amounted to \$544,395 more than they were a year ago, which shows that if money was scarce for ordinary deposits, it seems to have been plentiful with those who deposited at interest. This year the deposits bearing interest amounted to \$1,369,928, against \$3,825,333 last year, which shows a surplus of \$544,545. I think that this is very satisfactory, and it shows the confidence that there is in the bank. I am now going to enter into some explanations which, I believe, have been refused by some other institutions, but we have nothing to hide. The whole responsibility rests on the directors of this bank. The stockholders are fortunate in not having any double liabilities, neither have they any responsibilities. The gross receipts this year amounted to 16 1/2 per cent. on the capital, against 14 per cent. last year, which shows that we are also making some little progress with regard to profits; but it does not look so well on the net profit side, which this year is only equal to 9 per cent. on the capital, whereas in the previous year it was equal to 13 per cent. on the capital. You will remember that last year I made you aware of a judgment against us from the Privy Council on the other side for some \$50,000. That judgment came just on the eve of our last annual meeting. We have kept \$25,000 to meet part of this, which we had to meet this year. Unfortunately I have also to make you aware of another suit we have had in Three Rivers, in which we were successful in the Superior Court, as well as the Court of Appeals here, but we were defeated in the Supreme Court. We made application to have recourse to appeal in England, but we were refused, and we had to pay. During the year, the head office has not lost anything on debentures, but, unfortunately, some of our branches have made small losses. We have distributed 9 per cent. this year, that is to say, 6 per cent. to the stockholders and the balance to the cost of management. I am happy to inform you that the cost of the management of this bank is as limited as possible, we try to curtail the expenses as much as possible, and I think that we have succeeded so far. Last year I made you aware of the expectations we had in regard to our new building. I told you it was expected that if we could rent our offices the bank would derive about 4 or 5 per cent. on its outlay, and we should have free the whole of the bank premises proper. I am now pleased to tell you that, although we have not yet rented all the offices, we have rented about three-fifths of them, and we are in hope that the remainder will be let by May 1, as we have applications for some more. If we should succeed in renting the whole we calculate that the revenue from this source will be \$18,000. What we have let we have rented at the rate of 80 cents a foot; the New York Life lets theirs at \$1 a foot. We have rented ours on the same conditions as the New York Life, viz., to supply light, fuel and cleaning. We calculate that \$8,000 expenses will cover everything, and out of this I think we shall be justified in deducting 25 per cent for the bank, which will leave, including two stores which we think we can rent easily, a net profit of \$12,000, or 5 per

cent. on an expenditure of \$240,000. We are satisfied that the expenditure will not be more than that. Having our bank, which will be nearly three times the size of the old one, and with a revenue of 5 per cent. for rents on our outlay, I think we shall be doing well. We are satisfied that for the shareholders the investment will be a good one. Well, gentlemen, with these few remarks, I will call upon the cashier to make his annual address on the general business, and after that I shall be happy to answer any questions which any stockholder may be pleased to ask either myself or any of the directors.

The Cashier's Address.

Mr. J. S. Bousquet then spoke as follows:—During the last year we have had a period of what I may call prosperity without any great inflation, the trade of the country is not growing by leaps and bounds, but it is showing steady progress.

The bank is now in a position that the directors can afford to distribute a larger share of the yearly profits to its shareholders, and, as Mr. the President just said, they propose to do so on the first of September next.

There has been a steady increase in the number of new accounts opened, both at the head office and the branches, and it is satisfactory to state that the bank's general business has been fully maintained, while the local facilities afforded by the branches continue to be appreciated by our customers and the public.

REVIEW OF THE YEAR.

It has been the custom during recent months to contrast the happy condition of the mercantile affairs in Canada with the distress which has marked all classes of trade in the United States. The record of the insolvencies sums up the contrast in a striking way; of course, we could scarcely expect to escape absolutely from the adverse influences which have wrought so much havoc among our neighbors, trading with them so largely as we do, and affected in our financial operations as we must be by the financial crisis there. Up to the present, at all events, no Canadian interest has perceptibly suffered from the cash in the United States, although, as I have already said, the business relations of the two countries are somewhat intimate and the conditions of trade in both, as a rule, run upon nearly parallel lines. Money has been lost in Canada by those who operate in stocks, but happily the number of people interested as speculators is not very large and the losses entailed by the shrinkage in market values did not effect the community as a whole.

But how comparatively little we have been scathed by the collapse of trade will be understood by the following figures of failures.—The number of failures there was more than 50 per cent. greater than last year, with liabilities of \$108,000,000 in 1892 as against \$382,000,000 in 1893, while in Canada the increase was only a slight fraction over 2 1/2 per cent. in number and 40 per cent. in liabilities. Tested by the record of mercantile failures, the condition of business in Canada has been good.

AGRICULTURE.

It must be gratifying to every one who has the interest of the farmers of the province of Quebec at heart to have learned what a splendid success has been made by cheese and butter from the province at the World's Fair. Mixed culture has been advocated since many years in this room, because it was felt that progress in culture meant progress in business; people live to enrich themselves and in an essentially agricultural province like ours wealth must come first from the land. The fatal mistake of our farmers of depending entirely on one crop for their living is rapidly disappearing to be replaced by the variety of products, and this year has been a year of rapid advance in the dairy industry among farmers. There has certainly been vigor on the part of the Government, or the Department of Agriculture, in fostering the necessity of improved methods in the general working of the farm to be adopted by farmers, but even the Government now would show meagre results without an active co-operation among farmers themselves. As said a well known professor whose energy, ability and devotion to the advancement of progress in agriculture makes him an authority, in answer to the question of where should the farmers look for guidance in making changes which imply progress. In reply he would say:—1st. To the Agricultural Societies and exhibitions which had furnished object lessons and stimulation; 2nd. To farmers' conventions, meeting of clubs and farmers' institutes, which had made information of the leading farmers the common property of all; 3rd. To the Government experimental farms, whose experiments had a capacity of a two fold service,

"investigation for discovery and illustration for guidance."

To farmers' syndicates formed during the last three or four years in this province is chiefly due the considerable increase noticeable in the manufacture of dairy products, and the most sincere sympathies should be extended to and encouragement given by every citizen to the Society of Dairy Products of this Province which has so largely contributed to the formation of these syndicates. The Honorable Minister of Agriculture in a speech delivered at St. Hyacinthe lately, before a conference held in that city of the forty-nine clubs of the diocese of St. Hyacinthe, said that there was actually in this province 425 clubs and that he expected that within eight or ten months the number would reach 1000. It is to be hoped that his expectations will be realized, for those clubs are the torch light bearers of progress in agriculture.

That this year has been a year in the good direction is undoubted, and the results are already noticeable. To the large increase of our dairy products is partly due the improvements noticeable during last year in the general business of this province. Cheese has been an exceptionally good season, with a record of export higher than any yet recorded, and the farmers have reason to congratulate themselves. The hay, owing to a short crop in Great Britain, has been exported and has proved a source of immense revenue. But the singular coincidence of unexpected shortages in this crop in Europe, with the unusual abundance on this side, are not to be realized every year, and should not carry out farmers' enthusiasm for the culture, for such an exceptional condition is not likely to be realized. But it continues to be in favor in England, and our creameries compare favorably with those of Denmark and Ireland. There has been a foreign demand for it at remunerative prices for all we could make.

The course the United States will adopt with regard to the tariff is awaited with some anxiety, as it is likely to form some guide as to possible chances in Canadian agriculture, for the new tariff under discussion, though altogether protective in its character, is far more favorable to Canada than any one expected. If adopted as proposed actually, the Canadian farmer could once more export his eggs, his barley, his horses and his hay across the lines with some chance of profit, and this would be interesting news to them who would likely prepare at once for an increased production in these lines.

OUTLOOK.

The general actual commercial condition of trade is sound at bottom, thanks to our excellent banking system and the avoidance during recent years of rash speculations, but it does not warrant undue risks; on the contrary, it counsels a continuance of caution, both in accepting and in granting credits. We have reaped in this country a good harvest, but for many products of the field prices continue abnormally low. If we can maintain business on the plane of the last year or two our progress will be substantial. There is at present no reason to fear that any serious check to the prosperity so long enjoyed will be sustained, but a prolonged period of depression, of declining values, of forced sales of merchandise, of curtailed credit in the neighboring republic would, doubtless, exercise a baneful influence on Canada's commerce by diminishing the commercial exchanges between the two countries and exposing some of our industries to undue competition through the slaughter of American wares, but the causes of the critical state of things in the United States being, mainly, local and removable by wise legislation, there is good ground for believing that they will prove transient.

There certainly exists actually in Canada a feeling of uncertainty as to the future, due partly to pending industrial legislation which promises a change from the present status, and the fear of radical tariff changes is always detrimental to business, is a potent influence in arresting the wheels of commerce.

So far as the present conditions are concerned, while the uncertainty exists, it causes suspense, and this in itself causes strangulation in all the departments of trade and industry. Manufacturers will not work up stocks for the future, capitalists will not move in new enterprises, traders will not purchase beyond present needs.

But when manufacturers and merchants know what to expect, then they can go to work and adapt themselves to the changes; when this is done there will exist the most favorable conditions for a general and permanent business revival, as money is now easy and abundant, banks and other money institutions paying their usual dividends, demand for all our products large. These are many indices of general prosperity.

THE ILLUSTRATED
Journal of Agriculture

Montreal, April 1, 1894.

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Notes by the Way.

The Horn-fly.—It seems to be the general opinion of scientific men that the *habitat* of the horn-fly is the droppings of the cattle, and that the best way to destroy this pest in its

infancy is to knock the solid excretions about our pastures, so that they may be quickly parched by the heat of the sun, and the eggs be thereby rendered infertile. *Rusticus*, who writes in one of the Montreal papers, gravely recommends that the pastures should "be bush-harrowed daily to spread the cattle-droppings." Fancy the expense of such a job! Two horses and a man could not bush-harrow more than, at most, 12 acres a day, and many farms have quite that extent of pasture in one piece. Of course *Rusticus* sets down the word *daily* in his article without due consideration. The best implement to knock the droppings about with is what we use in England; it is a stout stick, recurved at the end, something like a very stout hockey or shinny-stick. A lad with this tool could run over a good sized pasture in a couple of hours, and twice a week would be often enough to do it. (1)

Cattle-food in England.—Our English friends have been agreeably disappointed. They feared a great scarcity of cattle-food was impending over them, but the mildness of the winter has saved them. On January 24th, stock were still in the pastures, and the turnips, though late sown, have turned out much better than was expected, though a little harm was done in the western counties by an unusually sharp week of frost in the first half of January, the thermometer indicating, one morning, two degrees below zero! Imported food for stock is cheap, barley from the Black-Sea being only worth 14 shillings a quarter of 400 lbs.—about \$17.00 a short ton, and Egyptian beans, so useful to the dairymen, are equally reasonable in price. For spring-keep, the early fall-sown vetches and rye are said to look well and promising, while the wheat got just such a check from the frost as was required to prevent it from becoming winter-proud. Beans, peas, and some barley have been sown in the South and South-east, and the winter-ploughing being very forward, it may be said that the prospects for the future never were better. Poor fellows! they deserve a good turn, do the English farmers.

Barley—People who have never been brewers cannot understand the quotations for barley in the London market: for instance, last month, Lancashire best malting barley was worth 30s. a quarter, and Suffolk, Essex, Cambridgeshire, and Hertfordshire barley sold for 42s a quarter, a difference of 36 cents a bushel. The reason of this immense gap between the two growths is that the Eastern farmer is intensely careful in his selection of seed, in the cultivation of his barley-shift, in his harvesting of the crop, in his never mixing two qualities of the grain together, in keeping his land free from self-sown oats, in never sowing buckwheat, in dressing his barley to perfection, in *hummelling* it till not a single beard is left on the grain, and, lastly, in having land on the geological formation best suited to the crop, and a climate that is so moderate in temperature that barley sown on the 1st of March does not, on the average of years, ripen before the first of August?

One great mistake committed by barley-growers is ploughing too deep for this crop. Barley likes a finely pulverised shallow furrow, 3½ to 4 inches is quite deep enough, and if

(1) The *Flytel*, as Prof. Fletcher calls it, takes a week to hatch.—Ed.

the previous crop was heavily manured, as it ought to have been, the grubber and harrow can hardly be used too often, as a thorough mixing of soil and manure is absolutely necessary, if a really fine sample is wanted.

A variety of goods for market.—We must repeat—as we do annually—that the farmers round this good town of Montreal do not make good use of their opportunities.—Anything really first-rate in the eating line will always, if early, fetch a remunerative price in our market, as is proved by the high rate at which M. Bourdon sells his fresh eggs and butter, and the money Mr. Brown, the butcher, pays for his early lambs. Good fresh butter, soft cheese, small dairy-fed pork—50 lbs. to 60 lbs.—Down-mutton, capons, and green-pease gathered young and not allowed to turn yellow by exposure to the light, will always fetch a profitable price here.

Hampshire-downs and crosses.—It is almost incredible, but the best Hampshire-downs and long wool crosses at the last Smithfield-club show, gave 74.70 o/o of carcase to live weight. By the bye in answer to an enquirer, we may say that the name "*Smithfield*" has nothing to do with *smith*; the name was originally "*Smoothfield*" The lightest lot of lambs at the show was Sir Mark Collet's Shropshires; they only weighed 60 lbs. the carcase.

Dorset cross-lambs.—The favorite first early lamb in the London market is a cross made by putting a Hampshire-down ram to a Dorset-horn ewe. The Londoners of the wealthy class do not like white-faced lamb or mutton, and this cross gives the desired brown tinge to the legs and head. A breeder of this cross, had, on the 10th of February, plenty of 48 lbs. fat lambs (carcase weight) ready for market, but the trade was dull, as there never is a great demand for lamb in England till *salad* is plentiful, or early spinach is ready to eat with the boiled leg of lamb. The fore-quarter, roasted and eaten with mint-sauce is the favorite dish.

Do, please, castrate your male lambs as soon as it is safe to do so. The meat would not have that red, foxy look it too often has if the testicles were extracted at an early age.

Swine-fever.—This annoying disease is so terribly prevalent in Britain at present, that very large areas are entirely closed to traffic in swine. All Bedfordshire, Cheshire, Derbyshire, Lanarkshire, and several other counties have been declared infected areas and, in consequence, no hogs can be moved out of them; this will seriously affect the trade.

Mutton.—The London butchers say that the Hampshire-downs carry more lean meat, especially down the back, than any other sheep.

Pipes bursting in frosty weather.—In an exchange, we are told that elliptical pipes never burst from water freezing in them. If this is so, why not carefully hammer our cylindrical lead pipes into elliptical form?

Beans.—Professor Robertson says that horse-beans are good to supplement maize-silage. Not a doubt about it, and so are peas.

Ploughing-in green-crops.—As we were translating the last Report of the Dairymen's Association the other day, we were delighted to see the strong feeling that existed among the members against leaving the second crop of clover to rot in the ground, when it would be so much better employed in the silo for the production of milk in the winter. M. Courchesne, who supported the theoretical side of the question, was well answered by Mr. Barnard to this effect: "If you carry off the second crop of clover, to feed three or four extra cows, you will have by next summer from ten fifteen loads of dung to replace it. This will have cost the second crop, which will have fed three or four cows, from which you will have drawn a good yield of milk. Formerly, our cows used not to earn their keep; but it is not so to-day, for whereas then \$25.00 was the maximum production of a cow, we now hear, from M. Brodeur, that his cows give him an average yearly return of \$50.00." And it makes very little difference whether the crop is left to rot on the surface or is ploughed in. Nothing struck us so much last summer, as we travelled backwards and forwards from Ste Anne to Montreal, as the enormous waste of winter-food that was visible in the number of acres of second-crop clover that was left uncut. If any one imagines that, by leaving the first-crop to become nearly ripe with the idea of getting a greater bulk of hay, he is doing a wise thing, he is greatly mistaken. There is no crop on the farm the goodness of which depends so much on its being cut when in full vigour, as clover. Cut early, that is, about the 20th of June in these parts, and, again, six weeks afterwards, about the first week in August, the second-crop will be in full bloom and therefore fit to cut. The interval will of course depend greatly on the weather, and so will the bulk of the crop. Some one said at this meeting that the second-cut, when got in good order, is as good as the first! This is evidently not the opinion of English buyers; for, in the London market, the second-crop clover is invariably quoted at \$5.00 a load of 2016 lbs., i. e. 18 x 112, lower than the first-crop. Still, it is a very valuable commodity.

Wheat-seeding in England.—In an extract from an exchange, Dr. Hoskins, of the *Vermont Watchman*, states that the general dose of wheat-seed on an acre of land in England is three bushels. This may have been the case, in fact we know from our personal observation that it was, fifty years ago, but a great change took place as to quantities of seed about the year 1850; Hewitt Davies, Mechi, and others, in spite of the wildness of their theories on this subject, did this much good, that they drew the attention of the farmer to the absurd waste of seed that was going on, and led to a decided reduction in the quantity of seed employed: for fall-wheat especially. When sown in October, wheat-seed rarely exceeds 6 pecks, and an addition is generally made in November of one and two pecks, the great propensity of wheat to tiller in the spring rendering these quantities sufficient. Our own great crop of 83 acres, in 1852, was grown from one bushel of seed to the acre: yield 60 bushels an acre; but the land was full of dung, it having belonged to a man who kept a large stable of post-horses. No manure was given to the wheat-crop in this case, except 100 lbs. of nitrate of soda and 336 lbs. of

salt an acre to a piece of 11 acres on the gravel.
In Scotland, where, in the few counties in which wheat is grown at all, spring-wheat is generally sown, larger quantities of seed are used, as spring-wheat has not very much time to tiller.

Hay.—Mr. Keoble, a large dealer in hay on the London market, says that he sold, this last year, 10,000 tons of imported hay. We regret to say, that, in his opinion, our people do not know how to make hay: they let it stand too long, and move the clover about too much, consequently, the leaf falls off. Clover should never be touched except to turn it over, and the sooner it is in cock after turning, the better. As for mowing in the morning and carrying in the afternoon, he will not hear of it.

Rape.—This plant we are happy to say is becoming decidedly popular. We look upon it as being the grand future restorer of the far-ends of the long farms: those pieces we mean that never, by any chance, see the dung-cart. What cheaper means of restoration can be found?

500 lbs. of bone-meal....	\$7.50
6 lbs. of seed.....	0.72
	8.22

Feed the crop off with sheep, with or without extra food, except a bit of hay-chaff, and you have, as a rule 10 fat sheep to the acre, and such a crop of grain the following year as you never dreamt of. If you can find it in your heart to give your sheep a pint of pease and oats a day apiece, they will pay for it and your grain crop will be increased.

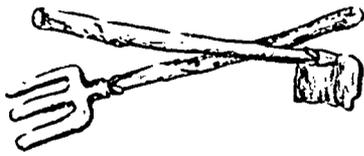
Tamworth pigs.—Mr. Andrew Dawes, of Lachine, tells us he is highly pleased with his Tamworth pigs, and, which surprises us, that they make as much weight from their food as the noble Berkshires he used to keep. It may be so, but they do not look like it.

Butter.—There seems to be a general consensus of opinion that we have arrived at the point of making enough cheese for our market, and that we must turn our attention to bring our butter up to the same pitch of excellence that we have succeeded in imparting to our cheese. This is precisely what we tried to impress on the people of the North-shore, when we were lecturing in the Maskinongé and Berthier districts some eight years ago.

Slops.—In the States, we see by our exchanges, the dairy-farmers are beginning to revert to the use of dry meal in preference to slops for their milch-cows. If we sold milk, we should feed our cows on slops and mashes; if we wanted butter or cheese, we should use dry food, and we are persuaded that a cow would last all the longer for it.

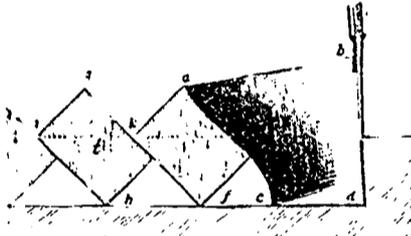
Transplanting mangels.—A farmer writes to the *Rural New Yorker* to know what it thinks of sowing mangel-seed in a bed and setting out the plants afterwards. Without expatiating on the absurdity of the idea, it is enough to say that, in all probability, three-fourths of the plants would run to seed.

Tools.—Nice, handy tools, are they not? These are what the "Cultivator" says the old American farmers "used to worry the soil with!"



All that sort of thing is changed, with a vengeance, for nothing can be neater or handier than the modern hoe and dung-fork.

