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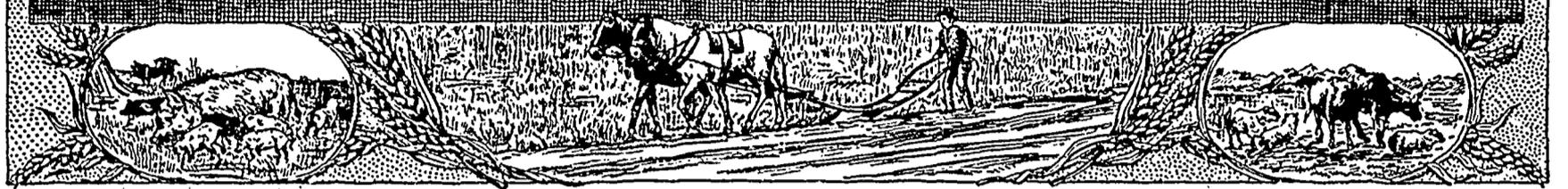
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# THE ILLUSTRATED JOURNAL of AGRICULTURE



Vol. 17, No. 1.

MONTREAL, JANUARY 1, 1895.

\$1.00 per annum, in advance

The Illustrated

## Journal of Agriculture

The ILLUSTRATED JOURNAL OF AGRICULTURE is the official organ of the Council of Agriculture of the Province of Quebec. It is issued Monthly and is designed to include not only in name, but in fact, anything concerned with agriculture, as Stock-Raising, Horticulture, &c., &c.

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

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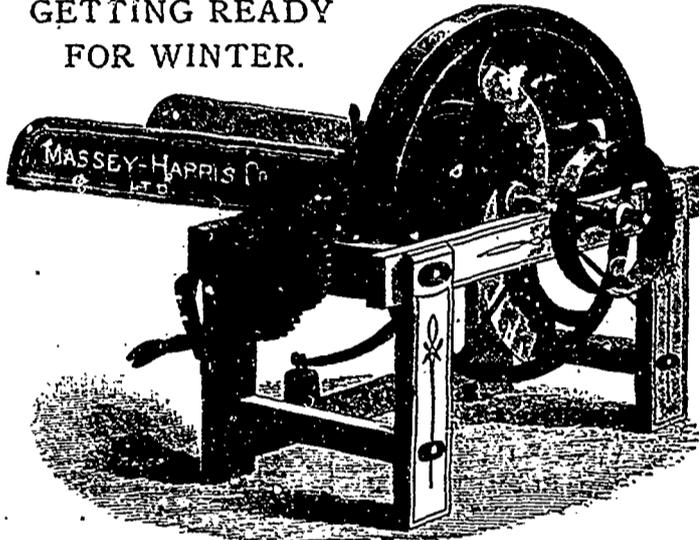
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EMILE CARIGNAN.

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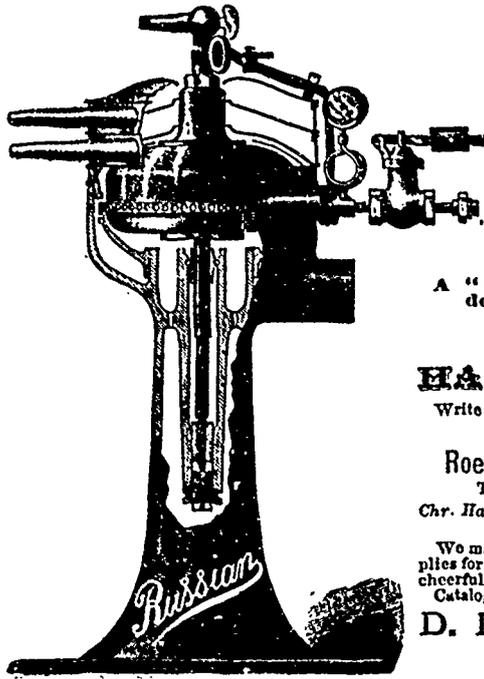


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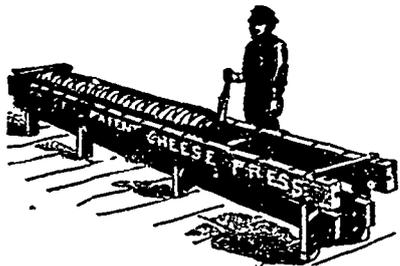
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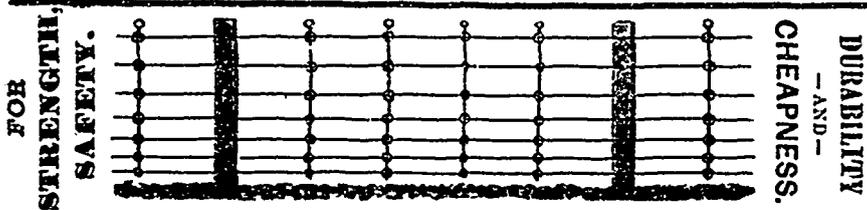
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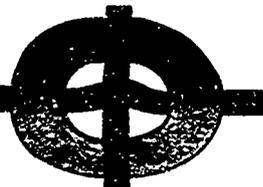
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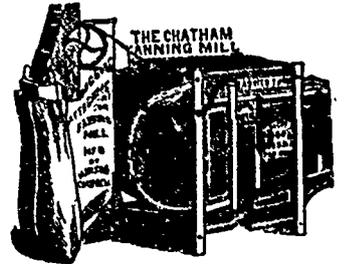
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More than have been sold by all the other factories in Canada put together and doubled.

Sto Gen viève de Batiscan, May 26th, 1894.

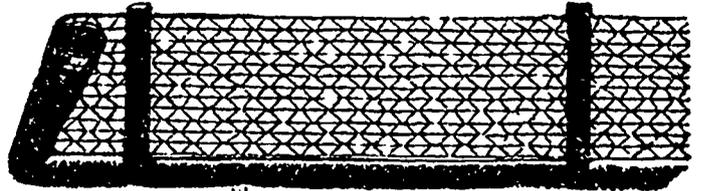
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LA. DESHAIES, Notary.

MANSON CAMPBELL, Chatham, Ont.

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This fencing has secured FIRST PRIZE and MEDALS wherever it has been exposed chiefly at the World's Fair Chicago and at the Dominion and Provincial Fair TORONTO, MONTREAL, QUEBEC AND SHERBROOKE.

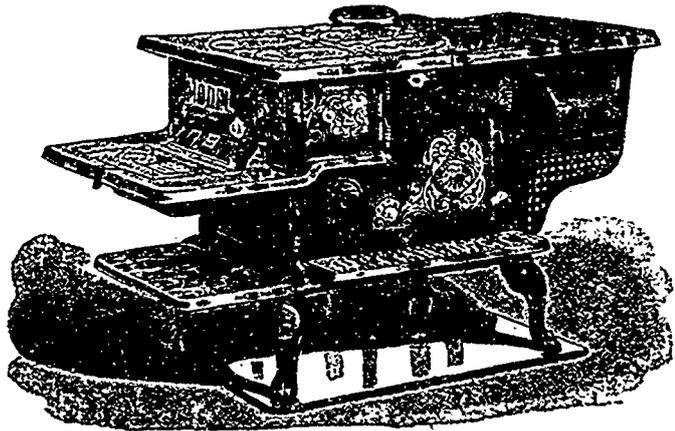
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LA BAIE, Yamaska County, P.Q.

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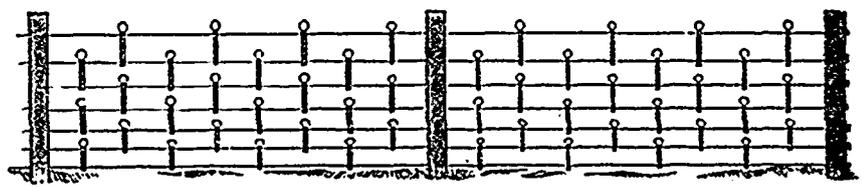
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This Fence, as shown in above cut, is very handsome, strong and durable, should last a life-time and will turn any kind of stock. It is so constructed that it will remain tight and straight in all kinds of weather, a feature which no other maker has successfully accomplished. It is perfectly flexible and cannot be bent or kinked out of shape, and will stand more abuse or rough usage than any other fence in the market. It is our aim to place this fence on the market at a low price than any first-class fence has ever been sold at. Send for circular, giving full description and prices to

M. T. BUCHANAN, INGERSOLL, Ont., Manufacturer Wire Fence, Hay Carriers, Hay Forks, and a full line of Hay and Grain Unloading Tools. Agents wanted.

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THE ILLUSTRATED Journal of Agriculture

Montreal, January 1, 1895.

Table of Contents

NOTES BY THE WAY:

Apples..... 3
English roads..... 3
Tomatoes; illustrated..... 3
Potash..... 3
Basic slag..... 3
Wiltshire potato experiments..... 3
Ag. credit socs. in Franco..... 4
U. S. crops, 1894..... 4
Pleuro. p. in English ports..... 4
The Watkin Williams Wynn estate..... 4
Variation of prices..... 4
Nitrate of soda, price of..... 4
Superphosphate, do..... 4
Kainit, do..... 4
Bone-dust, do..... 4

SOREL:

Change of seed..... 4
Early Puritan potatoes..... 4
M. Guévremont's root-crop..... 4
Carrots..... 5
Chirkwood..... 5
Sugar-beets..... 5
Distances..... 5
Cultivation of beets..... 5
Cost of do..... 5
Rotation..... 5
Profits..... 5
Effect of frost on beets..... 5
Harvesting..... 5
Seed to the acre..... 5
Bad bread at Sorel hotels..... 5
Beet-crop on Senator Guévremont's farm..... 5
Splendid mangels, &c..... 5
Manure required..... 5
Chou-moelleux..... 5
Treatment of light land in spring..... 5
Rules for root-growing..... 5
Bad ploughing at Sorel..... 6
Milk-cows at do..... 6
Rolling and fall ploughing..... 6
Fall ploughing, Macfarlane on..... 6
George Moore on the Aylmer district..... 6

DAIRYMEN'S ASSOCIATION:

The St. Jos. de Beauce meeting..... 6

THE FLOCK.

Shropshire sheep..... 8
Sheep feeding expts. in England..... 9
Sheep husbandry..... 9
Sheep in summer..... 10
Feeding grain to lambs..... 10
Weyhill sheep-fair..... 11

CORRESPONDENCE

Mlasses for cattle food..... 11

THE DAIRY:

Butter-fat and butter..... 11
Haecker on butter-making..... 12
The Mammoth cheese..... 12
Judging a cow..... 12
The London dairy-show..... 12

HOUSEHOLD MATTERS.—III.

Stale bread..... 12
Pancakes..... 13
Pudding..... 13
Plum-cakes..... 13
Icing for cakes..... 13
To clean furs..... 13
"Try again"..... 13
To clean gilt frames..... 13
Coffee cream..... 13
A toy..... 13
The game of "Concert"..... 13

THE POULTRY YARD:

By Gilbert.

Gain in weight..... 13

THE FARM:

Deep cultivation and wheat..... 14
The Sunflower..... 14
Eng crops in '91..... 15

FERTILISERS.

Plaster..... 15

SWINE.

Swine from start to finish..... 16
Scalding pigs..... 16

THE GRAZIER AND BREEDER:

Judging stock..... 16
Winter-feeding..... 17
Tuberculosis..... 17

THE HORSE:

The Morgan..... 17
The treatment of young horses..... 17
THE GARDEN AND ORCHARD:
Mont. Hort. Soc..... 18
Prevention of fungus diseases..... 18

Notes by the Way.

Apples.—The editor of the Maine Farmer, Mr. J. A. Gilbert, attributes the low price of American apples in spite of the demand for them in England, to the enormous crop of the fruit in Nova-Scotia. "But," Dr Hoskins has the pluck to remark in the Vt. Advocate, "the skillful orchardists of that province know how to suit the English market. 'Slack packing,'

even worse than those usually met with in America. But in England, in France, in Germany, and in Switzerland, everywhere one goes, the excellence of the roads is a constant source of surprise to one visiting those countries. During the last summer it was my fortune to take a long drive in the Alps. The party was made up of six persons. A coach was employed for the whole trip. We were thirty-three days in the coach, and during that time we went over four of the great passes and traveled nearly a thousand miles. But the matter of chief significance to those interested in good roads is the fact that, although we drove from twenty-five to fifty miles day for more than a month in these mountainous regions, the whole trip was done with one team of horses. No change was made, and none was need-

with the bed in which they are to repose, as thus: dig a hole, a foot square and a foot deep; fill the hole with good earth and well rotted dung and set the plant in it; plant a stake, 4 feet out of the ground, and tie the plant to it when about a foot high; pinch off all the laterals as fast as they show themselves, and when four or five branches of flowers are formed, pinch of the top of the plant. The best off the fruit forms on the lowest bunch, and should be gathered as soon as fit, even if they are not wanted for use. The cut—from a photograph taken at Sorel in 1886—will show the plan. Some of the best plants therein bore, and ripened thoroughly, upwards of six dozen large tomatoes.