Deep-ploughing.—As a "Man of Kent," we have always been an advocate of deep-ploughing. With the old "Turn-wrest" plough, used in that county, the stubbles are broken up in November with furrows from ten to twelve inches deep, and the clover-leys in September are prepared for wheat by a nine inch furrow. Four powerful horses are required for such work, so we need not insist upon such practice being general here, as it is entirely out of the question. Still, some improvement might be made in our usual system of working the land. If a 12 inch furrow is unattainable, that is no reason why a 4-inch furrow should be the usual one. If a furrow 14-inches broad and 4 inches wide is heavy for a pair of light ponies, try what they can do with one 6 x 9, and you may eventually arrive at ploughing your stubbles as they do in Scotland 7 inches deep by 10 inches wide, as in the annexed engraving.



THE EFFECTS OF A RECTANGULAR FURROW-SLICE.

You will observe in the cut, by the form of the furrow-slice, that if the whole of the ploughed surface of the field were removed, the denuded part would be as smooth and level as a billiard-table. The crest of the slices, at a and g, present sharp edges for the harrows to catch hold of and the regularity of the depth secures regularity of growth in the plants, so that one shall not be ripe when the next is green.

Judges at ploughing matches are too apt to neglect inspection of the sole of the furrows. If the sole is not level, the land has not been equally stirred all over.

Do not be afraid of letting your sock down an inch or two. We remember well the storm of ridicule the M.M. Guévremont encountered at Sorel when, by our advice, they began to plough a deeper furrow than had been customary in those parts. They were told that their land would be permanently injured by it—but it was not. The favorite furrow in one part of the Township, 20 years ago, was one of 18 x 4, and in that way, with a pair of fast-walking horses, they managed to get over 3 acres a day; nay, Col. Pomroy's man boasted to me of having one day ploughed 3½ acres: but the land was not ploughed.

Plough deep; but not all at once, and not for an unmanured crop. Deepen your furrow by degrees; in preparing for a root-crop that is to be dunged, let down the sock an inch or

so, the trifle of raw earth brought up, after being mixed by the subsequent operation of cross-ploughing, grubbing, &c., will not injure the quality of the old furrow; it will break up the old furrow-sole, over which the irons of the plough have passed so often, leaving enough metal behind them to make the sole almost impervious. Always deepen your furrow before the frost sets in, for the action of this powerful worker will amazingly modify the crudeness of the newly exposed subsoil.

Subsoil-ploughing we look upon as an impossibility here, as few farmers work more than a pair of horses. If any one is energetically disposed, he may try it, on a small scale, by "returning empty" from the end of a furrow and ploughing again in the same furrow so as to break up the subsoil; but we doubt whether this would pay except in market gardens, &c., for the seasons are short here, and there is rarely more than time enough in spring and autumn to do the absolutely necessary work of the farm. (1)

Crushed linseed.—When we speak of crushed linseed, we mean the seed of the flax-plant, cracked but not meal; not the ground cake. Dr. Hoskins, in the following article in the *Vermont Watchman*, we fancy misunderstood us. There is no reason why every mill, in those parts of the province where flax is grown, should not have a "linseed-crusher;" it only requires a hopper, equal distribution, and two slightly corrugated rollers (almost smooth) of equal diameter; no grinding action at all, as if the skin of the seed is just cracked, nothing more is needed. As we have observed times out of number, you may boil linseed for hours, and even then, a large majority of the grains will pass through the beast undigested.

"SEVERAL correspondents have inquired about "Thorley's Food for Cattle," and there seems to be a strong effort made to sell it in Vermont. Not knowing much about it, except by reading of it in English agricultural publications, we sent a note of inquiry to the able and widely-experienced editor of the *Montreal Journal of Agriculture*, to which he has kindly responded as follows: "Thorley's Food for Cattle is very generally used in England as a condiment, but, in my opinion, costs a great deal more than it is worth. One hundred and forty dollars a ton is rather high. I do not know its composition, but there is a variety of spices, flavoring matters, etc. If cattle are 'off their feed,' I have found the following mixture helpful:

Crushed Linseed (linseed meal)	30 lbs.
Corn or barley meal	120 "
Fenugreek	1½ "
Turmeric	1 "
Ginger	½ "
Gentian	¼ "
Coriander	1½ "
	155 lbs.

This ought not to cost more than three cents a pound, at the very outside." Which, it will be seen, is just one-third what the "Thorley Food" is sold for in Vermont. All the constituents named are healthful and cheap, and can be bought of or ordered through any good druggists.

(1) Besides other objections to repeating the ploughing in the same furrow as a means of deepening it, a good ploughman would hardly like to do it, for it makes an awful mess of the work.—Ed.

establishment. We think the occasional use of such a preparation might be useful.

Feeding and fat in milk.—The question is being earnestly discussed in England, where, as in the States, the opinions of the theorist and the practical dairyman differ widely. The trials that have hitherto been made to settle the point have neither been extended enough in point of time, nor carried out on a sufficient number of subjects. The following conditions seem to us to be a suitable plan to be employed in deciding the question: can the percentage of fat in milk be increased by food?

Take a good number, say, 20 cows, all calving in the same week; divide them into two lots, the first lot to be fed on very rich fat-producing food, with a fair proportion of nitrogenous food, such as beans, pease, &c., and the second on very poor food, this to be extended over a period of three months, the rations being changed over for a second period of three months, and lot tests be taken in the first and last fortnight of each period. Then, if the like results were obtained from both lots of cows, the conclusion would be a convincing one. That is to say, if lot 1, fed for three months on a very rich diet, and for the next three months on a very poor one, gave milk no poorer in fat at the end of the second period than at the end of the first; while lot 2, fed first on a poor, and then on a rich diet, gave milk no fatter at the end of the second period than at the end of the first, it might safely be concluded, as a general rule, that the percentage of fat in milk is not affected by food.

Again; we all know that a cow has no power to create any element of food. As Mr. Stewart says: "whatever quantity of butter a cow produces, she merely appropriates what she finds in her food." The German experimenters fed a cow 14 days on foods rich in fat, and, after analysis, the milk was not found to have been enriched; hence they concluded that you could not, by feeding, increase the percentage of fat in milk. But, afterward, by lengthening the period of rich feeding to 30 days, they found that the percentage of fat had been increased! It takes time to change the digestive system of any animal.

The following extract from "Hoard's Dairyman" seems to us to be conclusive as to the practical result of feeding fat-producing food to milch-cows, and the note by the editor shows that he is not very hearty in his agreement with the "University professors."

Some Ohio Experiences in feeding, and Change in Quality of milk.—Ed. HOARD'S DAIRYMAN:—We are milking 32 cows. Twenty-four came in last fall in October and November, the rest are heifers milked through the summer. We had been feeding 3 bushels corn, oats, and wheat, ground together, in equal parts by measure, well mixed with cut hay (timothy), made wet and steamed in a barrel that holds eight bushels, fed warm. They also have warm water to drink, with as much good timothy hay and corn fodder as they would eat. Fodder made from B. and W. corn.

They were giving 16 cans milk of five gallons each, or 80 gallons of milk per day. Took milk to creamery, had it tested by Babcock tester two different times, and it tested 24. We then put cows on dry feed, feeding the same quantity of meal with the addition of 3 gallons of oil meal, for 9

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herd; and the fact is important to be known, because it should lead to a frequent inspection of all herds. Any intelligent person with sharp ears can in a short time be taught how to detect the disease, if it has made any considerable progress, by auscultation and concussion,—that is, by listening and thumping at the chest. The sounds of the breathing are quite different between healthy and unhealthy lungs; and the sounds produced by thumping with the fingers over the seat of the disease is also markedly distinct between healthy and unhealthy portions. It is the same difference that there is between tapping with the finger upon a drum-head, and upon a board.

Vt. Watchman.

The discovery of tuberculosis in the Agricultural College herd has caused quite a commotion among dairymen; and it seems to us a good time to call attention to some very important points in the care and breeding of dairy cattle. "Tuberculosis" is simply the scientific name given to what is otherwise called consumption of the lungs. It is substantially the same disease in our cattle as in ourselves; and the cause is the same—breathing unwholesome air, and living "stived up," to use a very expressive common phrase. Add to these high living—that is, over feeding,—and you have the whole thing in a nutshell. It is in the pampered and crowded herd, crowded in the stable and crowded in feeding for high production under unnatural conditions, that develops this tendency; and when the tendency is developed, the germs of disease, which are everywhere, easily find the spot to grow and develop themselves. Not only must the college herd be sacrificed, but on all hands we are getting similar information,—almost uniformly from herds of rich men, or of men trying to get a great record, so as to get fancy prices for both butter and calves. The last exchange we picked up contained the following statement: "Nineteen head of valuable Guernsey cattle including the one which received the highest award at the World's Fair, the property of ex-Vice President Morton, have been killed on account of tuberculosis."

In order to keep cow stables warm in our climate, it is necessary to keep the winter's wind out; and all the teachings of the agricultural press, and of public speakers in agricultural meetings, have been in this direction, without a word of caution against the possible attendant danger from lack of pure air. As for ourselves, we have occupied the place of learner in dairying, and have in no way felt called upon to take up the rôle of instructor. But the facts of our profession, as a physician of men, have instinctively been kept in mind in our dealings with animals; and knowing how much better is prevention than cure, we have carefully avoided going to extremes, even in the matter of warm stables: and we say to-day that a stable of dairy cattle in which water never freezes, in Vermont, is a dangerous stable in which to keep cows.

DR. HOSKINS.—Vt. Watchman.

AMERICAN COMPLIMENTS.

We have spoken of the losses to farmers entailed in the provisions of the Wilson tariff Bill vs. the lower duties on all farm products except foreign fruits. We are asked what gains

the farmer will make through tariff reduction. Here is what Mr. Wilson says in his report:

To the farmers of the country we have given untaxed agricultural implements and binding twine and untaxed cotton ties, for the additional reason, in the latter case, that cotton is the largest export crop of the country, sold abroad in competition with the cheap labor of India and of Egypt, believing that it was sufficient for the private tax gatherer to follow the farmer in the markets of his own country and not to pursue him into all the markets of the world.

Never mind where the tax-gatherer goes to, what will the farmer save by lower duties on these things? The most important is the farm implement duty. The Farm Implement News has collected a large amount of information on this subject—from the manufacturer's standpoint. There is, apparently little to fear from European competition, though some think that English and German imitations of some of our smaller implements might find a market in the West and South, but our manufacturers do evidently fear Canadian competition. On this head the News says:

Canadian manufacturers operate under the American system; their works are modern, and equipped with the best and latest appliances; their foremen are Americans or have served terms in the best factories in the United States, and their workmen are fully as intelligent and as expert as ours. They get much of their material cheaper, and labor at about 25 per cent less than our manufacturers have been paying. With these advantages they would be formidable competitors if free trade were reciprocal, and such reciprocity might be questionable as a business proposition; but to open our fields to them while theirs are closed to us would be a most stupid and ridiculous proceeding, as viewed from a business standpoint. And it may be remarked that these tariff questions, which so affect the commerce and industries of the country, should be regulated and settled by business men, and not be left to a lot of lawyers and politicians who know or care nothing practically about commercial and industrial affairs, and who will keep up this tariff agitation and tinkering, without regard to public welfare, so long as it can be used for party purposes.

That last sentence is as a nut. But if our manufacturing friends are to be considered so carefully how about farmers? There is a big Canadian tariff on corn meal and other agricultural products. Why give Canadians free access to our markets when they keep us out of theirs?

Exchange.

The Farm.

Land Fertility.

At the Hurstmoncoux Farmers' Club last week Mr. E. B. HADLEY read a paper on "How can the fertility of a farm be kept up without purchasing foodstuffs and manures?" After traversing the cause of the agricultural depression, and mentioning the remedies which had been suggested for the same, Mr. Hadley, in his highly interesting and deeply thought out

paper, said he was not sure that Protection would be an unmixed blessing to them, and thought that, at the present prices of agricultural produce, a good deal of land could not be farmed at a profit if held rent free. He was of opinion that it was to self-help they would have to look to enable them to steer through the present bad times; it was this, he said, which had suggested to him the title of his paper. One thing was certain, they must make more of their produce than the prices they at present obtained, or they must curtail their expenses in order to make both ends meet. Alluding to the present prices paid for stock, he believed that, given a fairly good prospect of grass during the coming spring, they would see a considerable advance in the price of store beasts and sheep before long, for they must look in the future to stock in one shape or another, to sheep or cattle, to breeding, feeding, or milking, as the sheet-anchor of their industry. Nitrogen was, without a doubt, one of the most expensive fertilisers the farmers had to buy. Recent research and experiment had proved to demonstration that there was a way by which this vast reservoir of fertility might be tapped, and that one great family of plants, viz., the leguminous, had the power of absorbing nitrogen from the air and stowing it up in the soil for the use of succeeding crops. These included peas, beans, tares, all the clovers, trifolium, lucerne, sainfoin, lupins, which had the power, if supplied with the two other great elements of plant food—potash and phosphoric acid—of assimilating the free nitrogen of the the atmosphere and leaving in its roots stubble and decayed leaves for the future use of the succeeding crop. No others of the ordinary cultivated plants seemed to possess that power, but, on the contrary wheat, oats, barley, potatoes, turnips, all left the soil poorer in nitrogen. He considered it the very worst of economy to let any crop stand still for the want of manure it may need. Having given the practical experiences of eminent agricultural scientists, he said the result taught them that nature furnished them gratis with ample supplies of a perfect substitute for their own purchased nitrates, guanos, and oil cakes, and the lesson to be learned was that they must endeavour to grow leguminous crops as extensively as possible. By a careful rotation they might manage to grow nitrogen-collecting crops alternately with a nitrogen-consuming crop, taking care to give the former a sufficient manuring of potash and phosphoric acid to ensure a luxuriant growth. It was a well-established fact that all leguminous crops are particularly grateful for a dressing of stable manure. He further said that the following rotation would give a leguminous crop every alternate year, and would not be unsuitable for a good deal of land in this district (Sussex, Eng.): 1, oats; 2, clover; 3, wheat; 4, green crops (rape and spring tares, trifolium, and cabbage, winter tares and thousand-heads, or rape); 5, mangels, swedes, potatoes; 6, beans. This could be varied to suit different circumstances or soils by growing barley instead of oats, or peas instead of beans. This rotation would provide a large amount of stock food, the land would be kept clean and in good heart, there would be no two white straw crops following each other, and no fear of clover sickness, as clover would only occur once in six years. (1)

(1) Once in eight years is safer, as the East-Anglian farmers found out 50 years ago.—Ed.

GROWING ROOTS: BY THE EDITOR.

(Continued.)

Sowing the seed.—This, if you have a proper seed-drill is simple enough, particularly with unsteeped seed. The The Mathews and the Planot Jr. are fitted with regulators for the distribution of the proper quantities of seed to the acre, but, as a general rule, they both sow too thin, so, we recommend that the feed-hole for mangol-seed be not used, but a larger hole. Experience will soon show you what size or number is the right one. In all sowings with American seed-drills, we should open the distributor a hole or even two above the one on the indicator, for they are all made to sow too small quantities.

The drills, before sowing, should be rolled with a light roller. To act regularly, it should not cover more than two drills at once, as when three drills are taken in, and one happens to be a little higher than the other two, the latter will not be rolled at all, or hardly at all.

If you have no seed-drill, a rut must be made, with the corner of a hoe, along the very middle of the rolled drill, not more than $\frac{1}{2}$ of an inch deep; the seed is to be sown carefully by hand in the rut, and covered with a wide-toothed rake. The roller must follow as before. All seed-drills have rollers attached, so, when they are used, the second use of the regular roller is not needed, though on very light land, we prefer them, and heavy ones too. One year we *trod-in* our mangol-seed, after the second rolling, walking on the flattened surface of the drills—in moccasins; heeled boots would bring some seeds deeper than the rest,—and a perfect plant was the result; in fact, with only 3 lbs. of seed to the acre, there was not a vacant space two inches wide all over the piece. We do not recommend so small a quantity of seed to others, as it is rather risky.

Depth of sowing.—If we could be sure of hitting it exactly, we should prefer $\frac{1}{2}$ of an inch as the depth for depositing mangol-seed. A great deal depends upon the state of the land: the finer the tilth, the shallower the seeding; but among clods, it must go in deeper.

Time of sowing.—In this part of the world, mangels can hardly be sown too early. There is no fear of their going to seed. The last week in April or the first week in May, according to the season, will do very well, but after the 15th of May, we should sow swedes. Some wiseacre, in one of the States' paper, enquired, last month, if it would not be as well to transplant mangels: don't; for the work would cost more than the seed; besides, the majority of plants would probably run up to seed. One of the mysteries of nature is that, in Australia and, we believe, in New-Zealand too, the whole tribe of beets increase continuously in size during two seasons! How about the quality of the giant-roots?

Horse-hoeing.—The plants from the steeped seed will probably begin to show above ground about ten days from the time of sowing—sooner or later, according to the season; and it is on this account that we laid so much stress on the necessity of keeping the rows in the middle of the drills; for, if the rows are equidistant, the horse hoe can pass along between the drills without damage to plants, even if, here and there, there may be a yard or two of plants not up

so as to be visible. Early horse-hoeing is of vital importance, so important, in our opinion, that in the case of parsnips, which love to linger in the ground, we always mix with the seed a $\frac{1}{2}$ lb. of rape seed, which, sprouting rapidly, enables the horse-hoe to go to work on the fifth day after sowing without doing any injury to the plants.

The horse-hoe.—The horse-hoe in general use here is rather a *drill-grubber* than a horse-hoe. If properly constructed, the implement, being made with curved side-hoes, it will at the second time of going over, cut or pare away the sides of the drills, leaving only a narrow space, two or at most three inches wide for the hand-hoe to attend to. A miserable cut of our own horse hoe is shown at p. 163, vol. 1, of the Journal. The beam is too long, and the curve of the side-hoes too abrupt. It can be made anywhere for five dollars, and, where there are no large stones, is a perfect implement, working at from two to six inches in depth, and cutting through the whole ground, the weeds being left bare on the surface. No drill-grubber can do the work properly until the sides of the drills have been pared down, and, even then, what is the use of having two implements when one will answer every purpose.

Hand-hoeing and singling.—Mr. Stephens, in his invaluable "Book of the Farm," so great a favourite with our present Minister of Agriculture, that he has had his copy interleaved and has annotated it throughout, objects to the deep hoeing of root-crops, grown on the drill, on account of the danger that exists of the dung being thereby removed from its position. So much the better, say we, for the more intimately the dung is mixed with the soil, the more readily does it yield up its fertilising juices to the plant. Dung is only spread in the drills for economy's sake, and to start the germ into life. In 1884, at Sorel, we were astonished at seeing the roots of white-turnips running across 26 inch drills, and, not content with meeting in the middle, invading each others' territory. Some of the predatory roots were as thick as a goose-quill! The reason for this was plain: the horse-hoe had pared down and pulverised the sides of the drills, the hand hoe had pulled down the tops of the drills, and the turnips found themselves floating, so to speak, on a sea of mingled food, earth, and moisture, which gave them unlimited scope for searching after anything they might covet.

Now, if this is true of white-turnips, still truer is it of mangels. The greatest possible crop of this root cannot be grown, unless the drills are pulled down to the dung, and the young plants left so bare that an unaccustomed observer would think they must perish from desiccation. "Ah, Sir," said a good Canadian to us, as we were singling our mangels at Sorel, "what a pity, you are killing all these nice beets, they will all be dead to-morrow." But they survived! Do not fear, however queer they may look, in twenty-four hours they will revive, and all the exposed part of the root will become sound cattle-food. The deeper you hoe, and the more thoroughly bare you leave the plants, the bigger the crop will be. Keep the horse hoe going, once a week, until the leaves of the plants are likely to be injured by the horse; never pull the leaves, as some do, for it indisputably lessens the yield of roots.

Where skilled hoeers are to be had, such as we see on the farms of Messrs.

Drummond and others on the Island of Montreal, at Mr. Vernon's, Water ville, Mr. Cochran's Compton, &c. singling roots offers no difficulty. A man will do his half-acre a day, and do it well, if he has once learnt the trick. But in other more backward places, we have long been convinced that the plan we introduced at Sorel—it is still practised there—is the cheapest and the surest. M. Séraphin Guévremont thus describes it:

Two women start first, one to each of two rows, they, with a 7 inch hoe, chop out the plants, leaving as few as possible in a bunch at from 9 to 10 inches, apart. Follow them two other women or children, who single the bunches, leaving the strongest plant standing in each bunch. M. Guévremont adds: "Here is my calculation of the cost of hoeing an arpent ($\frac{1}{16}$ of an imperial acre) of roots:

2 women—chopping out—1 day	
at 60 cts.....	\$1.20
2 women—singling by hand	
after the chopping out.....	1.20
	\$2.40

I think this is the extreme possible lost: Your faithful servant.

SÉRAPHIN GUÉVREMONT.

On the other hand, M. l'abbé Chartier compared the cost of growing silage-corn with the cost of growing roots, and gave the expense of the hoeing of the roots at \$12.00 the arpent!

Mr. James Drummond, again, puts the cost a little higher than M. Guévremont, i. e., \$3.50 an arpent, but then we must remember that wages are higher at Petite Côte than at Sorel.