Potash.—We would warn our readers, for about the twentieth time, not



TOMATOES. (Sorel, 1886.)

and too often dishonest, or very careless sorting, is what is killing the American apple trade in England, and it might be said to a large extent also right here at home. The appointment of inspectors—skilled men, whose brand would give confidence to buyers—seems to be emphatically demanded. Rogues and incompetents have altogether too much swing in every branch of American trade. There is fall as much complaint about the packing of cotton in the South, as of apples in the North."

Roads in England.—How THEY IMPRESSED PRESIDENT ADAMS OF CORNELL UNIVERSITY.—To an American visiting Europe there is nothing more impressive than the general excellence of the roads. Their climate is more rainy than ours, and their roads, under the same conditions, would probably be

ed. More than that, it was our opinion that the horses were in better condition at the end of August than they had been at the beginning of the trip, a little after the middle of July. Could there be any more significant commentary on the quality of the roads? What would be the condition of a team of horses in midsummer in America which had been driven over mountain roads at the rate of twenty-five to fifty miles a day for six days in a week?—C. K. Adams, President of Cornell University.

Tomatoes are not, as yet, so well grown as they might be. Our own are still invariably grown on the "single stem" system, and not only do they yield largely, but they all ripen: there are no green ones to pickle! Tomatoes can be grown on a high-road, or any where else, if proper pains are taken

to place any dependence on potash, in any form, unless it be applied in the fall. Kainit, especially should always be sown at that season.

Basic Slag.—The soils most suitable to this form of phosphoric acid are sour, wet lands, soils rich in organic matters, such as bogs, fens, etc., sandy soils, and all those poor in lime. As in the case of kainit, the earlier the slag is applied, the better will be the returns.

Wiltshire potato experiments.—The report of the Wiltshire potato experiments does not present the same astonishing accounts of yield this year as excited so much remark in 1893. One variety, Sirius, is credited with 18 tons 13 cwt per acre, the range of other varieties being from 9 tons 1 cwt. to 16 tons 4 cwt. On 22 out of 24 plots a

gain in sound tubers from the use of the Bordeaux mixture is shown, the average gain per acre being 2 tons 1 cwt.

Complete chemical manure—namely, a mixture of nitrate of soda, superphosphate of lime, and kainit—gave the heaviest and most remunerative result. The average yield per perch, on four perches each, was,—

	cwt	qrs	lb
No manure.....	1	2	1
Farmyard.....	2	1	2
Complete Chemical.....	2	1	15

Experiments with different qualities of manure proved that the crop was increased by increasing the manure and the heavier dressing of 12 cwt. to the acre of complete chemical manure was remunerative. It was further demonstrated by another series that neither nitrogen, potash or phosphates could be omitted from the manure without loss. Deep cultivation in the preceding autumn yielded, on three plots, a considerably increased crop

At the fields station on the Boreham road, twenty-four varieties were planted with the plough, in 20 acre sections, on the same land, and were similarly treated. Appended is a table showing the results obtained.

The total crop of sound and diseased tubers raised on the twenty-four plots (1 a. Or. 32 p.) was 16 tons 6 cwt., equal to 13 tons 12 cwt. per acre, and the relative productiveness of the different sorts is shown in the first column of the subjoined table. The gain or loss from spraying, calculated from the weights of sound tubers on the sprayed and unsprayed portions of each plot, is given in the second and third columns. The percentage of diseased tubers on the sprayed and unsprayed are as of the plot is also added:—

VARIETIES OF POTATOES AND RESULTS OF SPRAYING.

Variety.	Total crop per acre.	Effect of spraying.	
		Gain per acre of sound tubers	Loss per acre of sound tubers
	tons cwt.	tons cwt.	tons cwt.
1 Sirius.....	18 13	5 3	—
2 Imperator.....	16 4	5 3	—
3 Daniel's Early Crimson Flour Ball.....	16 1	2 15	—
4 Blue Giant.....	15 18	all	prayed
5 Carter's Surprise.....	15 13	3 3	—
6 Carter's King of the Russetts.....	15 0	2 2	—
7 Daniel's Dreadnought.....	15 0	1 8½	—
8 Reading Giant.....	14 15	—	0 4½
9 Webb's Stourbridge Glory.....	14 11½	1 17	—
10 Fidler's Colossal.....	14 8	2 13	—
11 Sutton's Triumph.....	14 6	3 7	—
12 Magnum Bonum.....	14 3	2 15	—
13 Bruce.....	14 2	1 0½	—
14 Maincrop.....	13 15	1 17	—
15 Reading Russet.....	12 16	2 ½	—
16 Sutton's Supreme.....	12 15	0 19	—
17 Schoolmaster.....	12 2	3 16½	—
18 White Elephant.....	12 1	0 15	—
19 Windsor Castle.....	11 18	—	0 4
20 Anderson.....	11 7	2 4½	—
21 The Daniel.....	11 0	0 10	—
22 Simson.....	10 18	0 19	—
23 Sutton's Satisfaction.....	10 15	1 0	—
24 Webb's Early Beauty.....	9 1	1 18	—
Average.....	13 12	2 1	—

A law has just been passed in France to authorise the creation of agricultural credit societies, on similar lines to those advocated for England by the Agricultural Banks Association.

The November report of the American Department of Agriculture does not give any fresh information about the wheat crop, concerning the quantity of which there is a wide difference of opinion. The yield of maize is put at 19.7 bushels per acre, or less than that of any year since 1881. In 1893 it was 22 6; in 1892 22.4; and in 1891, 26.6 bushels per acre. The yield of potatoes is estimated at 62.3 bushels per acre, or nearly ten bushels less than last year's crop. The tobacco crop appears to have turned out well, 733 lb. per acre being the average, as compared with last year's yield of 695.3 lb.