As to the profit on growing roots, we beg to quote a letter from Sorel, received some seven years ago.

Sorel, June 20th, 1887.

"We, the undersigned, after having cultivated root crops, on a fairly large scale, for the last two years, wherein we have followed the instructions of Mr. Jenner Fust as to the manner of hoeing, singling, &c., both with the horse-hoe and hand-hoe, have come to the conclusion that it pays well to grow roots; for, since we bought a horse-hoe, and learned how to use a hand hoe properly, we find that the expenditure in labour is not great in proportion to the yield of the crop and the value of the roots, even if they are grown entirely for the use of stock.

(Signed) J. B. GUÉVREMONT,

Sénateur

SÉRAPHIN GUÉVREMONT

(From the French).

A few words on the cultivation of mangels on heavy land may not be out of place. Autumn cleaning is of course necessary, and sowing on the flat saves trouble.

If you have the dung—12 to 15 tons an acre—in hand, spread it and plough it in before winter. Draw out the water-furrows, carefully, taking care that there are plenty of them, and keep all cattle out of the piece during soft weather.

When the land is dry enough to work in the spring, your main object should be to get all the seed-weeds to start into growth. To this end, pass the grubber along the ridges, and two or three days afterward, harrow in the same direction. If the autumn furrow was made in proper form, the land will be as fine as meal at the top. Spring-ploughing, on heavy land, will

give you plenty of clois, whereas the treatment we recommend,—called, in England, sowing on the stale furrow—will produce the finest possible seed-bed.

Next, roll the land with a moderately light roller, if you are not satisfied with the meanness of the surface, harrow and roll again, allowing three or four days to elapse between the operations. The reason why we should not grub and harrow across the ridges is, because, in the early spring-tide, it would be dangerous to fill up the open furrows between the ridges: a heavy fall of rain might convert the whole piece into a *puddle-bed* that would never become *kind* again throughout the season.

The land is now ready for sowing. Supposing that your land is in ten-foot ridges, and that the outside rows on each ridge are a foot from the open furrows, you will have on each ridge four rows two feet apart, and about the same distance will intervene between the outside rows of each pair of ridges. This will afford a good path for the horse-hoe, and plenty of air and light for the growing crop. As before, sow the mangel-seed shallow: $\frac{3}{4}$ of an inch deep is sufficient.

But, perhaps, you do not like sowing on the flat; you prefer the drill system. All right; it is easy enough to arrange matters, and less dung is needed, which is something in favour of the plan. After fall-cleaning and ploughing, harrow, grub and cross-plough, till a fair tilth is obtained; drill up the land, spread the dung, split the drills, and after having drawn cross-water-furrows, let all lie till spring.

When the dust begins to fly, at the end of April, or the beginning of May, send the harrows along the drills, and in four or five days repeat the harrowing—the weeds that sprout in the interval will be destroyed—; then re-shape the drills with the double-mould-board plough, and, after rolling, the land will be ready for sowing.

We have tried both these plans, and of the two, we prefer the latter, though both answer admirably. Though we dislike earthing up anything, except celery, and potatoes, slightly, we should feel inclined, in the case of roots on heavy land, to pass the double-mouldboard plough between the rows, as a means of facilitating the carting off of the crop in the fall. If the horse and hand-hoeing has been properly done, there will be 3 or 6 inches of loose mould between the rows of roots, and poaching that, about in a rainy October would do no end of harm.

In preparation for the singling of mangels grown on the flat, we would recommend the passing of a pair of light harrows across the rows, two or three days before the singling begins. This would separate the plants, and perhaps lighten up the surface, making the extraction of the superfluous plants in the bunches easier. A rotary machine was invented some years ago that, passing between two rows, chopped out gaps in the plants with great regularity, as long as the horse that drew it kept at exactly the same pace. We have not heard it spoken of lately, therefore we conclude it is defunct.

Harvesting mangels.—As in carting dung to the drills, the horse walked in one drill and consequently the wheels of the cart went up a drill, thus avoiding cutting up the fine mould of the raised drills, so, in carting off the crop, the same route should be followed: all trifles, you will say, but attention to trifles makes perfect work.

As the earth is all in a pulverised state about the roots, pulling the mangels will be an easy job. They should be drawn straight out, not sideways, as the part in the ground is easily broken off, and mangels soon lose a good deal of nourishment by bleeding. The roots should be thrown in heaps at regular distances, so that the carts may go down between the rows of heaps and the filling be done as quickly and, therefore, as economically as possible. The tops had better be wrenched, not cut, off, though as the sugar-beets for the factories are invariably deprived of their tops by means of a knife, the damage cannot be very great to the mangel treated in the same way.

As the heaps are not always carted to the root-cellar the day the mangels are pulled, they should be covered with the leaves if left out at night, as though mangels will stand a sharpish frost while growing, under the protection of their great leaves, a very slight frost will injure them when uncovered.

As the mangel is the most durable of all farm-roots, it would be as well, when putting the crop into the root-cellar, to place it in the furthest part as it will not be wanted for use till all the other roots are consumed.

Constituents of the mangel.—The following are the constituents of the mangel:

Water	Ash.	Albuminoids.	Fibre.	Other carbohydrates.	Fat.
88.0	0.80	11.00	0.90	9.10	0.10

At what time of year the samples for the above analysis were taken does not appear. The loss of water between the time of storage and the middle of summer must be, comparatively, very great—not less, we should say, than five or six per cent. Besides, great chemical changes undoubtedly take place in stored mangels and swedes, changes that are highly complicated and undetermined hitherto, but there can be little doubt as to these changes being accompanied by an increase in the percentage of the solid matter, and of sugar and albuminoids, probably at the expense of the fibre and carbohydrates. At any rate, so valuable do mangels, well cared for, become in the summer, that our old farm-tutor, Wm. Rigden, used to pay almost any price for them, for his show Southdowns. He found his valuable sheep came out better at the July show of the Royal Agricultural Society on that food than on tares, trifolium, clover, &c., of which his farm was full.

The leaves are not good for much, and though they will keep, if mixed in layers with straw, for a short time, there is so little "proof" in them that it is hardly worth while to try it. Frozen mangel-leaves, and most of them are sure to be touched, and leaves covered with dirt, cannot be worth much.

For storing roots, we always observed the following rule: mangels 1st; swedes 2nd; carrots 3rd; and white turnips 4th; so that when wanted for use, they would come out in the reverse order.

Were we to grow five acres of roots, they would be, on heavyish land:
White turnips.. $\frac{1}{2}$ acre (the headlands)
Belgian carrots 1 do
Swedes..... 1 $\frac{1}{2}$ do
Mangels..... 2 do

On light land, like the much abused Sorol sand, where swedes yield $\frac{1}{2}$ more than mangels, we should grow $2\frac{1}{2}$ acres of swedes and 1 acre of mangels.

We shall never probably attain to the enormous crops, of mangels grown in the West of England, of which we gave instances a month ago. Ninety-six gross tons to the imperial acre seems an impossibility, for in this case the roots must have averaged 9 lbs. apiece at least. We shall, however, have more to say on the yield and value of root-crops at the conclusion of this series.

THE ROOT CROP.

EDS. COUNTRY GENTLEMAN.—As it now becomes spring again many farmers should learn the importance of a good root crop and raise it. There is nothing much more valuable in connection with hay and ensilage for feeding than a good crop of turnips or mangel wurzels and it has been demonstrated that they can be grown for the low price of about six cents per bushel. Besides, the leaves of these crops in the fall for feeding when sowed corn is gone and it is not desired to turn stock into meadows, are very valuable. (1) Some of the secrets of growing these crops or things which have heretofore stood in the way of growing them, I will mention, so that all farmers who desire may have the advantages of the blessing conferred by these crops.

One of the first things and most injurious in the way of raising these crops is the trouble from weeds. This can be remedied, usually, best in the fall before; plow your land early, or if it has been planted the year before a good cultivating perhaps will do; harrow it down finely; this gives a fine seed-bed and in a short time all the weed seeds will start to grow. Then, harrow again and kill them all, and by the time they start a second time, and get a good harrowing and are exposed during the winter, there will not be many of them left. (2)

Good manure of course is a necessity for growing a good root crop. If barnyard dung is used and is coarse, I should row it under, but if it was well rotted it should probably be best to cultivate it in on top. But it sometimes occurs that farmers have not sufficient barnyard dung. When this is the case what to rely on is superphosphate, and this should be put on in the drills at from 800 to 1,000 pounds to the acre. (3) The roots should be sowed in drills at $2\frac{1}{2}$ feet apart. (4) A very important thing about sowing, and one about which a good many make a mistake is this. In seasons when the ground is dry they go on and work it, and in this way it becomes dried out. A streak of this dry ground will become covered over with this moist soil, the seeds are then sown, they germinate, their roots come in contact with this dry earth, it does not rain, and they refuse to grow. Now if the farmer, after working his soil had waited two weeks or so, this dry ground by capillary attraction would become damp from the moisture underneath. Then if he had sowed his fine seed upon this moist seed-bed he would have had a good crop.

After the seed is sown, most of the work can be done by cultivator, except for men passing through the rows and cutting out the distances between the

plants to about 15 inches, (1) and finally weeding. If well cultivated, and the soil good, the crop might reasonably be expected to produce from 800 to 1,000 bushels to the acre, which is easily harvested. The common ruta-baga, or swede, is the best for winter use and should be sown earliest. The white or yellow turnips are sown next, but used first, as the former is the better keeper.

There are several varieties of mangel wurzels—long, red and yellow, and the red and yellow globes. I consider the globes the best, as they are the hardiest, and also more nutritious. The mangels should be sown early—as soon as the ground is in proper condition. About two pounds (2) of ruta-baga seed will answer per acre, and about four pounds of mangolds. J. F. Worcester, N. Y., Feb. 16.

In the last issue of the Experiment Station Record, M. A. Hébert of the French Experiment Station at Grignon, France, publishes a brief summary of the results of the most reliable French investigations on the production, care and use of farm manure. It may be called a special plea for barn manure as against the use of green manuring or chemicals. The chief proposition is that nothing should be used for direct manuring that can be fed to animals. (3) In other words, the feeding value should always be considered. The chemical changes that take place in the manure pile are explained at considerable length. Spoking of absorbents, it is stated that fine peat has twice the absorptive power of wheat straw and is the best substance for retaining moisture. The use of plaster, kaimit and similar substances is not commonly recommended by European scientists. The favorite plan seems rather to be that of using large quantities of litter and taking pains to keep the piles sheltered and well packed down. These piles are usually built over a cistern in which the drainings from the pile are held, to be pumped to the top of the pile from time to time. In regard to the fermentations that take place in the manure piles, it is claimed that these are simply a "continued digestion" really "a prolongation of the digestive functions." That is to say, the microbes which induce the needed gas fermentations in manure are derived from the intestines of the animals. In the intestines of recently slaughtered animals are found ferments presenting the same character as those of manure, and also the same mixtures of gas. Thus the manure fermenting is about the same thing as a continuation of the digestion in the stomach. The object of this is to show that manure from animals is more valuable than an equal amount of vegetable matter not fed. It would be interesting to compare with this the value of the "artificial digestion" in compost heaps of straw, muck, potash, and bone or blood. Is it really true that vegetable matter acquires certain manurial properties by "passing through an animal?" (4)

DIFFERENT VARIETIES OF RED CLOVER.

BY W. A. HALE SHERBROOKE, Q.

As clover growing is rapidly increasing in popularity year by year, two points of great interest present them-

- (1) 9 or 10.—Ed.
- (2) 3 lbs. or even 4 lbs. are not too much, on account of the fly.—Ed.
- (3) If ar, hear!—Ed.
- (4) It was always supposed to be the case, but, in reality, it is probably only "cooked," so to speak.—Ed.

selves to us; first, what varieties are best suited to our soils, climate and requirements, and second where can we be sure of procuring clean, fresh, unmixed seed free from other varieties. Of alaike and white Dutch clover, their uses for hay and pasture are so well known and their seeds usually so little mixed that they need not now be considered. Of sainfoin, lucerne or alfalfa, as substitutes for clover, not being suited to the soils nor climate of Canada, I believe we need never trouble ourselves, especially as such good results can be obtained from red clover; crimson clover also, though no doubt very valuable in more southern latitudes, is of no use to us. Red clover therefore seems to be the staple variety upon which we must principally depend, and its importance in nearly every class of farming, gardening and fruit growing can hardly be overestimated. As to the danger of overdoing it and rendering our land liable to clover sickness, if we are judicious enough to keep our hard wood ashes at home and apply them as the main fertilizer of red clover, we need have no fear upon this score; (1) and while upon this subject I would like to call the attention of all intelligent clover growers to the fact that hard wood ashes are to-day advertised for sale in Philadelphia at \$2.50 per barrel, while we can buy them here for 25 cents and yet we send them away by train loads. Two things at present seem to tend towards making clover growing unpopular with those who are not familiar with its many good points; one is the supposed difficulty of curing it properly for hay, and the other is the confusion into which many of our seedsmen have thrown the distinguishing names of the different varieties of the common red clover. Your correspondent, Mr. J. Hoyes Panton, on page 30 of the *Farmer's Advocate*, has I believe, very correctly described the *Trifolium Medium* as cow-grass or zigzag clover, but is he right in also calling it Mammoth? *Trifolium Medium* is spoken of by Henry Stephens in his admirable *Farmers' Guide*, written over forty years ago, as follows:—I suspect that this true cow-clover has been confounded with the perennial variety of red clover, otherwise so worthless a weed would never have been recommended as a valuable constituent for our permanent pastures on light soils, where it never fails, by its obtrusive character, to destroy the more valuable pasture plants around it. The *Trifolium Medium* is inadmissible in alternate husbandry, on account of its creeping roots, constituting what in arable land is termed twitch." Dr. Stebler, director of the seed station of Zurich, says: "In agriculture two varieties (of red clover) are distinguished:—1. Wild clover or cow grass, *Trifolium Pratense Perenne*. 2. Cultivated red clover, *Trifolium Pratense var Sativum*. The height of the first is less, the root much branched and very fibrous, the stem is usually more hairy and full of pith (not hollow), and it has the following points of advantage over the other variety;—It lasts longer (for two or three years), is less sensitive to soil and climate: the crop is more certain and hay making easier. Cultivated red clover, the second variety, is a larger plant than the

(1) Here, we beg to differ entirely from Mr. Hale. Lawes tried every means of curing clover-sickness, and failed utterly. "The fact is established that in the U. S. as well as in Europe, clover-sickness prevails wherever clover has been grown too long, or has been too frequently repeated." Again: Carruthers "concludes that it cannot be cured by manuring at all." For further information v. Lawes on clover-sickness, p. 94, vol. 1887, of this periodical.—Ed.

former, and can only be used for a single year; the tap root branches little and produces few fibres: the stem is longer and usually hollow, and the flower generally lighter in colour. This variety is produced by cultivation, as is easily proved experimentally. If genuine seed is collected from wild cow-grass and sown for several generations, plants are obtained which cannot be distinguished from the variety *Sativum*. Also, when both varieties are planted together, for a few years the plants become similar in their mode of growth and properties, and of equal value." Dr. Stebler then goes on to describe red clovers of this same variety from seven different countries, each with different characteristic properties, so that we may naturally infer that we have in this country at least two different strains of the *Trifolium Pratense* on common red clover:—1st. What is known under the various names of "Western," "Common," "June," etc.; and 2nd, under the names of "Mammoth," "Peavine," "Long Vermont," etc., while the modern or improved cow-grass, *Trifolium Pratense Perenne*, is, I believe, a distinct variety, and has come originally from the *Trifolium Medium* or wild cow-grass, so strongly condemned by Mr. Stephens as "a worthless weed." Mr. Jenner Fust, manager of the Journal of Agriculture, an excellent authority upon all such subjects, gives it as his opinion that "the real cow-grass, *Trifolium Pratense Perenne*, is from a cross between *T. Medium* or wild cow-grass and *T. Pratense* or common red clover. In the illustrated dictionary of gardening by George Nicholson, curator Royal Botanic Gardens, Kew., he simply describes under the head of red clover, "*T. Medium*, cow grass, meadow or zigzag clover, and *T. Pratense*, red or broad leaved clover." In the Province of Quebec we have for many years, in describing red clovers, employed the following names:—1st, June or Western, 2nd, Rawdon, and 3rd, Long Vermont. The first, being ten days to a fortnight earlier than the others, was not considered a good mixture to put with timothy in seeding down, as it ripened before the grass and so became woody and apt to turn dark when cured with the hay; and to this fact may be attributed much of the prejudice which some have against clover growing. This variety ripens more in season with Orchard grass, and is therefore being employed as a mixture with it. The second, Rawdon, is larger than the Western, and being later is far more suited to seeding with timothy and is said to be hardier than the third, Long Vermont, between which and the Rawdon there seems to be very little difference; lately, however, we have been getting this third variety as Long Vermont, Cow-grass, Mammoth, Giant, Peavine, etc. etc., and I cannot help thinking that these names do not represent what we used to know as Long Vermont. I am now making a test of the matter, but do not expect to decide any definite results till the different plots have blossomed next season, and it is in such important matters as this that our Experimental Farm could so clearly decide and define, not only the comparative good points of these different strains, but the names under which each should be sold as well. In the Country Gentleman of Aug. 4th there appears a complaint from Colorado against the "Giant" clover, saying that "it is not *Trifolium Pratense*, that it produces one crop and then dies as completely as a crop of wheat or rye;" while during the past season there was a warning note

- (1) Doubtful.—Ed.
- (2) But the land must not be left harrowed to stand the winter: a deep fall-ploughing is necessary, and plenty of water-furrows. Ed.
- (3) 500 lbs sufficient, but it depends upon quality.—Ed.
- (4) 2 feet is wide enough.—Ed.

sounded in the same periodical about the Peavine clover, as being very liable to lodge and so succulent as to be extremely difficult to cure, and far more suited for onsilage than for hay. And, from my past season's experience with making hay from the larger growing varieties, I would say to those who are accustomed to the old Western or June clover, go cautiously at first with the "Peavines," the "Mammoths," and the "Giants," till you are more familiar with their peculiarities.

TO FARMERS AND AGRICULTURISTS.

As it is now an established fact amongst our farmers that for utilising by drainage the richest and best land there is nothing to compare with the

FARMERS' LAND DRAIN TILES

and as the demand for same is yearly becoming greater, I have decided to increase my facilities for the manufacture of this article, that I may be in a position to fill all orders, and have sufficient stock always on hand for farmers and others calling at the works for same.

This system of drainage is most economical, for the following reasons.

- No loss of surface as with ditches.
- No rot at with plank.
- Two weeks saved in growth.
- Will not clog if properly laid, as water drains through the pores.
- Being permanent, does not require to be renewed

DIRECTIONS FOR LAYING.

Lay in rows from 18 to 30 ft. apart, according to level and nature of ground to be drained. In laying tiles, a thin coating of straw or dry grass should be thrown over top to prevent pores from becoming clogged, and joints may be covered with a piece of bark or wood. A grade of not less than 1 inch to 16 ft. should be given.

"I enclose price list as required, but am afraid nothing can be done that until a considerable reduction is made in freight rates.

If the demand justified my making large quantities of these tiles, I should be able to make a considerable reduction in the price, but, at present, it does not pay to manufacture them.

Diameter Inside	Price	Weights
2 In.	\$12.00 per 1000, F.O.B. Cars, or at kiln, 25 tons	6 1/2 lbs
3 "	18.00 " " " "	9 1/2 "
4 "	27.00 " " " "	13 1/2 "
6 "	33.00 " " " "	17 1/2 "

Length of Tile, 12 1/2 inches.

Cartage charged on Car lots and to Boats. Consignee must have cart to receive Tiles on Boats, as Companies will not receive same here. A Car load contains about 4,000 2", 1,000 3", and 1,000 4"

CHAS. SHEPPARD,
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Office: 402 Parthenais St.
Telephone 6208.
P. O. Box 116.

Montreal, May, 1891.

Household-Matters.

SCRUBBING FLOORS.

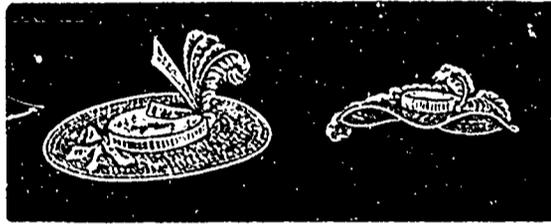
In these days of progress, where is the person who will not willingly look out for every means of saving labour? and quite right too. How many weary

hours are spent by a woman on her knees scrubbing! and how nice the floor looks for a time! But dirty boots, and careless people will soon spoil all this and the hard weary work has to be gone over again. Instead of this, why not paint the floor? It won't cost much: a few pounds of paint and a brush won't ruin any body. Yellow paint for a kitchen floor is best, I think, and a little practice will soon teach you how to paint. Do not put it on too thick at first—then, after a little time, if you want it to be very nice, give it another coat. A yellow floor, with the chairs and table painted red, will make a very cheerful looking room, and with a few flower-pots painted red in the window, will help to make a cheerful prospect for the worker in the kitchen. Do try it! Life is too short to be spent in needless work, and you will have more time to spend in other ways, for a painted floor only wants wiping over now and then. If you can get a self-wringing mop, the work will be still lighter,

as you can in the fashion, if you wish to make a high stand up bow, you must use a bow of wire to keep it upright, if this is well and carefully done you will have reason to be proud of your work.

A CHILD'S VERY PRETTY PINAFORE.

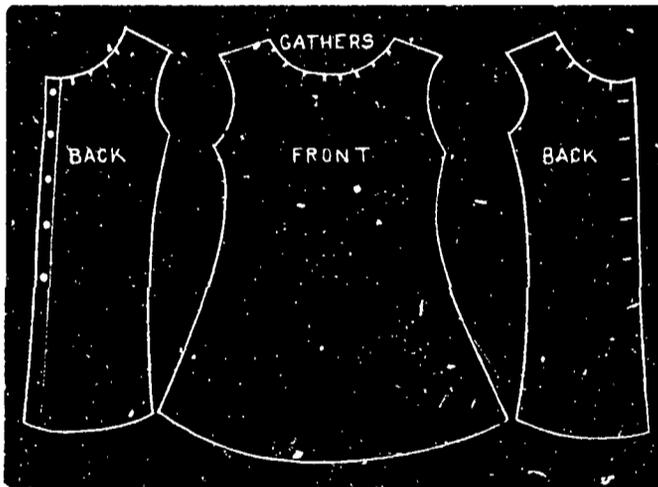
This pattern will not require much instruction as it is very simple, and it is so pretty when made up in white muslin, in fact in anything you like best! It will take about 1 1/2 yard of goods for a child of 4 years old; "narrow width," measure from shoulder to bottom of dress, and let the pinafore be just the hem shorter than the dress; one width for the front and the other cut in two for the back, a broad hem down the back for buttons and buttonholes, same sized hem for the bottom; gather round the neck, and put on a narrow band, the narrower you can make it, the better it will look. Then, round the arm holes, and if you have a bit of lace for the neck and



THE HATS WHEN TRIMMED.



CHILD'S PINAFORE WHEN FINISHED.



1 1/2 YARD OF MATERIAL.

and when scrubbing day comes and you find a little time for relaxation, you will wonder why you have gone on in the old groove for so long. There is no reason why you should follow in the footsteps of your foremothers if you find a way to do the same thing more easily than they did.

HOW TO FRESHEN UP AN OLD HAT.

First, take off the trimming, then free it from dust, and wipe it well with a damp cloth; let it be quite dry; then, give it a couple of coatings of boot-polish: do it just the same way you would do your boots. "Gilt Edge" is the best I know of for the purpose, and if carefully done, not missing a single portion of the hat, you will be well pleased with the result. One bottle will do the hats of a large family, and leave some for your boots: cost 25 cents a bottle. Now, sponge and iron out the trimming, being careful to iron the ribbon between two cloths. Velvet must not be ironed, but steamed, by turning the iron up and placing a damp cloth between it and the velvet. Then, pass the two backwards and forwards over the iron, if well done, the velvet will be quite free from creases and look fresh and nice. Now trim your hat as well

sleeves, it will look all the nicer, and a bright sash of ribbon, with a little bow for the shoulders, will make a very stylish garment from a very simple pattern. Four buttons and buttonholes at the back, do not put too many or it will cause the pinafore to drag up a every time the child stoops down.

If baby is troublesome and you want to go on with your sewing, give her a few clothes' pins; scrape the head a little, make two dots for eyes, a down stroke for the nose and a very short one across for the mouth, a bit of coloured stuff for neck tie, and another bit to tie round the body, then tie a cord between two chairs and show her how to put them on the line: I do not think baby will then trouble you for some time.

IRISH STEW: HOW TO MAKE IT.

For a family of 5 persons, buy 3 1/2 pounds of the fore-quarter of mutton, cut up into pieces about the size of a small mutton-chop; first cut off the skin, and if you do not like fat, you must cut that to suit the taste of your family.

Now, having made your frying pan a little hot, put in your meat, and turn quickly so as just to brown the outside a little; pray do not cook it

too much! then, out up 2 large onions, take out your meat, put it into the pot it is to stew in, take your cut up onions and fry just a little but do not burn them, then add to them just a little hot water, turn the contents of the frying-pan over the meat, put a little more water into the frying-pan to get every particle of colour from the frying, turn it on to the meat, finish off by well covering the meat with water a little pepper, at no salt till the stew is finished; stew gently, not boil, and when done, put it on one side to keep hot. You ought, of course, by this time to have the potatoes ready cooked as for the ordinary dinner, but Irish stew will take a few more than usual. When the potatoes are cooked, drained and well shaken to make them nice and floury, add them to the stew a few at a time; the broken potatoes will thicken the gravy, the whole thing must be served very hot. You need not add all your potatoes if you find them too many, custom will soon show you exactly how many you want. Salt to be added the very last thing. This dish is so very simple and is always liked, yet few servants will take the trouble to do it well, they will often serve it up in such an unpalatable mess, a few potatoes and a little meat floating in a dish of water. No wonder you hear some people who get this kind of thing say: no more Irish stew for me!

RISE PUDDING.

In our house, Irish stew is often followed by rice pudding. A good family pudding without eggs can be made thus: one quart of good fresh skimmed milk, one teacup-full of rice: boil the rice and milk for 10 minutes, then turn it into the dish you make your pudding in with half a cup of sugar, a little flavouring of the sort you like best, a piece of butter half the size of an egg, a grate of nutmeg over the top, put your pudding in the oven, look in after a short time and give it a gentle stir; then, let it alone in a slow oven, and when it is done you will have a very cheap pudding, and I doubt

very much if the children won't ask to have it very often. The rice boiled in a pint of water, and then the pint of milk added will make a very good pudding which you can vary by now and then cutting up an apple and stirring it in, or half a cup of currants, a little bit of lemon-peel etc., etc., this is called "Poor man's pudding," but if every body would only make more of these simple dishes, there would be less trouble with their digestive organs. Of course, if you wish to make your pudding rich, you need only take half the quantity of rice but you must have 2 if not 3 eggs, thereby nearly, at the present price of eggs, doubling the cost of it.

GROW YOUR OWN TOMATO PLANTS.

Now is the time if you are a lover of tomatoes to start your own plants. You need not have a large box at first, a shallow box, 3 inches deep, a few cinders for drainage, a little fine manure, a covering of garden earth: if it is frozen you can melt it by the stove. If you have no sifter, pick out all lumps and stones, and sprinkle your seed over the top, then cover very lightly with earth, a piece of glass over the box till the seed comes up will greatly help them on, sprinkle the smallest

quantity of water over the whole, put the box in a sunny window, and just as soon as the plants show their heads, begin to pluck out some of them; never let one touch the other. When they show leaves, and signs of crowding, take a small tea spoon and carefully transplant each plant two inches apart into another box, you can leave every other one in the old box. If you do this and are content with a few plants, say a dozen: plenty for a family: you will have good hardy plants: more like little trees; but, if you crowd them, you will get long spindly plants, very little good to you. If your window is favourable to growth, you might have to transplant again before you can put them out in the garden as they are sensitive to frost, and must not be put out till all danger of that is over. When they grow up each plant must be tied with rag to a strong stake, give plenty of room in the garden and you will wonder why you have not grown such fine tomatoes before.

The time of sowing seed of early annuals is also near at hand. By sowing in small wooden boxes, and setting them in the kitchen windows, and planting out the middle of May, we can have blossoms several weeks in advance of the usual season. Half the pleasure we receive from flowers is derived from growing and tending them ourselves, watching their growth, development and beauty, with something of the interest that we bestow upon a lovely child.

CURING HAMS AND BEEF.

For curing hams and shoulders I have employed, for forty or more years, 16 lb. salt, 8 gals. water, 4 oz. saltpetre, 2 qts. molasses (not manufactured syrup), 1 tablespoonful soda; mix and dissolve. This will be sufficient for 250 lb. beef, or like amount of ham and shoulders. For beef, select such as will weigh over (rather than under) 100 lb. to the quarter. Cut up as may be desired (as to size of pieces,) and pack as closely as can be pressed in by hand, in regular layers, into a clean barrel. When all are so packed, place above same four sticks, crossed, and lay upon them a clean stone of sufficient weight to retain meat below surface of brine. It is ready to commence using as soon as the little reserved for fresh is consumed.

For hams and shoulders, after properly trimming, pack in similar manner, and use the same formula for brine. After thirty days, remove from brine and hang for smoking.

N. A. WHITMORE.

Marietta, Geo.

Country Gentleman.

Fruit and Garden.

RAISING ONION SETS.

JOSEPH HARRIS.

There exists a wide difference of opinion in regard to the quantity of seed needed per acre for raising onion sets. It is a common mistake not to sow enough. The old rule was thirty pounds per acre. In my experience I soon found that this was not enough and have been increasing the quantity every year and have never had them too thick. With row fifteen inches apart, a single row 34,848 feet or 418,176 inches in length would be an acre. There are about 128,000 seeds in one pound of onion seed. If we sow one hundred pounds per acre there would be thirty seeds to each inch of row. On the Morton farm we aim to get the drill mark as narrow as possible for the reason that the hoe can do more of the weeding. It is not easy,

seed for forty eight hours before sowing. In fact, we frequently keep it moist till it germinates, and then sow it by hand.

It is very important to get onions started early, and this method of soaking and germinating the seed often makes a difference of two or three weeks. Sometimes the sprouts have been half an inch long before sowing, and in a few days the rows of green onions could be seen the whole length of the field. The great difficulty in growing onion sets is the tendency to produce scallions. Poor seed is a frequent cause of this. It requires so much seed per acre for sets that very naturally growers want the cheapest seed they can get, but unless they get well-bred seed they cannot grow good sets. Another cause of scallions is late sowing followed by dry weather which checks the growth of the plants before they have commenced to bulb. The advantage of early sowing is due probably to the cool moist weather giving the onions a chance to strike their

water and need a very rich sap of the soil—in other words the water that is in the soil should be very rich in phosphates and nitrates. Onions for sets must be kept scrupulously free from weeds. The hoe will do most of the work, but weeds in the rows must be pulled out as soon as they can be seen. Hoe lightly, just deep enough to cut the weeds and form a mulch of loose earth on the surface to check evaporation and thus conserve moisture.

Am. Agriculturist

THE HISTORY OF THE ROSE.

C. CLASSIFICATION AND VARIETIES.

Roses are divided into certain classes agreeing with certain peculiarities and habits of growth.

This it is essential for the cultivator to well understand because almost every class requires a different mode of culture.

First is the Moss-rose. The old fashioned Moss-rose, or Provence Moss has been a favourite from time immemorial and a Moss-rose bud encased in its delicate covering and peeping out of its calyx to win as it were the admiration of the beholder is a gem of the rarest beauty, perhaps unequalled in the floral world. The presentation of a Moss-rose bud is the first declaration of love, so it is easy to conceive that it is accompanied with tender memories by many.

There are quite a number of Moss-roses, some with pure white flowers, as the "White Bath-moss" which always was very scarce, and the Countess de Murinais. Some are deep crimson and purple in colour, and a few which are perpetual bloomers but none

that can equal the original in a peculiar charm which it possesses.

Then we have the old English Cabbage rose, a flower by no means to be despised even at the present day. Its growth is vigorous, leaves of a delicious freshness, bright green, and flowers not quite so large as a cabbage but quite as solid at the heart, rose colour and full of fragrance.

The York and Lancaster is another old English rose full of historical interest, as regards the great civil war which raged between the two great houses of York and Lancaster, the latter represented by the red rose and the other by the white, in as much as it has the peculiarity of bearing both red and white flower on the same plant. Yet another old English species is the Garden or Hortense rose; it may be seen in every cottage garden, its foliage is pale green, flowers white with a pink centre but alas it has no fragrance and is not held in much esteem.

There are also two diminutive roses, "Sponges" and "Domeant," they are



A PRIZE-WINNING AYRSHIRE HERD.

The property of Messrs. James Drummond & Sons, of Petite Cote, Montreal, P. Q. (v. p. 43, March No.)

however to deposit the seed so that it will not spread out over an inch in width in the row. As a matter of fact, however we have no drill that will drop thirty onion seeds in an inch. The holes of the drill are not long enough, and if they were the seed would swiftly run out without any regard to the speed of the drill or whether it was in motion at all. When we use a drill, therefore, we find it necessary to go back and forth in the same drill two or three times. The result is that even with the most careful guiding, it is impossible to keep the drill from deviating more or less from the fit mark and by the time the necessary amount is deposited, the drill mark is practically, two or three inches wide. We have frequently found considerable difficulty in getting the thick-sown onion seed to germinate. Unless the soil is very moist, such a quantity of seed close together, in a narrow row, cannot get water enough from the surrounding soil to swell the seed and cause germination. For this reason we have practiced soaking the

roots deep into the soil before they form too much top growth. With a rapid top growth and comparatively shallow roots a drouth checks the growth of the onions before they begin to bulb, and then when rains come and a new growth is started we will get few nice bulbs and many scallions. Another thing that causes scallions is poor land. Great benefit is derived from a liberal dressing of superphosphate and nitrate of soda sown early in the spring, say 500 pounds of each per acre. A heavy dressing of manure will not answer the purpose, as the plant food is not available early enough in the spring, and we specially want to avoid late growth. If we do not get the greater part of the growth before the middle of July we rarely get good onion sets. The superphosphate and nitrate furnish soluble food for the plants as soon as they commence to grow and push them forward rapidly. The onions are so thick on the land that when growth is fairly started they have difficulty in getting sufficient

very small both as to the plant and flowers, the latter is the greatest favourite, it is frequently grown in pots and sold to people of moderate means in the London markets. The taste for such is very singular. The artizan's or labourer's wife will save a few pence out of her scanty income to treat herself to a "Domeant rose," a "Geranium" or a pot of "Mignonette." Thousands of these are grown for this very purpose and many a humble home is brightened by their presence, the only bit of verdure or natural beauty they can see and love as their own. The *Scotch rose* is of quite a different type to the majority of the family dwarf, bushy, very thorny with dark brown bark, small leaves and numerous semi-double pink or white flowers, very profuse but thin of petals and short lived. Hedges in rosaria are sometimes made of Scotch roses and are very pretty for a short time.

Nearly allied to this is the *yellow Austrian*, having the same habit of growth but with loose semi-double flowers which are yellow on the outside of the petals and red in the inside, hence it is sometimes called the red and yellow Austrian.

The *Persian yellow* is somewhat similar but the growth is more robust and the flowers very double bright yellow; it is not very hardy, and in this climate would require protection in winter, it is however well worth cultivating on account of the bright golden colour of its flowers and their durability.

The sweet-briar has no flowers to recommend it, which are single and evanescent but the foliage is charged with the most delicious perfume, especially after a thunder shower. Most cottagers in England have a sweet-briar bush in their gardens, and hedges are made of it. In my native village was a sweet-briar hedge which emitted such a delightful perfume as to make the whole locality redolent with it, producing one of the pleasant sensations of my boyhood which lingers in my imagination after long years of absence from its source, and even now stirs up memories of those happy days, which make up the period of youth, and the trifling matters which the fresh young heart enjoys, and the mature one never forgets.

The white and yellow *Banksia roses* are a class entirely by themselves and are very curious, they are of climbing habit, requiring green house culture, are evergreen, that is to say, do not lose their foliage annually, the wood is beautiful dark green and thornless and the flowers, which are only about one inch in diameter, are borne in long racemes. One variety is pure white, and the other, rich yellow. They are frequently planted in old conservatories, and when in full bloom are beautiful objects, veritable "garlands of rose," the flowers have a slightly nutty odour. They make excellent stocks on which to bud, tea scented roses for conservatory decoration, imparting to the variety budded upon them a certain part of their vigour, of growth.

The *Boursault* is yet another class of climbing habit with thornless red, barked stems and dark green foliage, the flowers of these are semi-double, the petals flimsy and scentless, they are the least attractive of almost any of the classes.

Rose de Rosamèe is also distinct in its character from most other assimilating closely with the China roses. The only one is *Gloire de Rosamèe*, the flowers of which are single or nearly so, of the most brilliant carmine colour. The plant is of a straggling habit,

of growth and is no doubt the parent of many brilliant flowers especially the most universally popular old favourite "General Jacqueminot" in whose general characteristics a strong family resemblance is traceable.

We now pass to the Denmark roses, a hardy vigorous family and no doubt a very ancient one, the flowers of this are flat, the petals small and irregularly placed, varying in colour from white to deep red, not remarkable for their beauty, and with but little perfume, the habit of growth is compact and dwarfish. Denmark roses were used for forcing in pots before the more beautiful varieties we now possess were known.

Nearly allied to these are the "Gallica or French" roses, comprising many beautiful varieties some of which are the largest of all roses. I remember measuring a flower of the variety "Boul de Nantuel" which was nearly 14 inches in circumference, flat and not so attractive as curious both on account of its form, size and color which was deep, maroon or purple with here and there a petal of the most glowing scarlet.

Hybrid Chinese These were produced by artificial impregnation of some of the others with pollen of the old *China rose* which had peculiar traits, not possessed by any English or French varieties. It is partially hardy in England, quite so in some localities, flowers pink, not very double, scentless or nearly so, habit of growth, rampant, leaves glossy or dark green, and perpetual in bloom. I remember as a boy we had a Chinese rose planted near the old porch, in a south aspect, and well sheltered, and in mild seasons it was not unusual to have flowers, upon it on Christmas day.

Although, as I have stated, the hybrid Chinas can trace their pedigree to this, they do not inherit its perpetual habit of blooming, but in some cases its vigour of growth, they contain varieties much improved in form, colour and growth and are a step in the direction of producing the long blooming hybrid perpetual.

The superb roses of the present day have not been achieved without long patience, scientific knowledge, and the most careful selection, and it is highly interesting to note how, step by step, the object has been attained. The hybridist's art is a tedious and intricate one, requiring much study, judgment, painstaking, and in no species of flowers has its results been so apparent and magnificent as in that of the rose.

Amongst the hybrid Chinas is one very remarkable variety, "The Village Maid", in form it is perfect as a globular shaped rose red and white, striped and blaked as in a carnation, but, after all, more curious than attractive.

The Earl of Harrington a most eccentric nobleman in Derbyshire, England, once gave M. Paal an order for 1000 Village Maid roses, which he was able to supply. It was perhaps the most extraordinary order ever given for roses and showed the eccentricity of the purchaser and the great resources of the nurseryman.

This said Earl of Harrington was a queer character, he married an actress, Miss Foote and he was slighted by society in consequence of his family (1) resenting what they considered the disgrace he had brought upon them.

To revenge himself upon them, he made a garden, at an extraordinary expense, and quite unique in character. It was in a secluded part of his extensive domain and he would allow no one

(1) The disgrace lay in Miss Foote's character, she having lived with that *roue* Col. Berkeley, afterward Earl Fitzhardinge.—Ed.

to see it. In this connection, a ludicrous incident happened to a friend of mine who told me the facts. He was on good terms with the Earl's gardener who told him that if he could come very early to the Castle he would show him, at least, some part of the place, but it must be very early morning, before his Lordship was up. With this object in view, my friend took the night train from London and arrived at the nearest railway station (only a mile from his destination) about 4 o'clock in the morning.

But alas! to his horror, on his arrival he found that heavy rains had flooded the meadows he had to cross, and it was seven miles to the nearest bridge, to go there would have made him too late for his enterprise. Witnessing his dilemma and as the water was only a foot or two deep, a stalwart bystander offered, for half a crown, to carry him over on his back. This was willingly agreed to and my friend mounted his novel beast of burden who trudged off with him nothing loth. The villagers, in the mean time, assembled on the opposite bank to see the curious sight of a gentleman being thus conveyed to the shores. My friend was always particular as to his toilet, and on this occasion he had not left his best clothes in his wardrobe, and his laundress had bestowed a little extra care on the starching and purity of his shirt bosom. All went well until they had arrived within a few yards of dry land when—ah luckless fate—the carrier stepped into an open gutter hidden by the water, he stumbled and fell, shooting his helpless load over his shoulders into the water and mud—from which he had to scramble out as best he could amidst the jeers and laughter of the boys who had come out to see the fun, and had even more of it than they expected. Our hero had no alternative but to make his escape to the village tavern and retire to bed pending the renovation of his once immaculate shirt front and glossy broad cloth suit. He lost all chance of visiting the garden, for the golden opportunity had slipped.