We hear that within the past few days two consignments of pleuropneumonia have reached English ports from the United States of America. One cargo of cattle landed at Newcastle and another at Deptford has each been found to contain an animal affected with the disease in a most pronounced form, and it is expected that as slaughter of the remaining animals proceeds others may be discovered to exist.

A nice little estate.—Sir Watkin Williams Wynn, of North Wales, is, with his wife's property added in, the owner of 137,025 acres of land; in addition to which trifling property, he enjoys marorial rights over the manors of Arwystloy, Cyfeiliog, and Talerddig, covering some 180,000 acres. The rents of this estate do not amount to much, as 64,819 acres are rough mountain land, only \$227,290 a year, and as Sir Watkin has to keep a pack of hounds, and to subscribe to various societies, clubs, and charities, to say nothing of keeping up a large establishment at Wynnstay and an expensive town-house, he cannot, poor fellow, be a rich man!

The Watkin Wynns, however, are pretty good landlords as landlords go, that is the tenants are not often "disturbed" in their holdings, as the following extract from the evidence of the agent of the property, before the

"Welsh Land Commissioner" would go to prove; we condense, of course.

In one parish on the Glanlyn estate, there are seven families who have averaged 232½ years on their respective holdings; in another parish, three families with an average of 333 years.

No need to ask for legislation giving 'security of tenure' on such a country-side as this. And there are lots of small farms, varying from 5 to 25 acres; so that the industrious ploughman, shepherd, and other labourers, could have no difficulty in finding a chance to rent a farm, were it not for the pertinacity with which the tenants stick to their holdings.

Variation of prices.—Talk of the fall of prices in the wheat-market; why, that is a mere trifle compared with the fall of prices in the cotton-trade! In 1814, a few months previous to the Battle of Waterloo, American Upland cotton sold, at Liverpool, for 70 cents a pound; the same quality can now be bought at the same port for 6 cents a pound!

Nitrate of soda is now worth £ 9 a gross ton at Liverpool. This is equal to about \$40 00 per 2,000 lbs, which makes nitrogen in England worth 12½ cents a pound.

Superphosphate of lime will be very low in price next spring—in England, not here we fear.—High grade Florida phosphate rock has fallen considerably, owing to low Atlantic freights.

Kainit is only worth some \$10.00 a ton of 2,000 lbs., in bags, f. o. b. at Liverpool. As the dose per acre is only from 400 to 500 pounds, it cannot be called a costly dressing in England. What it can be had for here is another thing.

Bone-dust or meal, is to be had here at a reasonable price: perhaps \$28.00 per 2,000 lbs. is about the figure. Will any one try an acre of swedes this next season with

400 lbs. bone-dust;  
200 " nitrate-of-soda;  
200 " superphosphate of lime. } Cost, \$9.00

No dung; therefore no extra weeds.

To Make a Pound of Gain.—Prof. Sanborn found on an average a certain amount of food was required for pigs weighing 35 lbs; 3.3% more food was required to make the same gain on pigs weighing 70 lbs; 14% more on pigs weighing 125 lbs; 19% more on pigs of 175 lbs; 22% more on hogs of 225 lbs and so on up until 71% more feed was required on hogs weighing 355 lbs. The period for most profitable hog feeding is before 200 lbs weight is attained.—F. & N.

Foreign Potatoes of the Scotch Magnum variety are in transit and expected to arrive in New-York this week. This will be the first consignment this season from Great Britain. The competition of foreign grown potatoes has been considerable in former short crop years, of course affecting chiefly the seaboard and large interior markets. Total imports of potatoes, largely from Canada, were 2,507,000 bu during the first 7 months of this year, compared with 3,571,000 bu for the corresponding period one year ago. For the fiscal year ending June 30 the total imports from all countries were \$3,002,57 bu compared with 4,317,000 bu the preceding year. Of the total last named Scotland furnished 1782,350 but at an average, value of 56c.

SOREL.

Not having had an opportunity of visiting the City of Sorel for a year, and being desirous of seeing how our old friends there were getting on, we left Montreal by the *Three-Rivers* on October 9th, and were safely landed at the port of our destination the same evening, but too late to see anything of the farms till the next morning.

On the 10th, we began our tour of inspection with a visit to our old friend and pupil, M. Séraphin Guévremont, whom we found, as usual, hard at work among his crops. As we had sent him, in the previous spring, a few bushels of *Prize-cluster* oats, we naturally sought information as to their yield and quality. They had, we were glad to learn, turned out remarkably well, in both points, having produced at least 20% more to the arpent than our favourite *Black-Tartars*; which, by the bye, shows the advantage of a change of seed, though it is very hard to get this idea into the heads of the *Sorelois*, who generally keep on sowing their home-grown seed year after year without change. And the effect of this persistent repetition is emphatically visible in the case of potatoes in this district: all the large and middle-sized tubers are sold or consumed at home, and the "chats," as the small ones are called in the S. E. of England, are used for seed instead of being given to the stock.

We, therefore, were very glad to find that a couple of bushels of *Early Puritan* potatoes that Mr. Evans, by our instruction, sent to M. Guévremont, had yielded very well indeed; not that this kind can even be expected to turn out such crops as the *Beauty of Hebron* or the *Early-rose*, for it is, like all earlies, a small sort; but the tubers were very regular in size, very few eyes and those unobtrusive, and with an excessively smooth skin. Trying a few by careful cooking, a day or two ago (November 25th) we were confirmed in our opinion that the *Early Puritan*, like the *Ash-leaved kidney*, is to be used in accordance with its natural gifts: not to be eaten after the end of July. M. Guévremont does not grow so many potatoes now as he used to grow, and he is quite right, for, with all its good qualities, the *Sorel* sand does not turn out a good sample of potatoes, and, owing to the nearness of the water to the surface, if there is any disease about, the *Sorel* potatoes invariably suffer from it acutely.

The general root-crop on the farm was, as it invariably is, superb: it always does our heart good to see it. The swedes, of which there were about six acres, were as regular in plant as swedes can be; singled out about ten inches apart in the rows, and two feet between the drills. This would give about 26,000 plants to the imperial acre, and as many of the swedes weighed 9 lbs., topped and tailed, and there was apparently not one less than 3 lbs., the number of tons to the acre must have been pretty large. Allowing for some late-sown ones, and making all proper deductions for miss-plants—for however regular the plant may appear to be there are always some drawbacks of this kind—; we could not put the crop at less than 30 tons an acre. Strange, how, this soil suits the swede; yet that plant generally prefers a stronger soil! And it is the same thing, in a wet or a dry sea-on.

Of carrots there are two kinds grown here, both red in colour: one, monstrous in size and fairly good for the table; the other, a smaller, stump-rooted one, of the most exquisite flavour and sweetness. Indeed, we never, either in Europe or on this continent, ever tasted carrots of finer quality. Why Monsieur Guévremont does not grow the Belgian kind we forgot to ask. The crop would be very great, judging from the yield of some we grew on an adjoining farm, in 1884, and, for cows, no better food can be found. They are much more easily harvested than any of the red kinds, as they stand some 4 or 6 inches out of the ground, and a boy can pull two rows at a time almost as fast as he can walk. The tops, too, are very bulky, and do not scour cows as much as mangol-tops; they are of course all the more wholesome if some dry food—clover chaff for preference—be given with them.

Chickweed is the only troublesome weed that infests the newly brought in land of M. Guévremont's farm. The lower part of the farm is free from it, but both in 1893 and '94, the root-crop shift has lain in the dampest part of farm, where the water is hardly ever more than 3 feet from the surface, and, in spite of 3 or 4 horse-hoings, the moisture and the shade of the luxuriant leaves of the swedes and carrots have caused the land to be literally carpeted with this plant. It does not do much harm to the root-crop, but we saw signs of injury inflicted by it on the grass. The ditches are perfectly made and well scoured out; but, as we have observed before in this periodical, ditches do not draw like drains, and nothing but underdraining at 4 feet deep will kill this chickweed. The soil seems to float on a bed of water, and we have always been surprised that the plants do not burn-up in summer, as is usually the case when they get their toes into a permanent bath. We perfectly remember a parallel in Kent, England. The soil was a "scalding sand"; nothing thrived in it after June; the tips of the "flag" of the grain turned bronze-coloured, and the turnips were always mildewed. In gaining a fall for the main drain of another piece of land, we had to drive it seven feet deep through the scalding sand, and the effect was magical.

And now for the most important crop of all on the farm: the *Sugar-beet*. The management of this was perfect, except that, in my opinion, the sowing on raised drills at 24 inch intervals is a mistake, when small but numerous roots are desired. In England, even mangels are now sown on the flat at 18 inch intervals, instead of 28, as was formerly the practice. Drills, of course economise dung, but in the cultivation of the sugar-beet everything must give way to the demands of the factories, and they require small roots: so small roots must be grown.

And here it may be worth while to consider what is the effect of distance on the number of plants of roots on an imperial acre of land, premising that the acre is to the arpent as 13 to 11, so that 100 acres are equal to 119 arpents, nearly:

Inches.  
 $24 \times 10 = 240$  square inches to each plant; now, as in an imperial acre there are, 6,272, 640 square inches, it follows that at 1 pound a plant, the 26,131 plants will weigh about 13 tons,

$16 \times 7 = 112$  square inches to each plant; 56,000 plants, at 1 pound a plant, = 28 tons.  
 $18 \times 9 = 162$  square inches to each plant: 38,700 plants, at 1 pound a plant = 19 tons.

And this table will show how very much we fall short of producing what we ought to produce from our potato fields. The ordinary crop in Canada of that tuber is about 120 bushels on acre—rather more than  $\frac{1}{2}$  of a pound to the root or set! In England, we used to calculate—a very rough calculation, of course—that one fair sized tuber to each root, approximated to one gross ton to the acre, and the crop generally bore out the calculation, pretty nearly. (1)

But, to return to our sugar beets: M. Guévremont's are planted, as we said, on 24 inch drills; singled out at about 9 inches; horse-hoed four times; and hand-hoed three times, exclusive of the singling. As 40 loads of dung were given to the arpent, = 47 to the acre, the land was well done by, more particularly as it had received the same amount of dung, for potatoes, the previous year (1893). We reckon the 40 loads to be equal to about 14 tons; and as the quality of the Sorel town-dung is about as poor as it well can be, such a dressing is by no means too heavy. In our opinion, the addition of from 150 lbs to 200 lbs. of nitrate of soda an acre after the second hoeing, would have greatly increased the yield. The cultivation, as we remarked before, was perfect.

And now let us see what was the return for all this expenditure of manure and labour. At our request, M. Guévremont measured the land under the sugar-beet crop and found it to be  $3\frac{1}{2}$  arpents = 2.8 acres. The roots, weighed for the factory at Berthier, with a deduction made (why we are not informed) of 12% and 15%, turned out to be 35 tons, as nearly as possible,  $10\frac{1}{2}$  tons to the arpent = 12 $\frac{1}{2}$  tons to the acre. This, at five dollars a ton, makes the return to the arpent \$52.50. Let us now examine the cost of the operations concerned in the growing of the crop and see if it pays. The figures are from M. Séraphin Guévremont, who says, in a letter, dated November 21st:

According to my calculation, the cost of growing an arpent of sugar-beets to a farmer who has to pay for every operation—absolutely for everything—is as follows:

To two ploughings.....	\$2.00
" harrowings.....	1.00
" drawing out drills.....	0.50
" forty loads of dung, at 25c.....	10.00
" purchase and cartage.....	1.00
" spreading dung in drills.....	0.50
" splitting drills.....	0.25
" rolling ".....	0.25
" sowing.....	1.80
" seeds, 12 lbs. at 15 cents.....	2.00
" four horse-hoings.....	3.00
" singling.....	2.40
" first time hoeing.....	1.80
" second hoeing.....	12.00
" harvesting, carting etc.....	
	\$38.50
By balance to profit.....	14.00
	\$52.50

"I am positive," write M. Guévremont, "that, from the experience I have had, no man can grow an arpent

(1) We hold firmly that a great deal of room is wasted in potato-planting. Twenty-four inches by ten inches, is wide enough for anything except the very extravagant top-producing kinds.—Ed.

of beets for less than the above sum if he has to purchase everything."