He however heard that a glimpse of the garden, could be had from the Church steeple, and rather than be entirely foiled, he made the attempt to obtain it. The old sexton had been cautioned by the Earl not to allow visitors to ascend the tower for the purpose of seeing his secret wonder, but by dint of passing himself off as an antiquarian in search of curiosities and an extra fee, he succeeded in getting up and taking a bird's eye view of that which he had travelled so far and endured so much to see, after which he returned to his home, a sadder, but not much wiser man.

But to return to our task. *Hybrid Bourbons* form a numerous and elegant class. The shape of some of them is perfect as Exhibition roses. "Paul Riccaut" cannot be beaten in this respect, in a perfect specimen every petal is placed in the most uniform regularity, all of the proper size to suit its rank in the flower, the whole forming a globe or ball. The colour of this has every thing to recommend it as a bright and glowing variety: it has not been yet surpassed if equalled.

The beauty before alluded to, *Coupe d'Hébé*, also belongs to this class.

We now proceed to notice the group of perpetual bloomers, and first we will consider the *Bourbons*, because they are doubtless the parents of many of our best roses. Generally speaking, Bourbon roses are dwarfish in habit, short jointed and very floriferous, and comprise all colours (except bright yellow) from pure white (*Acedalio*) pale flesh colors. (*Souvenir de la Mal-*

maison) one of the oldest and finest now Bourbon Queen is fawn or 'or, and then we have rich deep crimson, almost black, brilliant carmine, &c.

Bourbons lack in two important essentials, namely, perfume and hardiness, but have proved excellent to cross upon and no doubt some of our finest hybrid perpetuals may be traced to them. *CHINESE ROSES* do not form a numerous class, are scentless, and not very interesting in comparison with others, but their continuous habit of flowering have made them useful as progenitors of others.

As regards their uses for indoor decoration, the Tea scented roses take the highest place. I remember when there was but one "tea rose" and it was called the tea scented China and had no other name, from it sprang many of the exquisite varieties we now enjoy with a perfume similar to green tea in a state of infusion, but more delicious, and the original sort surpassed all its successors in the powerfulness of its sweetness. It is somewhat singular that these roses, are natives of Japan, the land of tea and that they should be flavoured like it.

The race of Teas as cultivated by our florists now are among the most beautiful things in nature, and their skill has produced them in profusion and perfection never dreamed of by their most ardent admirers in by gone years.

Rose growing for the market is a fine art and requires a full knowledge of their wants as regards earth, manure, temperature, moisture and aeration, also the closest attention to all the details. Growers have to battle chiefly against that insidious foe mildew. The slightest neglect as to heating or admitting draughts of cold air may ruin an otherwise fine house of flowers, sulphur sprinkled upon the leaves and hot water pipes is a preventive, but all diligence must be used in its time by application.

An amateur seldom succeeds in producing first class tea roses and is almost sure to fail until he has learned all the secrets, and had considerable practice. It is next to impossible to produce as good results in houses where other plants are grown as where they are devoted to roses alone, and even in some instances it is better that a whole house be filled with one variety, some requiring more heat or more moisture than others to bring them to the highest state of perfection. Climate has something to do with the success of rose growing. In localities where sunshine is scarce in the winter, the operation is more difficult, clear, bright light being essential to their fullest development especially as to size and colour.

Aphides, small green flies, are very injurious and troublesome, but easily succumb to the effects of tobacco fumes, which however must be very carefully applied, otherwise the foliage will be burnt, and, even suppose the flowers were not injured, a rose denuded of its foliage loses half its charms—then tobacco smoke is disagreeable and no roses can be cut from the house for some days. To obviate this, many growers cover the surface of the rose beds with tobacco stems which have the effect of keeping down the aphids without the bad odour of the smoke. Tea roses, in fact all flowers, should be cut with long stems, the natural grace of the blossom is entirely destroyed if it is cut with a short stem. (1)

The public taste in this respect is greatly improved of late years and in-

(1) Very right, indeed. Amateurs are more frequently guilty of short stems than florists. Ed.

stead of the closely packed, mechanical bunch of flowers called Bouquets, almost entirely loose flowers skilfully arranged so as to show their natural beauty are worn, and all floral decorations are made upon the same principle, effect being given to each individual blossom or leaf and not crowded by its neighbour but looking as if its place had been taken by chance and not with any particular design.

To arrange flowers artistically no small amount of judgment and taste is requisite, and some persons can never learn the art, while to others it seems a naturally innate quality.

To give a list of the numerous varieties of tea roses would be superfluous in this place, suffice it to say that they now comprise all possible colours (except blue). White, yellow, lemon, buff, pink, flesh colour, deep rose, crimson and almost scarlet, the deepest carmine, while some are pale pink tinged with yellow which are very pleasing and attractive.

I pity the person who can see no beauty in a tea rose, such miss one of the pleasures the Supreme Being has designed for the delectation of His creatures, and show that their minds are warped from their natural bent by the cares of the world, or occupied by lower and more debasing tastes and amusements.

- Give me the pleasures of the groves and fields
- Or else the sweet delights the garden yields,
- The rich parterre with florets fresh and gay
- Or rose-bud opening to the light of day.

Noisette roses form yet another class of constant bloomers, called so on account of their nutty fragrance. They are generally speaking climbers in habit of growth, with rich glossy foliage and double flowers. The old yellow noisette, not much grown now, is a type of the class. They are all either pure yellow or tinged with that colour. "Ophir" is perhaps the most remarkable, it has flat flowers, of the brightest glowing red mixed with yellow and orange, borne in clusters, indeed are most of the noisettes. In England, the noisette and some few other roses are frequently budded upon tall standards of the dog-rose and form large, weeping, or umbrella shaped heads, which when in full bloom are beautiful objects. This class has no doubt been used in crossing to produce some of the tea varieties, and it is doubtful whether such very vigorous growing varieties as Marechal Neil should not be classed with them. This no doubt would have been the case, only that splendid fellow fortunately retains the fragrance of the tea but with the habit of growing and flowering of the noisettes.

In conclusion we note the *Prairie* roses which are great favourites in the United States for covering porches, walls, unsightly stumps, verandahs &c. There are three varieties of these "Baltimore belle," "Queen of the Prairies" and "Gem of the Prairies"; all beautiful where they thrive well, but not sufficiently hardy to endure the rigour of a Canadian winter.

(To be continued.)

FRUIT GROWING IN EASTERN QUEBEC.

BY AUGUSTE DUPUIS, L'ISLET.

1. Does it pay to plant apple and plum orchards?
2. Do apple trees and plum trees grow around Quebec city and east; and do they stand the climate?

An answer is to be found to the first

question in the reports of the Pomological Societies of Franco, United States; Nova Scotia; Ontario, and Montreal.

The farmers of the districts of Quebec; Montmagny; and Kamouraska who own orchards, and take good care of them, derive a satisfactory income from them.

You often hear people say: "It is useless to plant fruit-trees, they die before yielding and profit" True in certain cases, that complaint has discouraged citizens desirous of making plantations. Allow me, Gentlemen, to tell you, not for your own instruction, but for the information of those who may still be under this false impression, that orchards a hundred years old and in full growth exist even in those parts of the Province that are the least endowed as regards climate, soil and exposure.

Living 70 miles north east of Quebec, I shall mention what I heard in my intercourse with the inhabitants living in the counties lying between Quebec and the Magdalen Islands.

History tells us that the earliest French settlers planted orchards in the counties of Montmagny, L'Islet and Kamouraska which yielded fine apples, cherries and plums, and that the trees stood for very many years, bearing regularly.

Among the orchards more recently planted, that of M. Morin, N. P., more than 75 years old, is still very flourishing.

The trees bearing Fameuses, German, St. Pierre and Calvilles apples, are yet vigorous and productive on the whole surface of the orchard, which covers from 3 to 10 arpents. This orchard is carefully looked after by M. Wm Polletier, its present owner.

The orchards belonging to Messrs. T. Francœur, Magloire Francœur and Frs. Bérubé, which are from 75 to 80 years old, are still yielding abundant crops. Apple-trees nearly a hundred years old are to be seen on M. J. D. Blanchot's farm, one of which bears winter apples of very fine colour and taste.

At St. Jean-Port-Joli, Messrs. Verreault, Fournier, Simard, M. D., and Duval, N. P., own apple-trees a hundred years old. There are also in the neighbourhood *Damascus* (1) plum-trees more than a hundred years old which are being renewed from the roots.

At St. Roch des-Aulnaies M. D. Polletier's plum orchard of 2½ arpents yielded last year \$306 worth of plums and over \$100 worth of apples from a few apple-trees planted between the plum-trees.

It has been ascertained that the plum orchards of the districts of Montmagny and Kamouraska yield an average revenue of \$100 per arpent, when the crop sustains no injury.

The Rev. A. Chouinard of Métis county Rimouski, informs me that there are in his parish fruit trees forty years old in full life. For the last 19 years M. Chouinard has striven to encourage in his parish the planting of fruit and ornamental trees. The Rev. M. Hoffman, curé of Charlesbourg, informs me that horticulture is a paying business in his parish, where are to be found apple-trees 75 and 100 years old in full life and bearing much fruit. He owns some 20 apple-trees planted before 1830, and manufactured excellent cider this year. During the last twenty years many apple-trees have been planted in that parish, they have given general satisfaction.

At Ste. Anne-Lapocatière and St. Denis are to be seen very old orchards.

(1) Hence our English word, *damson*, or *Damascene*. Ed.

In 1858 I visited the orchard owned by M. Marchand of St. Denis and noticed among his old apple-trees a pear tree loaded with fine pears. That orchard exists still. There are many others in fine condition and bearing varied and choice fruit. I was shown those belonging to Messrs S. Dionne and J. C. Chapuis. M. Chapuis has many apple-trees and pear-trees of the finest varieties.

At Rivière-du-Loup, at Isle Verte and at Rimouski, orchards planted 25 and 30 years ago have generally a fine appearance. At several points in the counties of Bonaventure and Gaspé, are Siberian and Russian apple-trees of remarkable vigour.

At St. Pierre and Miquelon, M. Larue, customs agent, planted, four years ago, an orchard of Duchess apple-trees and French cherry-trees which have so far stood well the hard climate of those islands. It is unnecessary to give other examples to show that fruit growing is a practicable and paying industry even in the least favoured climates. This industry would be made more profitable by a careful choice of hardy and productive trees bearing summer, fall and winter apples.

The planting and cultivation of fruit trees must differ according to soil and climate. My ancestors, for example, succeeded in growing at Quebec and East the *Damascus* plum-trees, the *Reine Claude* of Montmorency, by planting them in close clumps, or along fences and near houses and other buildings so as to afford them protection. Nurserymen from the west, accustomed to plantations in the open country, advised people to give up the old method. They were wrong, for all the plum trees planted by their advice in the open field and placed from 16 to 20 feet apart, have died. Only those protected by fences have survived.

I have myself lost many trees by departing from the method followed by my ancestors. But wherever for the last 20 years I have planted plum-trees of the finest foreign varieties in clumps, and protected by apple-trees, elms or red spruce trees, they have become remarkably vigorous and productive. The crops of the last five years have been good, that of last year exceptionally so, many Lombard, Bradshaw and Imperial plum-trees yielding \$7 or \$8 worth of fruit each.

The success obtained at L'Islet by Dr N. Dion and Dr N. Lavoie, at St. Aubert by M. A. Blais with some fine European varieties, is owing to care and protection given to plum-trees. Mrs Justice Caron's plantation is very promising.

You may be surprised to hear that 14 fine varieties of foreign plum-trees have been introduced here and that their superb fruit are to be seen on the tables of the annual Exhibitions of the Horticultural Society of L'Islet. The gathering season for the fruit last from 7 to 8 weeks. The prices realized have been from \$15 to \$22.50 per barrel, or from \$200 to \$300 the arpent.

His Excellency the Governor General stated in a letter dated Sept 26th, 1892, that he had not seen in Europe plums to excel in size, beauty and taste those he had just received from the county of L'Islet.

The Hon. Ministers of this Province have written in the same strain.

Samples of our plums and apples have been sent to the Chicago Fair, with other farm produce they have shown the world that the Province of Quebec is not a snow and ice country, but a good country to live in.

If the efforts of the farmers and members of the Horticultural Society of the county of L'Islet have been at

all successful, it must be acknowledged that experiments have been costly, owing to want of knowledge in tree growing. We have neglected, or we have had no opportunity, to educate ourselves in this branch of industry.

What is to be done? Some have suggested to me:

1. That the first lessons should be taught in the elementary schools, and the teaching continued in commercial and classical colleges.

2. That every Agricultural Society should offer prizes at their exhibitions for the best fruits exhibited, allowing neighbouring counties to compete.

3. The organizing of a Provincial Pomological Society, such as exists in Ontario and Nova Scotia, and 'Montreal Horticultural Society and Fruit growers Association of the Province of Quebec.' The provincial work of the above society is being very intelligently, (and as far as their opportunities will allow, attended to in several practical and beneficial ways not before attempted. It will remain with all those interested to try and further the fruit-growing interests; allowing nothing small or selfish to interfere with their whole duty.

4. The planting by the government of experimental or model orchards in Districts where they are most needed. This scheme, conceived by the Hon. Commissioner for Agriculture, should be supported as a really efficacious means of education on the choice of different kinds of trees, on planting and on the care of orchards. Everybody could then ascertain what trees can stand the climate and prove most hardy and productive. The experiments thus made would educate the public and save them thousands of dollars, thrown away on the purchase of such trees as Baldwin and Greenings that cannot stand our severe winters.

You are requested to say what you think of these means of education, and to suggest all other practical means you may judge efficacious to popularize the teaching of fruit-growing and to foster a taste for plantations among the rising generation. It is not likely that a young man who has planted a good orchard, has it seen grow and produce fruit, and has derived an income from it, will leave it and emigrate to the United States. Fruit-growing is not only profitable, it makes one cling to the soil, it produces a beneficent influence on the health, habits and tastes of the people.

Two years ago the Horticultural Society of the county of L'Islet recommended as hardy and profitable for the Eastern and North-Eastern part of the city of Quebec, six kinds or varieties of apples.

Duchess of Oldenburg.

Wealthy.

St. Lawrence.

Yellow Calville.

Red Astracan.

Famense.

And three kinds of Siberian apples:

Transcendent.

Hyslop.

Montreal Beauty.

And I would add Whitney.

Among the following kinds, which have been tried, the Society will, I hope, soon be able to recommend as equal, if not superior, the

Montreal Peach.

Golden Russet, English.

McIntosh Red.

Alexander.

Titofski.

Bosbury Russet.

Canada Red.

Swaar.

Seek-no-further.

Transparent of Russia.

Roxbury-Russet.

The plum trees which have so far best stood the climate and given entire satisfaction in light and sandy land, are undoubtedly the

Blue Damascus and
Reino Claude of Montmorency
(white).

They yield delicious fruits, the trees are reproduced by shoots.

Among the foreign kinds that can be grafted on hardy roots and stand the climate, the finest, largest and most profitable for the market, are the Lombard.

Bradshaw.
India.
Imperial Reino Claude.
Philippe I.
Washington.
Goutte d'or de Coe.
Purple Duane.

In light sandy soil, the Lombard plum-tree is the first to produce, and to produce most abundantly and most regularly.

Plum trees like apple-trees do not all blossom at the same time, hence it is advantageous to plant early and late varieties. A bad frost will sometimes overtake the early kinds in the bloom and destroy the crop. The late kinds, blossoming a few days later, escape the frost and yield a crop.

THE CHERRY-TREE.

The old kind called "Cerisier de France" or "Richmond," has no equal in the northern part of the Province. (1) All the sweet kinds imported here, are too tender for our climate.

AUGUSTE DUPUIS.

MONTREAL HORTICULTURAL SOCIETY

AND

Fruit Growers Association of the Province of Quebec.

A FEW HINTS ON PRUNING, THINNING, TRAINING AND REGULATING FRUIT TREES.

The proper care with regard to pruning; training and regulating fruit trees should commence the following spring after budding or grafting. We will take a budded tree as our example, the treatment being nearly the same as to training, trimming etc? The stock of a budded tree will require to be headed back leaving about six inches above the bud for the purpose of supporting the young maiden shoot to prevent its being broken off. This heading back of the stock should be done in April before growth commences: and during spring and early summer it will be necessary to examine each and all such young trees for the purpose of removing robber shoots from the stock; or suckers as they are generally termed. The operation of removing these suckers is very easily performed when taken in time, as they can be rubbed off with the finger when young, to allow any other growth to come from the stock but the eye intended to form the stem of the tree is to weaken the growth of this stem considerably, or perhaps permanently injure its chance of ever fulfilling its mission to become a tree at all. When the maiden shoot is long enough to require support tie it to the stump of the stock above the bud with something soft, such as cotton twine; this will be of great advantage until the young growth attains sufficient

(1) In England, called the *Flemish cherry*. Only fit for preserves. Ed.

strength to stand without support; it will then be not so easily broken off by any of the thousand accidents which is likely to befall a young and tender growth.

It will be necessary to run over your young trees every week or oftener during the early and rapid growing season and rub off all robbers, as before intimated. Later in the season as the young shoot from the artificial bud develops there will be less tendency to send out suckers, but at all times suckers must be removed on sight.

About the middle or towards the end of July the projecting stump of the stock should be cut back with a sharp strong pruning knife in almost a line with the upper part of the growth from the bud. The cut should be a sloping one; or as nearly corresponding to one half of a mitre joint as possible. For instance if the stock is three quarters of an inch thick the cut should extend upwards as far as the thickness of the stock. In heading back the snag at the time specified the wound will be healed completely before the end of the season. This constitutes the first stage in the pruning of fruit trees, or it might be better termed training as the term pruning is suggestive of the too frequent use of the surgical instruments. In fruit tree training it will be found an easier matter to keep them about right; rather than try to cure them when they have gone wrong; prevention being away above cure in this as in everything else. The next actual pruning operation is to head down the maiden shoot to the height required. It will be well to regulate that height not too high for trees intended to be grown in the colder or less favorable parts of our Province. Trees grown in the bush form often succeed where higher and more ambitious specimens would be sure to fail. As we proceed towards the North we find nearly every sort of tree more stunted until we reach the limit where it ceases to exist. We can always gain by translating Nature's lessons correctly. Where high stemmed standards would be sure to fail on account of our rigid climate; low grown dwarf bush forms would most likely succeed.

Many tender sorts of apples; pears and even peaches would succeed in our more favored positions if properly trained. In pruning as in almost every thing else a good beginning brings us a long distance on the road to success. After having headed down the maiden shoot to the desired height allow only as many shoots to spring from the stem as you require to form the commencement of the head, say three branches; let these be equally divided round the stem. These three branches should not be allowed to start too close to one another; or in other words they should be allowed to come on the main stem from five to six inches apart. The head of any tree where the branches all radiate from nearly the same point on their stem is very liable to split in several pieces when loaded with even foliage. Five or six inches between these branches make them individually stronger and not liable to split when loaded with leaves and fruit. The above point is worth remembering in making a selection of trees from any nursery.

The following spring the three limbs left growing to form the head should be shortened half their length, and two shoots allowed to come from each, bearing in mind again not to let the branches come too close to each other for the reason above mentioned, splitting. The proper regulating of the growth of the trees will require very little after amputation, in fact it is just about as

useful to the tree to have some of its limbs amputated, as it would be for the pruner if he had a finger or arm removed by the surgeon. Regulate your trees so that all the pruning they will require can be performed with your pen knife, or better still that you rub off the surplus shoots or buds with your finger. This will entail vigilance and constant attention on the part of the grower who intends to make his mark in fruit growing. Scarcely any obstacle can daunt those who are "eternally vigilant"; nothing else will meet the requirements of good fruit cultivators. The eye of the tree trainer can see at a glance whether the shoot just coming will be well placed, if it would not it is an easy matter to rub it off. To allow a misplaced branch to grow large and then cut it off is fruit tree mismanagement. It is lost energy on the part of the tree, it is lost time and lost profit to the owner. Allow nothing to start on your trees but useful limbs, branches, spurs, leaves and fruit; then, by so doing, you are directing all the powers and energies of your trees in the proper and natural channels of success.

It may be objected to that this doctrine will require too much attention and labor; intelligent labor at that. The time is approaching that hazardous fruit culture will be a matter of history. Those only who know the right principles will be able to remain in the business. The superior article is in demand and he who can supply the superior article will be encouraged and will succeed. It is largely a matter of smaller orchards better attended to, with perhaps the same or a larger crop of finer fruit on the smaller space. Every country has been running a race to supply every thing of the cheapest. The demand in a great many instances now is to get the best; which is generally the cheapest in the end.

The next issue of the "Journal" will describe the method of propagating fruit and other trees by the process of budding.

Any member of the Montreal Horticultural Society and Fruit Growers Association of the Province of Quebec who does not receive a copy of the "Journal" regularly by mail once a month will confer a favor by notifying the Secretary of the Society,

P. O. Box 1078,

Montreal.

Questions relative to horticulture answered through the "Journal" Address all such to,

Corresponding Secretary

Montreal Horticultural Society etc.

P. O. Box 1078, Montreal.

The Horse.

THE ORIGINAL TYPE OF HACKNEY.

EDS. COUNTRY GENTLEMAN.—I noticed, in your issue of Jan. 11, the card announcing the sale of the stud of the late T. C. Eastman, and as several highly bred Hackneys are included, and I have written a number of articles treating on this type for your columns, it occurred to me that your readers might like to know more of this consignment than was given in the brief announcement.

Probably all readers are familiar with the merits of the trotting families to which the different mares trace

that are included in the consignment for the trotter has been so generally bred and studied, that all are familiar with the merits of the prominent families. With the Hackney, however, it is different. Since the depression in horse-breeding has settled upon the country, I have at different times brought to the attention of your readers the merits of the Hackney as a cross for producing better general purpose horses for the farmer, especially, than has been obtained by breeding ordinary mares to trotting stallions.

Many people have an idea that the Hackney is only a "dudo" horse, suited for drawing a fancy trap through the park, with the excessive action so often seen that is not calculated to accelerate speed. It is true that the present "fad" is to train the Hackney and use him in this way, but it does not follow that the type may not be equally useful in other ways. In the earlier days the training was calculated to give speed and stamina to cover a great distance in a short time, and the name was indicative of the generally useful purpose a "hack-about" horse excelling in many ways.

The horse Beau Lyons that Mr. Eastman purchased in England to head his stud was bred at Brookfield Stud near London, owned by Burdett Coutts, M. P. He is what would be termed a Yorkshire horse, the two districts, Norfolk and Yorkshire, being especially noted as the home of the English trotter or Hackney. Beau Lyons was sired by Candidate, son of Denmark by Fireaway 249. This family line is noted for fine size, and it is written of Fireaway that he was one of the best stallions Yorkshire ever produced, his get being noted for size and stamina.

Thus we find Beau Lyons 15½ hands, his sire Candidate 15½, while his dam, Lady Lyons stands 15½. His dam is a grand mare, and has already established a family name. She is by Lord Lyons out of Flora by Sir Charles the sire of Denmark. As Denmark sired Candidate, the sire of Beau Lyons, it gives this young horse a double infusion of the blood of this noted horse styled the greatest Yorkshire sire of prize-winners.

Perhaps all readers are not aware that many creditable trotting records were made by English trotters when speed and stamina instead of action and show were the leading features. Fireaway, (Jenkinson's) to which family Beau Lyons traces, is credited with having trotted two miles on Oxford road in 5 minutes, and is said to have been sold for 1,000 guineas. Another Fireaway (Read's) trotter 16 miles in 58 minutes, carrying 224 pounds. (1) Old Driver, son of the head or founder of the Hackney family, trotted 15 miles in one hour, carrying 210 pounds. Bellfounder, that sired the dam of Hambletonian, trotted two miles in 6 minutes in 1823, and his dam, Velocity, in 1806, trotted 16 miles in one hour on the Norwich road, and in 1803, trotted 28 miles in 1 hour and 47 minutes.

These records seem slow when compared with our trotting records of the present day, but it should be remembered that when these English records were made our trotters could not beat 240. By training and breeding the fastest developed, the speed of the present has been attained. The English trotter has never been developed, or in fact, bred for extreme speed. The vehicles, unlike ours, are heavy and require a solid type of horse. This type is now in good demand in this country.

(1) Sixteen stone, a hamper, indeed

Poultry-Yard.

THE DORKING FOWL.

WHAT IT HAS BEEN AND WHAT IT NOW IS.

We have now come to the point when it can be stated that the Dorking had assumed a distinctive form, and certain points were being recognised. It will be well, however, to summarise the conclusions which the evidence already adduced warrants us in accepting. Before doing so, I may quote from a letter by Mr. Harrison Weir, the well-known artist, who is himself a Sussex man, born not far from Cuckfield. It is most important in proving that the white leg, though not mentioned by any of the early writers, was a feature of this fowl. In it he says: "I have always been associated with it: my father keeping this breed before I was born, and he pointed out to me, when a mere child, the peculiarity of the breed (at an uncle's of mine), as having a pure white leg on a dark-bodied bird, and its also having five toes." He also states that he can call to mind the stocks of several of his relatives and friends "where the fowls were bred with the utmost care, and were of a uniform color in each case. So particular were they that on my taking a Cochin cock about the year 1849 to an uncle of mine in Kent, to see the effect of a cross, I was told at once that he would not have his breed of Dorkings spoiled after all the care that had been taken to keep them true."* (1)

The points we may therefore, accept are—

First—That a five-toed variety of fowl was known to the Romans, and that in all probability it was introduced by them into Britain;

Second—That what records are available prove the existence of a square-bodied, five-toed fowl in Britain and in France;

Third—That fowls having this distinctive feature have been kept far beyond the memory of man in the South of England, more especially in Surrey, Kent, and Sussex, and that these have been recognised for their excellent table properties;

Fourth—That the Dorking variety owes its direct descent to these fowls. Whether there has been any crossing, and if so, in what directions, we have yet to see.

Fifth—That the original pure-bred Dorking was white in plumage, and had a rose comb, being medium in size.

How far the Dorking type of fowl was disseminated in other districts is uncertain, but that they were not confined to the counties named is evident, for we find in "The Poultry Yard" (1850), that fowls of this variety were to be found in Kent and elsewhere.

While it can, therefore, be taken for proved that the Dorking as bred 100 years ago and more was white in plumage, there were evidently many other colors. In the revised edition of Moubrey's Treatise, published in 1854, which only acknowledges the white as pure, it is stated that "this, the genuine Dorking breed, owing to the innumerable crosses to which it has been subjected, is now becoming exceedingly scarce, and can scarcely be met with beyond a very circumscribed

(1) If we wanted to spoil the flesh of the Dorking, the Cochin is the fowl we should use for the purpose.—Ed.
* Live-Stock Journal, 1881.

district in Surrey" The same work gives the following sub-varieties of the "Sussex fowl, or the "Improved" Dorking:

- a, Greys—Speckled, Spangled.
- b, Reds—Speckled or Pied, Penciled.
- c, Black-breasted—Silver, Golden, Japan.
- d, Cuckoo breasted.

Of these more will have to be said in due course, but for the present we must leave them on one side, as there are one or two other points requiring our consideration.

The English Standard of Excellence gives as to the color of ear-lobe the subjoined details:

Colored Dorkings—Red or red tinged with white the former preferred.

Silver-Gray Dorkings,	} Bright Coral Red.	
White Dorkings,		} white a disqualification
Cuckoo Dorkings,		

While the American Standard of 1890 says:

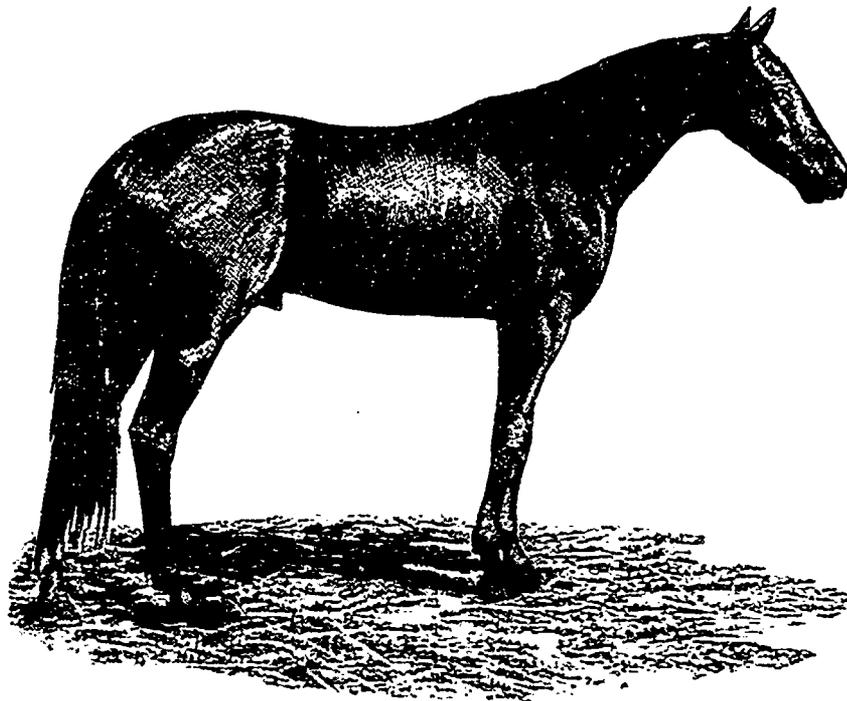
Colored Dorkings,	} Ear-lobes of medium size, and in color red preferred.
Silver-Gray Dorkings,	

White Dorkings—Ear-lobes of medium size, bright red.

We thus have a distinct intimation that in some breeds, so far as the English standard is concerned, the red ear-lobe is a *sine qua non*, while in the

on to express his opinion that the red ear-lobe is due to crossing. Though it is more than likely that not much attention was paid to the color of the ear-lobes, the weight of evidence would seem to be in favor of white.

I do not think it necessary to discuss at any length the question of comb in the Dorking, for the testimony on this point has already been given. But a single further quotation will be sufficient in addition to what has been stated before. Mr. R. P. Brent, who was regarded as a careful inquirer by Darwin, writing in 1853, says: "All the true, old-fashioned Dorkings I have had, or seen, have had rose-combs; and it is my belief that the single combs are to be attributed to the crosses with large single-combed varieties, by which their size has been so much improved. I do not think that a single comb is any objection, if the fowl has to be eaten; but as a point of breed, I consider it of as much importance as a short neck, short white legs, five toes, or square build." Probably combs of all kinds were to be met with, and an attempt is now being made to re-establish the rose-combed Colored Dorking. Columella, he it noted, speaks of the Roman breed as having "small, erect, bright-red combs."



THE CHAMPION TROTTER DIRECTUM, 2.05½.

American standard, red lobes are in all cases preferred. It will be well, therefore, to learn what was the case before, so far as we possibly can.

Columella, speaking of the Roman fowl, which he recommends, the five-clawed variety, says that they had "white ears." Markham makes no reference to the ear-lobe, unless when he says "his combe, wattles and throat would be large, great in compass, jagged, and very scarlet-red," meaning by throat the ear-lobe, which is very doubtful. Neither Moubrey nor Rees mentions this point, and other writers are equally silent, which is somewhat surprising, considering how many of them quote Columella's description. Nor does Mr. Tegetmeier, in his Standard of Excellence, published about 1857, make any reference to the ear-lobe, but in the colored plates by Harrison Weir, in Wingfield and Johnson's Poultry Book, the Gray Dorking is shown with a nearly white lobe, and the White Leghorn with a red lobe, tinged with white. Mr. Weir, writing in 1881, says: "More than forty years ago, I painted Dorkings. They had then nearly white ears." And he goes

Now a few words as to size, a subject which has caused considerable controversy. It is evident that birds were to be found of all sizes. The White Dorking was not a large bird, not so large as many of the ordinary type found in Surrey and Sussex, they being carefully bred for marketing, in which abundance of flesh was most important. Some of the crosses made were with the object of adding to the weight. But it does not appear that they reached the great weights attained by some fowls now, for a bird had been known to scale fourteen pounds. (1) Still they were large, as compared with ordinary poultry. A Norfolk clergyman says: "I remember some birds being brought from Sussex in 1840 or 1841 into a district in Norfolk, which even then enjoyed a reputation for fattening fine poultry. I remember that the introduction of the Sussex blood was followed by a distinct enhancement of size, without disturbing the beautiful white skins and the plump

(1) In February 1852, we had two May pullets for dinner, in Kent, that scaled 19 pounds the pair.—Ed.

shapes, which were already the attributes of our local birds * * * Not on one farm only, but on several adjoining ones, the use of the Sussex-bred cocks was followed by so great an improvement in size, and early fitness for spring chickens, that the local higglers (1) remarked on it and scrambled for the produce." Ten to twelve-pound cocks were then known, and this point is chiefly important in showing that fanciers, in this variety at least, have not destroyed the economic quality of the ordinary or non-exhibition fowl.

STEPHEN BEALE.
Country Gentleman.

Manures.

HOW TO SPREAD MANURES.

EDS COUNTRY GENTLEMAN.—Not long since I saw an inquiry in your paper as to the best way of spreading manure on grass ground. I practised drawing out manure in winter and spreading on the snow for many years, being the first to do so in my section, and as it would be frequently frozen in lumps, making it impossible to spread evenly, I had to devise some way to pulverise it in the spring. So in the spring of 1867, I made a bush spreader as follows: I took a basswood log, roughly making it into an octagonal shape, 12 feet long and 6 inches in diameter, boring 2 rows, of 1 inch holes 12 inches apart, starting one row 6 inches from the end, the lower row 12 inches from ends, so the holes would be odd and even with each other, as a farmer would say, the rows of holes being two inches apart. These were filled with as stiff, scraggy brush as I could get. I used some small wild plum trees 5 or 6 feet in height and 1 or 2 inches through, using a wedge to hold them in place, then attaching a chain 2 feet or so from each end to draw by, having one shorter than the other, so that the timber would be at an angle. In some cases I used to lay a plank on the brush and ride.

To be most successful in its use the manure should be wet, after a rain or as soon as the snow is gone. Then the timber, striking it first, breaks it, and the fine twigs of the brush passing over it diagonally literally grind it to powder and distribute it evenly over every inch of the ground, mixing it with the fine soil thrown up by the frost, leaving it in the best possible condition for giving the grass immediate benefit and preventing waste by drying winds.

I have never seen an implement equal to it for this purpose, or for use in putting in grass seed with grain, and one of these will last several years and then the head can be filled again.
La Cygne, Kas. D. S. B.

SAVING ALL THE MANURE.

New England farms need all the manure that they can get, and much more. Very little land receives manure enough to bring it up to the highest point of productivity, the yield of the various products would be immensely increased, and profits would proportionately increase. The great need of our farms is more manure, and the need is so pressing that it should serve to enforce the importance of saving all the manures that are made on the farm.

(1) Higglers = peddlers of poultry who travel round from farm to farm.—Ed.

It is a fact that on many of our farms a large portion of the manurial resources are wasted. On most of the farms where there is no barn cellar the liquid portion of the manure of the farm-stock is wasted, and on some of those where there are barn cellars, insufficient means are adopted to preserve the liquid elements by the use of absorbents. If the liquid elements are wasted, (1) one-half of the value of the manure is lost. Professor Johnston says that "the urine of man and the animals he has domesticated is the most important and valuable, though the most neglected and the most wasted." Professor Dana says: "The quantity of liquid manure produced by one cow annually is equal to fertilizing one and a quarter acres of ground, producing effects as durable as do the solid evacuations. A cord of loam saturated with urine is equal to a cord of the best rotted manure. If the liquid and solid evacuations, including the litter, are kept separate, and the liquid is soaked up by the loam, it has been found they will manure land in proportion, by bulk, of seven liquid to six solid, while their actual value is as "two to one." The Journal of Chemistry contains strong testimony in regard to the value of liquid excrement: "A cow under ordinary feeding furnishes in a year twenty thousand pounds of solid excrement, and about eight thousand pounds of liquid. The comparative money value of the two is but slightly in favor of the solid.

"This statement has been verified over and over again. The urine of herbivorous animals holds nearly all the secretions of the body which are capable of producing the rich nitrogenous compounds so essential as forcing or leaf-forming agents in the growth of plants. The solid holds phosphoric acid, the lime, and magnesia, which go to form seeds principally; but the liquid, holding nitrogen, potash and soda, is needed in forming the stalks and leaves. The two forms of plants should never be separated or allowed to be wasted by neglect. The farmer who saves all the urine of animals doubles his manurial resources every year."

These extracts, from good authorities, will serve to impress the farmer with the importance of saving all the liquid manures as well as the solids. The farmer who continues to allow one-half of his manurial resources to be wasted, can not expect to maintain much less increase the fertility of his farms. Where there is a barn cellar it is much easier to save the liquid manure than where there is none. By using absorbents beneath the tie-up and keeping pigs on the dressing, the full value of all the manure may be saved. If there is no barn cellar, the savings of the liquids is more difficult, yet with a little trouble it can be done. By providing a sufficient supply of absorbents to be used as bedding for the farm stock, the liquids will be absorbed and preserved. The farmer who saves all his manures and makes the best use of them, is in a condition to improve the productivity of the soil and make his farm better and better each year. H. REYNOLDS, M. D.
Livermore Falls, Me.

Country Gentleman.

Correspondence.

Mansonville Feb. 27th 1894

Mr Editor,

I would like to write a few lines for your paper on the manufacture of maple sugar. I remark with some pride that

(1) Much more than one-half We cannot approve of manure cessars under stables, etc. The health of the cattle must suffer from the effluvia.—Ed

Brome County, spoke loudly at Chicago. In regard to maple syrup, great attention is being paid the dairying interests of the province, why not heed a matter that brings in so much revenue to the farmer? Although maple-sugar is acknowledged not so beneficial in fine cooking, it is the honest solid sweet when rightly made; devoid of "Terra alba and Terra cotta." Please give us some information as to the outlook for our products in the Montreal market. My father owns and carries on an orchard of 11,700 trees, 1½ mile from Mansonville station. We sugar at a season when we could do but little else but attend cattle. Our sugar trees are small, but we can make 2 tons of splendid sugar in an ordinary season. Railroads are bonused, but the sugar maker is awarded no bounty for his toil.

Yours truly,

William Miltimore.

Mansonville County.

We cannot hold out any hopes to our correspondent of a bonus being offered for maple-sugar. If for that product, why not for wheat, barley, and other farm-crops? Ed.

Dear Sir,

Will you kindly send me a copy of the *Journal of Agriculture* for February. If I write to Messrs Senécal and Sons, perhaps I could get my name put on their list.

I have just returned from the West where I delivered 4 addresses before the South Huron Farmers' Institute and another in the Opera House at Dunnville, in all 5, and you would be astonished at the interest the farmers are beginning to take in their poultry.

The farmers up West are making from \$500 to \$700 per annum from their cows and dairying. I have heard this statement made by reliable farmers themselves. And they are now enquiring into whether they cannot convert the waste of their farms into poultry and eggs, which can always be converted into money, or traded for groceries with good account.

I hope you are well and with the very kindest regards.

I am,

Yours very sincerely,

A. G. GILBERT.

A. R. JENNER FUST,

4 Lincoln Avenue,
Montreal.

Dairymen's Association.

ADDRESS BY PROF. ROBERTSON.

Mr. President and Gentlemen:

After the disappointment of several years, I am happy to find myself able to attend the annual convention of the Dairy Association of the Province of Quebec.

For a long time I have recognized the splendid service which this Association has rendered to the people of this province.

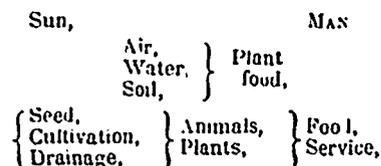
Very great progress has been made in Agriculture, and particularly in the dairying branch of Agriculture, during the past few years; and I do not know of any part of Canada where so much progress in the extension of the business of dairying and in the improvement of the quality of dairy products, has been made during the past five years as in this grand old Province of Quebec. I think I am correct in saying that a very large measure of that progress has been due to the

existence and labours of this Association and the public spirited and capable men who have been identified with its work.

I do not know that I have much which is entirely new to present to this convention; but I may be able to present, in a new form, truths which have been pressed upon your attention for acceptance many times in the past.

The more the farmers of Quebec recognize the importance of the dairy industry to them, and its power to bring them good times in their calling, the more speedily will they make the best use of the opportunities and resources which surround them.

This is essentially an agricultural province, and agriculture must be the main source of its wealth. The source of wealth may be briefly set forth in the following chart which I present for your study.



The sun is the source of all heat on the earth and provides much of the wealth which is produced in the form of plant and animal products. As an individual may wind a small portion of his own strength into the spring of a watch and thereby make provision for the regular movements of its works, in order to inform him of the progress of time, so the sun, streaming his warmth and strength on a growing corn stalk, may use it as the contrivance into which he can roll part of his own strength and heat. When the cow consumes the corn-stalk, the energy of the old sun warms the cow, supports her life and furnishes part of the materials for the supply of milk. Out of the atmosphere, plants obtain, in most cases, 95 per cent of the total substance which they contain. This would indicate to farmers the desirability of growing fodder crops and other plants in such a way, as to permit the free circulation of air and the abundant admission of sunlight on their leaves. A crop of Indian corn grown in rows three feet apart, with the stalks not closer than from four to six inches in a row, will give a better yield of good fodder than a crop from the sowing of three bushels or more of seed per acre.