But, here, we have to make an observation as to the above calculation that may till more favourably to the crop than careless observers may fancy. The charges seem to us to be made entirely without consideration of any crop succeeding the sugar-beets. Now, M. Guévremont's course of cropping, or rotation, is this:

First year.....	roots.
Second ".....	grain.
Third ".....	hay - top - dressed - after harvest.
Fourth ".....	hay.
Fifth ".....	pasture.
Sixth ".....	"
Seventh ".....	grain.

So, at all events, we have here at least two crops, the grain and hay of second and third years, that depend for their subsistence on the food derivable from the manure—dung—given to the root-crop, to say nothing of the, to those who do not know the Sorel land, almost incredible effect of the perfect cultivation the beets receive. We must therefore, to deal justly with the sugar-crop, deduct at least  $\frac{1}{3}$  of the cost of the dung, and  $\frac{1}{3}$  of the cost of the various hoeings, &c., the land receives during its growth. The account will then stand thus:

To expenses, as above.....	\$38.50
By charged to succeeding crops.....	4.52
	Real cost..... \$33.98
	Making the true profit.. \$18.52

an arpent, or nearly \$22.00 an acre.

No one can accuse the writer of wishing to exaggerate the profits, of any crop: particularly of any new crop; but from what he has seen this year, he is convinced that an arpent of land dealt with as liberally as M. Guévremont has dealt with his, would, with the addition of a moderate dose of nitrogen, in the form of nitrate of soda or sulphate of ammonia, and with the rows brought a little nearer together, produce at least 15 tons of sugar-beets.

We are rather anxious to know if the severe frost of the 26th September injured the quality of the sugar-beets. At Sorel, its effects were very visible on the foliage; for, on the 10th October, the outside leaves of the beets were brown and withered, while a fresh growth of leaves had sprung from the heart.

The preparation of the beets for market seems costly: arrachage, i. e. pulling and trimming, M. Guévremont puts down at \$9.00 an arpent, thrice as much as the cost of singling! The whole cost of singling (1) and twice hoeing, is given as \$7.20; rather less than some unpractical men made it out to be some seven years ago: they would not hear of less than \$15.00.

By the bye, why sow 12 lbs. of sugar-beet-seed, when half the quantity of mangel-seed is enough. This we suspect is a survival of the thick sowing of former days in Europe, and may be now too much in rows only 16 inches apart, but a simple sum, in proportion will show that if 12 lbs. are required for 16 inch rows, 8 lbs. will furnish plants enough for 24 inch rows. Altogether, we may conclude that sugar-beet growing pays; in fact, that, barring tobacco, it pays better than any crop cultivated here, and

(1) *Démariage* is the funny French word = divorce.—Ed.

that the money hitherto expended in promoting its early faltering steps has not been thrown away.

A pity they do not make better bread for the hotels at Sorel; but our own home-made bread has probably made us fastidious. Will a decent cook never find his (or her) way into that city?

The beet-crop on Senator Guévremont's farm, I hear from M. des Etangs, only yielded six tons an arpent on the best parts. But what could be expected from land that had not seen the dung-cart for years. Nitrate of soda, will help that crop but dung is wanted as well. The farm, and a very useful one it is requires 600 tons of good dung at once.

And to show what the land is capable of doing, there is a small  $\frac{1}{2}$  acre in the bottom, oh which were 3 rows of Savoy cabbages jostling each other; 3 rows of swedes, averaging 12 or 14 pounds apiece; and 3 rows of long-red mangels, that could not be far off 18 lbs. each! But they had plenty of dung, were sown in good season, and were well cultivated.

It was from this spot we sent some of the same kind of mangels to the Sherbrooke Exhibition in 1886. Somehow or other, they were extruded from the show, but Mr. Wm. Hale, who kindly looked after them, told me that they averaged 1 $\frac{1}{2}$  lb. apiece heavier than the first prize long-red mangels.

It is very clear that if the Senator's farm is to be fairly dealt by, the dung must be imported, from Montreal or some other large town; for at present M. Séraphin Guévremont's requirements can hardly be supplied by the cows, horses, &c., kept in Sorel and competition with him is out of the question.

The *chou-molleux* that M. Guévremont grew in his garden this year did not do much. It may be a useful plant, but it seems better suited to the moister climate of Western Europe than to our hot summers. As to picking the leaves off, for foddoring cattle, are not wages too high here for such work? It might answer in places where there is a lot of children who don't go to school. We saw the same plant in Guernsey, about 1856, and did not think much of it.

The less this light land at Sorel is ploughed in the spring the better it will hold moisture. We prefer the grubber to the plough on such soils. Please do well on it ploughed in 3 to 4 inches deep.

Two useful rules in growing ordinary root-crops:

Where land is foul and damp, sow on drills 24 inches apart.

Where land is clean and dry, sow on the flat at the same distance.

We got an experienced old Scotch ploughman to admit the other day, that the sole reason for sticking to 28 inches between drills was that *Small's* plough made that style of drill better than any other. Now that the undercut double-mouldboard plough is universally distributed, there is no earthly reason why any one width of drill should be preferred. We name 24 inches, because we have found that width capable of yielding any reasonable amount of crop.

All furrows too wide at Sorol. An old fault that we vainly strove to cure ten years ago. Another crime is that the lands or ridges are drawn most irregularly: 16 feet wide at one end and 20 feet wide at the other. The headlands, too, are very carelessly treated. Now, as the Sorol fields are very small, the headlands occupy a good share of the entire superficies, and neglecting them must tell greatly on the yield.

There are fourteen milk cows on M. Guévremont's farm. One or two are descendants of our Guernsey bull, Rufus—Sir John Abbott's stock—and their owner says they are by far the best in the herd. Rufus' fee for service being one dollar, he was not popular at Sorol, and if there are eight of his get in the we doubt district. His heifers were sent to Toronto for sale, as no one would bid anything like a price for them.

M. Guévremont sows no clover; only timothy, as one of his main sources of profit is the sale of hay, and the Sorolois will not buy clover-hay. The milk is almost all sold in the city—well, it is a city; 7,000 inhabitants—; what trifle remains unsold is made into butter.

As M. Guévremont buys all the dung he can get, amounting to some 120 tons a year, he follows any rotation that seems convenient, and it pays him to do so. But, we wish he would alter his mind about the use of the roller, and would plough more land before winter. The roller is almost an essential on such land, and fall-ploughing does save such a lot of time in the spring.

But, after all, we can't find much fault.

### FALL PLOWING.

The amount of fall plowing done this year is fully more than usual, although not what it should be by any means. Why people should neglect so important a part of agriculture, especially on clay soil, is wonderful, but some people are like the tail of a cow: always behind. Clay soil should be turned up to allow the frost to pulverize it; it is then in good shape for sowing in the spring. Early sown grains are usually the best. A few days oftentimes makes a great difference in the harvest.

There were many ploughing matches held last fall; more than usual; there were 4 or 5 in Chateauguay, 1 in Huntingdon, 1 in Compton, 1 for Argenteuil and Two Mountains, besides what were held on the island of Montreal. There are more good ploughmen in Chateauguay county than in any other county in the Province, though the work done at the Huntingdon county match was superior to any of the others this year. The local member for Huntingdon county, Mr. G. N. Stephens, it gave a beautiful silver cup to be competed for until the same competitor wins it twice in succession. This caused some of the good ploughmen who had, as it were, retired from active competition for some years, to turn out, there probably will be a few more another year. The Scotch who left their native country were the first to introduce ploughing matches into Canada. Among the first contests I believe Huntingdon county was the first to lead the van. At the competition held for Argenteuil and Two Mountains, there was only one English-speaking ploughman took a prize, the rest were French-speaking. In that section they were something

like Canada and the United States at the World Fair in 1893 in the cheese competition. We had to engage American cheese makers when we started to make cheese here first; it is not often that scholars get the better of their teachers, but in both cases they have succeeded very well.

It is over 50 years since the first ploughing match was held, in Huntingdon. In Chateauguay county they have matches for each section of the parishes. In that way they have educated the young men to plough well, so that when I say there are more good ploughmen in Chateauguay county, I say it advisedly. In some sections, where there are no competitions, it looks rather amusing to see how regular is the "half circle," which seems to be the general way in which the ploughing is done. (1)

The annual convention of the Dairy Association of the Province of Quebec was held at St-Joseph de Beauce on the 4, 5 and 6 inst. It was one of the best held in point of members as well as regards the addresses delivered. M.M. Beaubien, Gigault, Chapais, Dr Grignon and other lesser lights were present, and the best part of it was that they all spoke to the point. But I presume you will probably have a full account of it in this or next issue. There are over 1000 members now, and for the past two years there have been more members than the three Dairy Associations of the Province of Ontario put together. For the past 8 years this province has been booming the dairy business, during that time Ontario has increased 50%, while this province has increased 150%. Still we are not doing nearly what we should yet.

PETER MACFARLANE,  
General Inspector  
Chateauguay, 10th Dec. 1894.

Aylmer, P. Q.  
Nov. 6th 1894.

TO THE HON. LS. BEAUBIEN,  
Commissioner of Agriculture,  
Province of Quebec.

Honorable Sir,

I have the honor to report further, that I have just visited the Valley of the Gatineau.

The Gatineau river which runs through it, is bordered chiefly by mountains which have hitherto yielded the principle wealth of the district in lumber and minerals. But the lumber, for many miles up the river, is exhausted, and the mines are not paying on account of the minerals they contain being depreciated in value, on account of competition.

Hence, the inhabitants have to look to other sources of revenue, and find them in the rich intervalles which abound. These lands are admirably suited for Dairy purposes. Cheese-factories are already numerous and appear to have satisfied the patrons so far. They however begin to discover that, to make their success complete, creameries and the winter production of butter must not be neglected; and as they have the best possible facilities, namely, fertile meadows and pastures, and rich uplands well suited to the growth of roots and corn, many of the most progressive are commencing the system, by improving their buildings, erecting siloes and giving attention to winter forage crops.

It is satisfactory to note that the general feeling seemed to be appreciative of what the Government are doing to aid the forward movement in

(1) Very true and very sad.—Ed.

this direction, but the impression, in many cases is, that instruction by means of good literature, freely disseminated, and lecturers who would urge them hearers by clear explanations of processes, and the beneficial results attainable by their adoption, would be more likely to produce good results than grants of subsidies to individuals or companies for the purpose of establishing factories which would doubtless prove good paying commercial enterprises without such aid.

It is also noticeable that in localities where even one individual only is enthusiastic, the contagion soon spreads. At "Rapert" I found such an one in the person of Mr. James Neabitt, who was an excellent farmer, as his buildings, stock, crops, and general arrangements bespoke. The interest evinced at the meeting held in his place proved that he was a benefactor to his neighbours by the mere force of his example.

These remarks apply to the Revd. C. Gay, Parish Priest of "Gracouill", who is a most ardent supporter of Agriculture rendering me most valuable assistance. He desired me to report that the services of a Lecturer in French, would be very acceptable, as many of his people understand that language only.

At Danford Lake, Township of Alayn, great interest was manifested, and that, I believe, may be traced, on a great measure, at least, to the example of Mr. Henry Honey. So well pleased were the farmers attending the meeting held here that a spontaneous and unanimous vote of thanks to the Government was carried, and the chairman was instructed to report the same, direct.

I also made a trip up the upper Ottawa, on the Pontiac and Pacific Railway; but unfortunately could only hold a few meetings on account of excessive rains and almost impassable roads, at Guyon a good meeting was held, but it was at Aylmer that the most enthusiasm was manifested, and here again the cause can be traced to the activity and interest of Messrs Conroy, of Dufresne Mills.

These gentlemen have lately gone into dairying and hog feeding on scientific principles and are, laudably, trying to induce their neighbours to fall into line. They have built excellent cattle barns, piggeries and siloes—and the most admirably arranged and equipped creamery I have yet seen.

The churn and separator, (the Sharples Russian which is said to give excellent satisfaction,) are run by an electric motor, probably the first time electric power has been thus applied, the result being perfect immunity from undue heat, steam, dust or grease.

The cleanliness, sweetness, and freshness of the place at once strikes the visitor.

Messrs Conroy are at present making excellent butter from their own cows, which they pack with the utmost care and label with their own trade mark. Securing the highest price for it in the Ottawa market, they look upon quality as of the first importance to our butter trade and suggested that, before we can attain the perfection that the case demands, the appointment of dairy inspectors is a necessity.