This other chart indicates that the highest and most profitable methods of farming are those which enable the farmer, through agents or agencies of sun, air, water, soil and intelligent labour to provide for himself abundant crops of nutritious plants and thereby improve the quality of the products of animals fed upon those plants, which he can exchange at the best advantage for other commodities which he may desire to possess. At the present time with the keen competition which meets the farmer from all countries, the farmer must need study to provide those products which he can exchange for such things as clothing, groceries, furniture etc., with the greatest advantage to himself. The crude and primitive products of agriculture, such as cereals, have fallen in price very much during recent years. The wonderful development of rail-ways, steamships, telegraphs and newspapers has brought the colic of India into direct competition, with his wheat, with the farmer in Canada. In order to lift himself out of competition with the low priced labour of such countries as India and Russia,

the Canadian farmer must produce and sell those products which require the exercise of intelligent skill on his part for their production.—Such products are butter, cheese, bacon, beef, mutton, poultry, eggs, etc. Again, in the sale of animals and their products, the farmer does not exhaust the fertility of his farm as quickly or to the same extent as if he sold grain or hay.

The following chart shows the quantity of nitrogen, Phosphoric acid and potash which are removed by the sale of one ton each of certain products:

This other chart shows the quantity of the same substances which are returned to the soil by the manure of domestic animals. In brief, it may be said that when cattle and swine are fed on crops, not more than fifteen per cent of the elements of fertility in the fodder which they consume, are removed from the farm in their products or in their carcase. That leaves about 85 per cent of the elements of fertility which the original crops took from the land, to be restored to it in the form of manure. This is no new gospel, but it is one which must be repeated over and over and impressed deeply on the minds of the farmers who own the rich heritage of land in this province. It must not be robbed of its fertility and left exhausted and barren for coming generations, but must be protected in as great or a greater state of productiveness than it was originally, by the intelligent labour of men who follow mixed or dairy farming.

To provide cheap and suitable fodder for the feeding of cows in the autumn and during the winter months, farmers must more generally grow large areas of Indian corn.

I may be permitted to repeat what is known to many of you who have had experience in growing this crop; that it is desirable to select only those varieties of Indian corn which attain a stage of growth when the ear will be fit for table use, and which will give the largest weight per acre of corn in that stage. Corn should be planted in rows three feet apart, with not more than one grain every four to six inches in the row. Or it may be planted in hills, three feet apart both ways, with four to six grains of corn per hill.

While near Montreal last autumn I saw fields of corn, where the men had wantonly thrown away 2½ bushels of seed to the acre—perhaps they were benevolently inclined towards the seedsmen. When the corn-stalk has not room enough, the green colouring matter is less active, and does not take in the carbon for the gum, starch and sugar. The corn stalk serves the farmer in proportion as he gives it a chance—rich, warm soil and plenty of room.

This chart is for the purpose showing you the comparative value of corn-stalks cut on the 25th August and the 19th of September. It is taken from the work of Mr. Frank T. Shutt, chemist at the Central Experimental Farm. When cut on the 25th of August every ton of the crop had of digestible matter 249 pounds; when cut on the 19th September every ton of the crop contained 297 pounds of digestible matter.

In every ton of green fodder there were in the first stage 249 lb. of digestible matter, and in every ton at the other stage there were 297 lb. These are the constituents. Albuminoids, fat, fibre and carbo-hydrates. Of these the albuminoids are the most valuable constituents, corresponding to the fibrin of beef or the albumen of eggs. At the first period there

INDIAN CORN.—Digestible Matter per ton of Green Fodder.

		Cut.	Lb.	Value.
Average of 7 Varieties.	Total digestible matter	August 25.....	249	
		September 19.....	297	
	Albuminoids.....	August 26.....	25	
		September 19.....	27	
	Fat.....	August 26.....	3	
		September 19.....	5	
	Fibre.....	August 26.....	77	
		September 19.....	89	
	Carbo-hydrate.....	August 26.....	143	
		September 19.....	175	

were 25 lb. of albuminoids as against 27 in the latter. Of fat there were 3 lb., as against 5 lb.; of fibre the proportion was 77 to 89; of the carbohydrates there 143 against 175. The teaching of the whole thing is, that every ton is worth more at the latter stage, and you have more tons to the acre. This lower chart will illustrate these points still more clearly. It is taken from the average of five varieties of Indian corn at these stages.

INDIAN CORN—YIELDS PER ACRE:—

	Lb.
Tasselled, July 30	18,045 Green weight.
	16,426 Water.
Silked, August 9.	1,619 Dry matter.
	25,745 Green weight.
In milk, August 21.	22,666 Water.
	3,079 Dry matter
Glazed, Sept. 7.	32,650 Green weight.
	27,957 Water.
Ripe, Sept. 23	4,693 Dry matter.
	32,295 Green weight
	25,093 Water.
	7,202 Dry matter.
	28,460 Green weight
	20,542 Water.
	7,918 Dry matter.

Most of the gentlemen of the convention will understand that there are several distinct stages in corn growth. For the sake of convenience we speak of the later stages in the following terms:—First we have the "tasselling;" then you have the "silking," when the milk threads come through the husk; then there is the stage when the corn is "in milk"; after that is the stage when the kernel is "glazed" on the outside; and lastly you have the "ripe" stage, when the plant is matured. At the "tasselled" stage there were 18,045 lb. of green corn to the acre. In these 9 tons and 45 pounds there were 8 tons and 426 lb of water; so that we had only 1,619 pounds of dry matter. The dry matter is all that is valuable. It is not equally digestible in all its stages, but still it must be there to be available. At the "silking" stage there was great increase in the dry matter, as so all through, as shown by the diagram in the chart. If you put it down in dollars and cents, the difference would be this: that if it be said to be worth \$16.19 per acre at the first or "tasselling" stage, the same crop is worth \$72.02 per acre at the latter "glazed" stage, and there is no increase in the cost of production per acre between that stage and this. The man does not put an extra ten cents to the acre. The extra digestible constituents are largely taken from the atmosphere. So you will see the great importance of growing corn for ensilage purposes, to the "glazed" stage. We have been urging everywhere, for the last two years, that farmers should grow corn so that it may reach this stage.

The corn at the "glazing" stage has the largest quantity of food value in itself, and it is then in the most digestible condition.

In our work on the Experimental Farm in 1891, we compared four varieties of "Thoroughbred White Flint," "Cob," "Longfellow," and

"Pearce's Prolific." At the "tasselling" stage we realized per acre of dry matter—not all digestible—but dry matter, 6,468 lb. We realized at the "silking" period from the same varieties 7,770 lb. At the "early milk" stage we realized 9,138 lb.; at the "late milk" stage, 9,467 lb.; and at the "glazing" stage, 11,298 lbs. I want to read these figures to you to make an impression on your mind with regard to the advantage of cutting at the late stage. There was nearly double as much dry matter per acre at the "glazing" stage as at the "tasselling" stage, and you cannot get corn to the "glazing" stage by sowing it broadcast.

I wish to give a further illustration, by taking Indian corn on an average of five trials. The stage of growth from 24th July to 5th August, at different experimental stations, reached the condition from the "tasselled" stage to the "bloom" stage. First we may take the quantity of dry matter per acre at these two stages. The diagram that I have prepared to illustrate these points is as follows:—

	24th July to 5th Aug.
Tasselled to bloom	Dry matter..... 10 inches long
	Albuminoids..... 10 do
	Fat..... 10 do
Glazed to ripe.	Carbo-hydrates..... 10 do
	Dry matter..... 30.5 in long
	Albuminoids..... 21.4 do
	Fat..... 33 do
	Carbo-hydrates..... 36.5 do

I need hardly emphasize still further the fact that no additional expense is involved in producing a crop to the later or glazed stage; the work is all done and the outlay has all been made before the crop reaches the tasselling period.

The silo will not grow a crop of corn. If you put it at the "glazing" into the silo, it will give you a large quantity of feed, but at the "tasselling" stage it will give you an expensive way of watering cows.

I fear I have encroached on the time of the other speakers, but I wanted to show you that ensilage is the cheapest feed for cattle, and also to show you how this association might help the prosperity of Canada, by instructing farmers how to make ensilage in the best way. I will give you a few more words on the feeding value of it. I have given you one instance from the feeding experiments which I quoted.

THE ROBERTSON MIXTURE FOR ENSILAGE.

Ensilage has come to mean any kind of fodder which is cured and preserved in a succulent state for the feeding of domestic animals. The silo has no power to add any nourishing qualities to the fodder which is put into it for preservation. Its contents may become more digestible and palatable by the changes which proceed slowly under the action of ferments, or they may become less pleasant and wholesome if fermentation goes too far. Fodder which is deficient in nutrients before it is put into the silo, will ex-

perience no regeneration there. Degeneration into offensive material is the only and constant tendency, and that can be arrested.

To prevent deterioration and decay is the function of the silo; and to that end it should be constructed to exclude the atmosphere. To do so requires the use of building material of adequate strength. The fastening of its parts, at the foundation and at the corners of the silo, should be secure. I have found one ply of sound one-inch lumber, tongued and grooved, nailed horizontally on the inside of studs of the size of two inches by ten inches, or two inches by twelve inches, to be sufficient.

Indian corn—the great sun-plant of this continent—is undoubtedly the most serviceable crop which has been used for ensilage; but although it be over so well preserved as to succulence, odour, flavour and colour, it is an incomplete food for cattle. With a marvellous proclivity for storing up starch, gum and sugar out of the elements of the air, the corn plant becomes a veritable accumulator of sun-strength and energy in its carbo-hydrates or heat-producing parts. These latter are present in no mean quantities in fodder corn per acre; but, for a wholesome, economical, complete food, they are out of correct proportion to the other constituents.

A main function of intelligent men on earth seems to be, to put and keep things in their right relationship to each other, and therefore the intelligent farmer has been putting carbohydrates and albuminoids in the rations for his cattle, in the right relationships and proportions to each other, even at the expense of his purse. That has been done commonly by adding ripened grain, such as oats, barley wheat and pease to the bulky fodder part of rations, or by buying for that purpose oil-cake, cotton-seed meal, or some other feeding commodity which is rich in albuminoids.

For a few years I have been seeking to find and put into the silo, with Indian corn, some other plant or plants which would furnish the necessary quantity of albuminoids, in a form which would cost very much less than ripened cereals, or concentrated by products. Clovers and pease have been tried with indifferent success, and the climbing or pole beans have been grown, with corn stalks for trellis without appreciable advantage.

The Horse Bean or Small Field Bean (*Faba Vulgaris*, var. *Equina*) seems to meet the needs of the case. This plant grows with a stiff, erect stem of quadrangular shape. It attains here a height of from three to four feet; and it grows in England and Scotland to a height of from three to six feet. (1) It bears pods from within six or eight inches from the base of the stalk to near its top. The ripened beans are of a greyish-brown color, and of an oblong, round shape about half an inch long in diameter and about three eights of an inch in short diameter. (2)

With us the plants have carried ripened beans in the lower pods, while the topmost ones on the stalks were hardly out of bloom. By growing the horse beans as a fodder crop, in rows three feet apart, with three or four plants per foot in each row, we obtained in 1892 an average yield of six

(1) We have seen it upwards of 8 ft. high in the embanked alluvial land on the Severn bottoms on our property in Gloucestershire, Eng. The yield was 80 bushels an acre. Ed.

(2) The best sort is the "Pigeon bean," less in length of seed than the above. We have grown it, in Kent, Eng., as heavy as 70 lbs. a bushel. Ed.

tons, 1, 610 pounds per acre of green fodder. Representative samples of the crop were analyzed by Mr. Frank T. Shutt, chief chemist of the Dominion Experimental Farms, and from his analyses it is established that horse beans contained 370 pounds of albuminoids and 94 pounds of fat per acre. They were preserved in a silo in a layer by themselves, and also in mixture with Indian corn plants, and, moreover, were grown in the same rows with Indian corn,—the bean and corn being mixed before they were put into the planter. It will suffice at present to say that the cattle relished the Indian corn and horse beans ensilage.

Although albuminoids and carbohydrates (in the form of starch, gum, sugar and fibre,) may be contained in an Indian corn and horse bean mixture in nearly correct proportion, it is still an incomplete food, from deficiency in fat.

The Sunflower (*Helianthus annuus*) grows luxuriantly over the whole of the temperate zone of this continent, and the seeds contain a large percentage of fat. The variety known as the "Mammoth Russian" was grown in rows three feet apart, with the plants from three to eighteen inches distant in the rows. There did not appear to be any appreciable difference in the weight of the crop per acre, where the plants were grown close or more distant in the rows. They yielded at the rate of seven and a half tons of sunflower heads per acre. From the analyses made by Mr. Shutt, it was established that they contained 352 pounds of albuminoids and 729 pounds of fat per acre.

A group of milking cows are being fed on a ration, of which the ensilage part is made from mixing the heads of sunflowers from half an acre with Indian corn fodder from two acres. The cows of another similar group are being fed upon a like ration, of which the ensilage part is from Indian corn, alone, with two pounds of grain per head per day more than is allowed the cows of the former or sunflower group. The milk from the two groups, is set in deep setting pails in ice water under the same conditions, and the following results are apparent from an average of nine tests:

	From ration with Sunflower Ensilage	From ration with ordinary Indian Corn Ensilage.
Percentage of fat in skim-milk.....	.35.	.51.
Churning period, minutes.....	30	20.
Percentage of fat in butter milk.....	.15	.40.

The butter from the cows, which are fed on the ration with unflower ensilage, has a richer flavor and a slightly higher color than that from the other lot.

The sunflower ensilage has developed a most agreeable odor, and the cattle are greedily fond of it.

Besides the points which have been mentioned, it should not be overlooked that horse beans belong to the family of plants which have the faculty of appropriating free nitrogen from the atmosphere for the formation of the albuminoids which they contain. It is possible to increase the fertility of the soil rapidly and to a remarkable degree, by growing the crop and feed-

ing it to the dairy or fattening stock. Protection to the land and profit to the pocket of the farmers are the two fruits to be expected. These form a capital combination for Canadian farmers, and no personal proprietary right restricts the use of it.

For the growth of this mixture hereafter, I recommend the corn, horse beans and sunflowers to be planted in the following proportions. One acre of Indian corn planted in rows three feet apart, half an acre of horse beans planted in rows three feet apart, at the rate of two thirds of a bushel of seed per acre and a quarter of an acre of sunflowers planted in rows three feet apart with from one foot to a foot and a half between the plants in every row. (1)

The Sunflowers should be planted as early in the season as possible, and if they come up thicker than at the rate of one plant at every foot in each row, they should be thinned out in each row. The heads only are to be used in the silo. The horse beans may be planted from two to three weeks later than the corn. The crop from all three plants should be mixed and put into the silo together.

I have time to devote only a few words to the management of dairy cows. The most valuable and important characteristic of a dairy cow may be spoken of as a good constitution. By the term constitution I mean the power to continue in good health, perform the functions of life and render a good service. There are many points which indicate the possession of a good constitution by a cow, but I take time to refer to only one of them. The mellow skin is one of the most desirable points in a cow. It may be spoken of as an organ, since the skin which covers the outside of the body passes over the inside and forms the stomach and intestinal canal. For the preservation of the skin of the cow in a healthy condition, succulent feed is desirable and necessary. The crying need of the dairy cows of Quebec at the present time, is the supply of succulent and juicy feed for the winter months. That can be provided most cheaply in the form of Indian corn ensilage, or the "Robertson's mixture for ensilage" of which I have already spoken. The growing of roots is also a good method of providing succulent feed for the dairy and fattening cattle. Comfortable stables are another need of the dairy cattle of this country. The stable should be warm, clean and light and an abundance of pure air should be supplied and the cow should have access to salt.

By the care of his cows in a manner similar to that which I have outlined, with attention to all little details of practice, Mr. James Whitton, of Weilmann's Corners, Ont. sent to the cheese factory during the summer of 1892 no less than 6,093 pounds of milk per cow in a period of six months. His cows were selected and well cared for for several years. This is a most exceptional instance, but it illustrates what can be done with good cows which are well kept. During the season of 1892, for the milk of some seven and a half months, he realized from the milk of his eight cows \$505.00, from the cheese factory; and in addition to that we paid Mr. Whitton the sum of \$193.00, during the remainder of the twelve months for the butter which was made from the milk of the same cows during the winter

at our butter station, which had been started in the premises where cheese-making had been carried on during the summer.

The shortness of the time at my disposal will permit me to take only a few remarks on the handling of milch-cows.

The utmost cleanliness should be observed in milking the cows, and it will be found advantageous to milk the cows with dry hands rather than with the hands wet by milk.

Tin pails only, and those perfectly clean, should be used. In the preparation of milk for cheese making, it is advantageous to aerate the milk by dipping, pouring, stirring or running it through an aerator in a pure atmosphere.

The milk should be left only in a place where the surroundings are clean and wholesome without prevalence of any offensive smells. Every patron of a cheese or cream factory should send to the factory milk without adulteration. In order to give fair play to the several patrons I advise that milk be paid for according to its quality. When that is done temptation to remove cream or put in water is almost entirely taken away. Human nature in Quebec is very much like human nature in any part of the world. It is susceptible to the influence of any practice which is found to be profitable. The testing of milk and the payment for it according to the quality, will show that it is most profitable to send pure, honest, rich milk to the factories.

To the cheese makers who are present a few words may be addressed. Every cheese maker should be ambitious to become an educator towards better efforts in farming and dairying in his locality.

The details of cheese-making are fully taught in the dairy school at St. Hyacinthe and I will confine my remarks to a few points which are apt to be neglected.

It is not consistent for the cheese maker to scold and berate the patrons of his factory for having dirty milk cans and untidy surroundings when the weigh-can, milk cans and floor of his own factory are not perfectly clean. The cheese maker himself should be a living example of cleanliness in all his surroundings. Nothing is more detrimental to the making of uniformly fine cheese than untidy cheese factories, where the inside and outside vie with each other in offensiveness.

I am glad to be able to report to you that there is a very great improvement in the cheese factories in the province, and I wish to urge upon the cheese makers of the French speaking districts, as well as of the English speaking districts, that they should maintain the reputation which the Anglo-Saxons and Normans have for cleanliness and good taste.

The cheese and boxes should be finished with a neatness of appearance which make them attractive in the eyes of any buyer. Cheese of which the rinds are cracked or which are not finished with good workmanship on the very edges, will fetch less money than cheese of similar quality put up in neat form. The boxes should be strong and close-fitting; and where stencils are used, they should be neat and put on carefully.

The following chart shows the gain which will result to farmers from sending the milk from cows which have been milked for several months, to a creamery in preference to setting it at home for making butter. Winter dairying should be followed more generally in the Province of Quebec,

and I think it should take the direction of butter making during the winter in the same premises where cheese making has been followed during the summer. In many cases the farmers are disgusted with the task of winter chores which leave them no direct profit. The feeding of milking cows during the winter would bring in a revenue at the time of the year when the feed of animals costs highest. It would also enable the farmers to get profitable returns out of the capital which they have invested in cows, barns and lands. Besides, a cow which is milked for ten months or more in every year will give a much better flow of milk than one which is milked only seven months, and lives for the other five months in the year without paying her board to the man who keeps her. During the winter months, milk and its products sell for high prices by the pound, and the by-products of skim-milk and butter-milk are then most valuable for the rearing of stock and the feeding of young pigs.

In conclusion I may add a word on butter-making—the details of this art are taught thoroughly at the dairy school at St. Hyacinthe, and I commend it to the hearty support of the butter and cheese makers.

I desire to refer to a few matters to guard butter makers against falling into wrong practices. In the case of the cream, care should be taken to prevent it from clotting and to prevent a scum or skin from forming on the surface by evaporation. If this be permitted, clots of cream are apt to find their way, unbroken, into the butter tub making it full of unsightly specks, which lessen its value very much.

Pure clean salt of fine and uniform grain only should be used. A complaint was made at the World's Fair

that Canadian butter suffered very much from a fishy flavour and odour said to be due to the quality of the salt which had been used. I fear that in many cases the salt is exposed to all kinds of noisome and foul odour before it is added to the butter. Even such a preservative as salt may become the means of introducing into the butter most injurious taints and bad flavours. When salt has been exposed to any foul atmosphere I think it may be safely heated to 180 degrees Fahrenheit and afterwards cooled before it is put with the butter. If the butter be packed, the tops of the packages should be finished with the utmost care leaving a perfectly smooth surface.

Attention to these small matters will enable the dairymen of Quebec to win larger profits to themselves, obtain more pleasure in following their calling, and assist still more largely than they have done in the past in building up the prosperity of this province and the Dominion of Canada.

Nitrogen, phosphoric acid and potash in one ton each:

	Nitrogen.	Phosphoric acid.	Potash.
	Lbs.	Lbs.	Lbs.
Wheat	41.6	15.6	10.4
Barley	32	15.4	9
Oats	38.4	12.4	8.8
Pease	70.6	17.2	19.6
Beans	81.6	23.8	26.2
Indian corn	32	11.8	7.4
Hay	31	8.2	26.4
Clover	39.4	11.2	36.8
Potatoes	6.8	3.2	11.4
Fat cattle—alive.	50	31.2	2.8
Fat sheep—alive.	44	22.6	2.8
Fat swine—alive.	31.8	14.6	2
Cheese	90	23	5
Milk	10.2	3.4	3
Fine butter5

CHEMICAL COMPOSITION OF MANURES, POUNDS PER TON.

	Nitrogen.	Phosphoric acid	Potash.
	Lbs.	Lbs.	Lbs.
Horse	Whole	3	5½
	Liquid	15½	15
	Solid	4½	3½
Cattle	Whole	3½	4
	Liquid	6	5
	Solid	3	1
Sheep	Whole	8½	6½
	Liquid	19½	22½
	Solid	5½	1½
Swine	Whole	4½	6
	Liquid	4½	8½
	Solid	6	2½
Poultry	16½	15½	8½
Mixed Farm manure	Fresh	4½	5
	Rotted	5½	5

The nitrogen on the chart was represented by red lines one inch per lb. The Phosphoric acid by brown lines, one inch per lb. The Potash by green lines one inch per lb.

EXPERIMENTAL DAIRY, C. E., FARM, OTTAWA. AVERAGE RESULTS FROM 7 TESTS.

Milk set in deep pails in ice-water for 22 hours.	Per cent of butter fat in.				Pounds of butter per 100 lb. of butte fat.
	Whole milk.	Skim milk.	Butt r milk.	Not recovered.	
From cows milking more than 6½ months	3.67	1.43	0.40	32.55	80.91
Do milk from one fresh cow	3.58	0.55	0.40	14.00	103.29
From cows milking less than 6½ months.	3.56	0.21	0.35	6.34	114.85

(1) In England, we sow 3 bushels an acre in rows 2 feet apart. In Scotland as much as 5 and even, on inferior soils, 6 bushels. See Stephens "Book of the Farm," art. Bean. Eo.

—Letters of congratulation from musicians are constantly arriving at Mr. Pratte's establishment, and that of the well known organist of the Jesuits' Church is specially significant.

Montreal, 17th January, 1894.

My Dear PRATTE,

I feel it my duty both as a friend and a musician, to congratulate you on the success of your splendid instruments.

The one which I possess is really quite a little treasure, as remarkable for the power, breadth and beauty as for the sweetness and lovely quality of its tone.

Your instruments call for a special word of praise on account of their perfect mechanism and extremely agreeable touch.

Your piano is really an artistic creation which does honor both to yourself and your native country.

Please accept the congratulations and best wishes for success of your friend.

DOMINIQUE DUCHAMBE.

NOTES AND NOTICES.

—In another column will be noticed an advertisement of the "Symmes Hay Cap Co." Last April, we drew the attention of our readers to the advantage of using these Hay Caps; and would remind intending users to order early so as to secure them in time.

—Commenting on the work of a slicer disc harrow on their own farm the "Farmers Advocate," of London, Ont., says:—"We did not feel perfectly safe in recommending this implement to our readers without first testing it ourselves. We took it to a field where the soil was a sandy loam. The ground had not been worked for several months. It was therefore packed pretty solid by the heavy rains and was densely covered with Canada thistles from six to eight inches high.

The harrow bore up the ground three and a half inches deep and "Yauked" out nearly all the thistles. We then moved to another portion of the field, the side of a deep declivity, where the soil was a stiff blue clay, which had been plowed a few months before and there was a large number of hard lumps. The harrow pulverized it thoroughly leaving it in good condition for a seed bed.

—We take great pleasure in calling the attention of the tobacco growers to the advertisement of Fuller & Johnson, Tobacco Planter

advertised in another column of this Journal. This machine has been used for doing the work of transplanting tobacco plants and other plants, such as tomatoes, cabbages, sweet potatoes, strawberries, etc., in the United States, during the past four years, and we have information from reliable sources that it will do the work of setting plants in a much more superior way than can be done by hand, and that it is the only machine of its kind that will perform the work in a wholly satisfactory manner.

The transplanter is manufactured by the Fuller & Johnson Mfg. Co., of Madison, Wisconsin, U.S.A., and they have sent us a large number of copies of letters from those who have used the transplanter, all of which speak in very high terms of the machine and the work it does.

A few of these machines have been used by our growers in the Province of Quebec, and other growers have ordered machines for the coming season. Mr. F. A. Mel. Feucher, of Joliette, P. Q., has used the machine for several years and can intelligently answer any inquiries that contemplated purchasers might wish to make.

J. M. Marcotte, 55 St. James street, Montreal, is also well informed as to what the transplanter will do. We believe it would be of great advantage to the growers of tobacco in the Province to adopt the use of this machine and would recommend that they correspond with the parties above referred to and with the manufacturers, at Madison, Wisconsin.

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

FOR OVER FIFTY YEARS.

To our Patrons and the Public.—As we have decided to raise this year Twenty Pure Bred Ayrshire Heifer Calves Sired, by our imported Bull Baron Renfrew, we offer for sale at reasonable prices a few of our mature Ayrshire Cows, ranging from four to eight years old of Choice Breeding, comprising representative animals from the Herds of Ex-Alderman Rodden, President of the Canada Ayrshire Breeders Association, Robert Robertson, Esq., Howick, and the late Thos. Brown, of Petite Côte, Montreal, besides those of our own breeding, some of which are already sired, by our young Bull Derby, a Son of the celebrated sweepstakes bull at Chicago "Silver King."

We will also have for sale about the 1st of May three litters of Pure Bred Berkshire Pigs from Stock of such noted Breeders as Messrs. Snell, of Edmonton, and Tall & Sons, of Carlton Place, Ontario. Correspondence solicited. Visitors welcome. A. McCALEUM & SON, Danville, Que.

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DOMINION PRIZE HERD PURE BRED AYRSHIRE CATTLE

RECORD FOR 1893
54 PRIZES
37 FIRST - 11 SECOND

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 COTE, MONTREAL, P.Q.

CHOICE AYRSHIRE CATTLE (REGISTERED.)

My Stock Bull, Imported "Silver King" took 1st Prize, in 2 year old class in 1893, at Montreal, Hochelaga, London, Ottawa, Toronto and also Silver Medal there as best bull of any age. The dam of "Silver King" is imported "Nolly Osborne" who took 1st prize as milk cow and champion as best Ayrshire female at the World's Fair, while his sire is "Traveller," the Champion Ayrshire bull of Scotland. I offer for sale young stock of both sexes, sired by this famous young bull, who is of extra size and has particularly good milk points. The dams of my young stock are not only good individually, and prize winners, but heavy milkers as well, with exceptionally high tests for quality of milk.

Apply by letter or personally to
Duncan McLachlan
PETITE COTE, P.Q.
1-94-41 (Near Montreal.)

ASHTON GRANGE HERDS IMPROVED YORKSHIRE.



ASHTON - HERO - IMP.
My Breeding Stock are imported from the celebrated Sanders Spencer, Holywell Manor, England. I have on hand a choice lot of Young Pigs, January and February litters; also several sows to farrow shortly. Am now booking orders, I ship to order and guarantee satisfaction. Personal inspection preferred.
W.M. TAIT,
3-94-61 St-Laurent (near Montreal.)

J.G. MAIR BREEDER AND IMPORTER OF Improved Large YORKSHIRE PIGS

Bears and Sows of all ages for sale at very reasonable prices, bred from Imported Stock. Correspondence replied to in both the French and English language.
RAILWAY STATION and POST OFFICE
4-94-121 Howick, Que.

FOR SALE AYRSHIRE CATTLE SHROPSHIRE SHEEP BERKSHIRE PIGS

THREE BULLS BORN IN 1893.
Spring Calves, \$10.00 each, at 8 days old.
All these animals are registered.
3-94-21 A. MOUSSEAU, BERTHEVILLE, P. Q.

MAPLE SHADE HERD

We are yet breeding deep milking Short Horns, Improved Yorkshires and Chester Whites from imported stock; also, Shropshire Sheep. A very choice lot for sale.
4-94-21 J. B. MASTEN, Lacolle.

LEE FARM JERSEYS. Herd Established 1870. Registered Jerseys of the best and most fashionable families. High grade heifers constantly on hand. Jerseys are the best bulls to mate with grade cows for better purposes. Bulls, cows and heifers of all ages for sale. Also, Standard bred trotting Stallion, Fillies and Brood mares of gilt edge breeding, with fast record, for sale. E. F. HALL, Lee Farm, Hook Island, P.Q. — Speciality Gentleman's Roadsters and Family Cows. 4-94-121

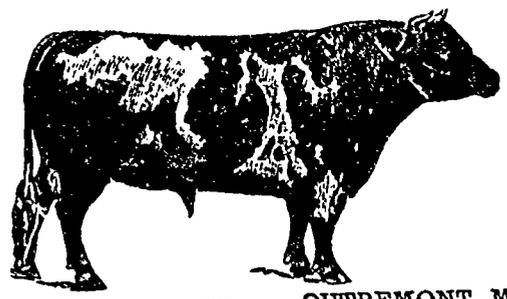
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We have for sale the best
Bee Hives, Sections,
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Italian Bees and Queens,
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In fact, everything required by the successful bee-keeper. Stock large and Prices moderate. Our large Illustrated Circular and Price List for 1894, fully describing everything, sent free upon request.
4-94-31 F. W. JONES, Bedford, P.Q.

HATCH CHICKENS BY STEAM With the Improved Excelsior Incubator.

Simple, Perfect, Self-Regulating. Thousands in successful operation. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other hatcher. Lowest priced first-class Hatchers made.
Circulars free. Send 6c. for Illustrated Catalogue.
GEO. H. STABLE, Quincy, Ill.



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To Societies of Agriculture and Farmers desirous to improve their stock, we offer pure bred registered
AYRSHIRE CATTLE, Bulls, Cows, Calves, all choice Stock

PURE BRED REGISTERED
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The Chester White is known to be invulnerable to pigs' cholera.

Pure Bred **PLYMOUTH ROCK—Improved Bred COOKS, HENS, CHICKENS, EGGS.**

HOT-BED PLANTS of all kinds Shipped to order by Express C. O. D.
APPLY TO **JOSEPH BEAUBIEN, 30 St. James Street, Montreal.**

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Garden and Farm Seeds of every description. Send for Our Illustrated Catalogue mailed free, to all applicants. Choice Lower Canadian Timothy Clovers in variety and Seed Grain of all sorts. We are Head Quarters for **Emmige Corn** and offer best assortment of varieties of any House in Canada and keep in stock Imported **Horse Bean** and **Russian Sunflowers** used in growing Professor Robertson's Emu Combination. We offer everything in the way of Seeds necessary for the Flower Garden, Vegetable Garden or Farm. We also offer for sale a complete line of Capeton Fertilizers and other artificial manure **Ground Oil** (also **Coston Seed Meal** which no Dairyman can afford to be without at inside prices and we call special attention to "Ewing Calf Meal," which is a complete substitute for milk and on which calves can be raised as well as on whole milk and a great deal less cost. Write for pamphlet giving full particulars as to calf meal.

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

Send for Illustrated Catalogue. 1-94-41

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WHITE MONARCH OAT - - -
IRISH COBBLER POTATO - - -
GOLD MEDAL DENT CORN - - -
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Our 1894 Seed Catalogue is brim full and flowing over with good things that every progressive Farmer and Gardener should have. Send for a copy. Address

3-94-31 **JOHN S. PEARCE & CO., LONDON, ONT.**

WM. EVANS 400 Helderleigh Fruit Farms Nurseries (Four Hundred Acres in Extent.) ESTABLISHED 1882.

There is no place in Canada where the season is longer than here. Hence we get trees brought to the fullest maturity, capable of withstanding the severest cold. Having one hundred acres in fruit, from which cuttings, buds, scions, etc., are taken, I can safely guarantee the purity of my stock to be equal, if not superior, to any other nursery. The soil is specially adapted to produce vigorous, hardy trees, a grand lot of which are now growing and for sale. All the leading sorts of both old and new varieties deemed worthy of propagation. Catalogues free on application. Agents wanted in every township.
5-94-21 E. S. SMITH, Winona, Ont.

GLOVERS, RED, MAHOUT, ALSIKK, TIMOTHY.

CHOICE SEED GRAINS of all kinds.
Write for Prices and Catalogue. 2-94-31



The Symmes Patent Hay and Grain Cap Thoroughly Waterproof.

The most practical cheap and efficient Hay and Grain Cap yet introduced—Not necessary to fasten down—Almost indispensable on grain when using a self Binder. One will cover 16 sixteen binder sheaves. Vegetable and flower covers for transplanted plants. Stack covers—made in five sections—diameter at bottom (8) eight feet and about (6) five feet deep. Send for prices and circular with testimonials, to

SYMMES HAY CAP CO. 4-94-41 SAWYERVILLE, P.Q.



ESTABLISHED 1852.

GORDON'S SCALES

are the best and cheapest
FARMERS SCALES DAIRY SCALES

HAY and STOCK SCALES.

A specialty.

Write for Prices and Catalogue.

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ROBERT NESS, IMPORTER AND BREEDER of Clyde Dales From the best Stud of Scotland. English and French carriage horses, Shetland Ponies and Ayrshire Cattle. 4-94-121 Woodside Farm, Howick, P.Q., Quebec.

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We are offering for sale at very reasonable prices
**FOUR PURE BRED
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 ALL PRIZE WINNERS
 At the Largest Shows in Canada.
 —ALSO—
 A BEAUTIFUL LOT OF
Pure Bred Shroshire Lambs
 At
 A few choice and two
SHEAR IMPORTED RAMS.
 Write quick and get our prices.

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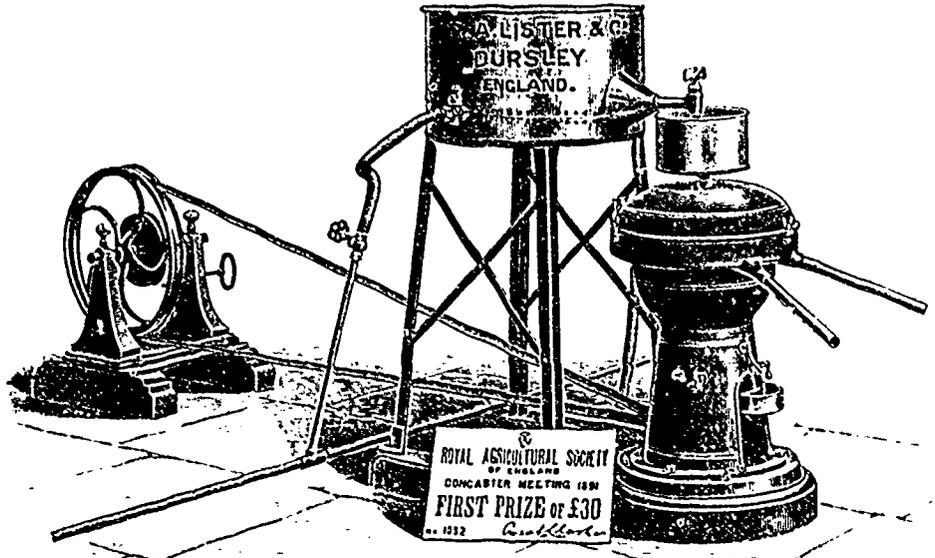
We lead as usual, and we have sold every spring pig we can spare, but have twenty grand sows to farrow this fall.
 Send in your orders for young pigs at twenty dollars a pair not related.
 We give a registered pedigree with every animal sold.

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THE "ALEXANDRA" CREAM SEPARATOR

Cheapest
Simplest
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The Best Separator
 in the world.
 —POWER—
 Three Sizes.



Most Economical
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ESTIMATES FOR CHEESE AND BUTTER FACTORIES — Engines and Boilers — Churns — Second Hand — Separators.

-J. DE L. TACHE-
 GENERAL AGENT FOR CANADA
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 For Steam or 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.**
 For Illustrated Catalogue, address
H. C. BAIRD & SON
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The only one on the market, which the horses can run without their walk being bridged.

It affords us great pleasure to have it known that the improvements brought to our hay press "LA CANADIENNE" have made it superior to all other horizontal presses working in the shape of half a circle. The fuller's course is 33 inches, that is from 6 to 9 inches longer than in any other horizontal press, which gives a wider opening to put the hay in and more speediness. Three men will do more with our press "LA CANADIENNE" than with any other press in the shape of a half circle, while it is much less tiresome for the horses. The materials employed are of the first quality, with the exception of two pieces of chilled cast iron, all the other parts are of steel and malleable cast iron.
 We guarantee our press to work at the rate of 10 to 13 tons of hay every day without the horses being tired.
 We manufacture four sizes of presses.
 14 x 18 16 x 18 16 x 20 16 x 22
 We will send this press for trial to any responsible party.
 Write for our catalogue and list of prices.

"LA CANADIENNE" Perpetual Press.
 (PATENT AND IMPROVED.)

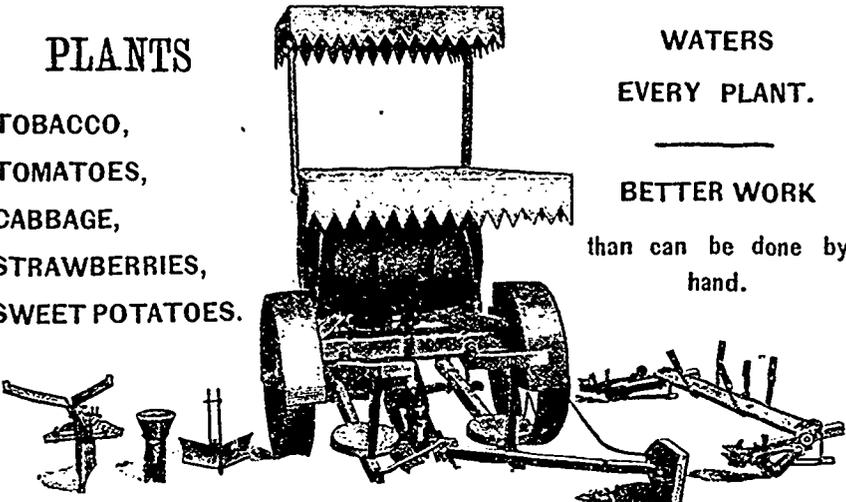
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TOBACCO,
 TOMATOES,
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 SWEET POTATOES.

WATERS
 EVERY PLANT.

BETTER WORK

than can be done by hand.



FULLER & JOHNSON BEMIS TRANSPLANTER.

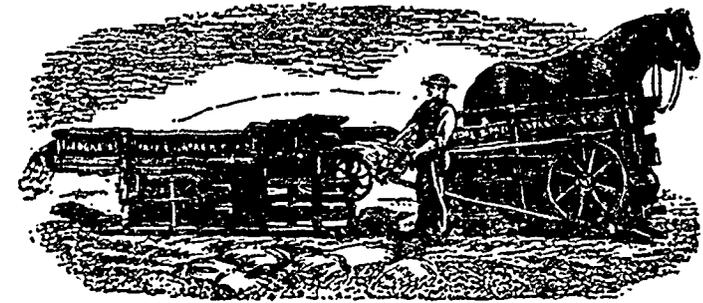
The above cut shows the Planter. A driver and two boys plant 3 to 6 acres per day. Waters every plant. Much better work than hand planting, and can plant whether wet or dry. No journals to wear out or packing wheels to ball up. Very simple, strong and durable. Will last a life time. No tobacco grower can afford to plant by hand when a machine can be had.

Agents Wanted where there are none already at work.

Fuller & Johnson M'f'g Co.,
MADISON WISCONSIN,

REFERENCES:—J. M. Marcotte, Esq., 58 St. James Street, Montreal.
 F. A. Med. Foucher, Esq., Joliette, P. Q.

4-94-2i



The thrashing machine represented in the above engraving is our vibrating machine. It has a run of 28 inches long with teeth in steel guaranteed so that they can bend without breaking as the norway. The iron work that support the drills is all in wrought iron which is very advantageous and economical as any blacksmith can make it, so that all long delays are avoided.
 The sieve of our vibrating machine is longer and wider than all the other machines of the same kind manufactured in Canada. This new shape facilitates the cleaning of the grain and the sieve is less exposed to spread its contents outside. We give seven passes with this sieve.
 The horse power runs on cast iron rails, all the shafts of the bridge are in steel and measure 4 of an inch which represents half a line of a larger size than those employed by the other manufacturers. All the shafts in the separator, the sieve and the horse power are in steel. We never use any iron shaft. Our machine is acknowledged to be the easiest to run and the one which lasts the longest.
 Write for a catalogue and list of prices.
 We also manufacture a Canvas Separator with improved Railroad Horse Power; Railroad Upright Hay Press, Rod Upright Hay Press; Straw Cutter No. 9, 11, 13, Spring Harrows, 16 teeth; a Washing Machine patented May 1892.
 We want active and responsible agents in all the localities where we have none yet.
 Any farmer shall find it an economy and be certain to have the most improved machine in applying to us. We allow a special discount for orders sent by mail.

J. B. DORÉ & FILS,
 MANUFACTURERS

LAPRAIRIE, QUEBEC.