These gentlemen appear to have the public good in view as much as their own aggrandisement and therefore are proposing to take their neighbours milk on liberal terms and manufacture it; thus securing to them an article of uniform and recherché quality and the highest market price.

In the piggery, which is a perfect model of neatness and convenience, I noticed some excellent Improved Yorkshires, particularly one pen in which were eleven all of one litter sired in May and weighing about an average of 250 lbs. There were also some of the old "Tamworth" breed which was so great a favorite with the late Sir Robt. Peel. It is claimed that while this breed does not mature early they do not suffer from lameness, (1) and produce a side of bacon superior for the purpose of curing to the more gross feeding kinds where too much fat is not desirable.

The farmer's club at East Templeton is progressing well and the people alive to the spirit of the times.

Finally it is highly satisfactory to report that the efforts of the Department of Agriculture are being well appreciated and are bearing good fruit in many localities.

Respectfully submitted by  
Your honor's,  
Most Obedient Servant,  
Geo. Moore.

### EXCESSIVE COMPETITION.

The danger that threatens the Quebec cheese industry.

#### OPENING OF THE PROVINCIAL CONVENTION.

The annual convention of the Dairy Association of the Province of Quebec opened at St. Joseph de Beauce yesterday afternoon. Over two hundred delegates are in attendance. The first business done by the convention was to receive the reports of the general inspector of factories. Mr. Peter MacFarlane, in his annual report, notices with pleasure that his remarks regarding the inspectors taking too many factories under their charge, made last year, have born fruit. This year, there was only one inspector who had more than twenty-five factories under his charge. The importance of the inspection work is shown by the fact that in one year the reputation of the cheese from Beauce County was greatly increased through the efforts of the inspector, although that inspector had thirty factories to look after. In St. Hyacinthe they had two inspectors for a number of years, and the name of the cheese immediately went up. This year there was only one inspector for five counties, and the cheese from St. Hyacinthe sold at a quarter or half less than the Yamaska, which means a loss of eight thousand dollars, or enough to pay five inspectors for five years with the assistance derived from the government for this purpose. Buyers have not yet got to that point where they will buy cheese according to its value. Some makers say they can make fine cheese, but they do not take the trouble because they would not get any more for it. Soft and pasty cheese sells at the same price as the finest and more can be made of it from the same milk. If the buyers would all buy according to quality the poor makers would soon drop out.

Mr. MacFarlane visited 291 factories, 273 cheese and eighteen butter. He examined 23,600 boxes of which 20,479 were No. 1, 3,020 No. 2 and 101 culls. He examined 1,074 packages of butter, which 1,024 were No. 1 and thirty-four No. 2. The exhibits at Sherbrooke and Quebec this year were superior even to the showing made at Chicago.

(1) Too much corn and too little phosphates in pig-food make weak bone: hence lameness.—Ed.

Our shipments this year have again increased, the totals being about thirty thousand boxes more than last year. I think I may state without fear of contradiction that the most of this increase is from the Province of Quebec, and the average price for the season is about equal to last year if not better in many sections. Our butter exports have been a mere bagatelle; it is hoped that some other method of selling our good butter will be adopted than has heretofore existed. We had a gain of cheese syndicates for this year and a loss in the butter but, together, one more than last year. As Prof. Robertson has said we have got well up in quality but we lack in the appearance.

This information is supplemented by Mr. Elie Bourdeau, assistant inspector-general. He visited 241 cheese factories, of which he classed 156 as No. 1, seventy-two as No. 2, and three as No. 3. Many of the cheese factories, even those classed among the good ones, are altogether unfit to protect the cheese against frequent changes of temperature. Mr. Bourdeau insisted especially on the injury which results to the cheese industry from the excessive number of factories in some localities and from the inordinate competition which follows. The manufacturers are compelled by the competition of factories to accept bad milk from the patrons, the milk supply being divided between too many factories.

These views were heartily endorsed by the Rev. C. P. Côté, Dr. Couloumbo, Milton MacDonald, M.P., and Mr. Girard, M.P. The latter two suggested that it was time for the government to intervene, and to enact a law to limit the number of factories according to the territory and the number of cows. On their motion it was resolved to appoint a special committee to study the question of excessive competition and to suggest remedies. This committee consists of Abbes Côté and Gagné and of Messrs. E. Bourdeau, Wm. Forrand, D. A. Bourdeau, J. DeL. Taché, H. S. Fortor and E. Theberge.

Mr. Ed. Barnard said that the most effective way of preventing the excessive multiplication of factories is that the manufacturers take upon themselves the trouble of bringing the milk from the homes of the farmers.

Mr. James Fletcher, botanist and entomologist of the Experimental Farm at Ottawa, spoke on a number of questions within his sphere. Dealing with potato rot, he showed that by the use of a composition of vitriol, blue-stone and lime it was possible to protect almost perfectly the potato against this disease. He also recommended the raising of orchard-grass as one of the most profitable species of hay to be raised in this province.

A discussion arose as to the qualities of the various cows and the Canadian was proclaimed the best dairy race.

At the evening session, Mr. A. Chassé, mayor of the parish, presented an address of welcome. In his reply the Rev. Abbé Montigny, among other reforms, called attention to that of the improvement of highways. Mr. E. A. Barnard immediately moved that a good roads association be organized under the patronage of the convention. The proposition was received with enthusiasm.

The Hon. Mr. Beaubien then delivered an address in which he promised to assist all agricultural schools and strongly advised the manufacture of butter in winter time to do away with the inferior cheese. He advocated the inspection and stamping of all cheese. He would even favor a law which would compel all manufacturers to join the syndicate and to live

up to certain conditions. He promised his earnest support to the Good Roads Association.

In answer to several invitations, the board of directors has decided to hold a number of district meetings during the winter.—(Witness)

The President now read his annual address. The county of Beauce had 25 parishes all encouraging the dairy industry. There are about 50 factories in this county. He gave a full resume of the dairy industry for the past 12 years, showing the rapid progress made in quantity as well as quality during that time; he also said that it was absolutely necessary for the farmers to improve the roads. Who will compute the loss in injury to horses and vehicles apart altogether from the loss of time and keep that is due to the rough condition of our country roads. In an industry in which I have taken special interest I have been making enquiries. There are in round numbers 2000 cheese factories in Canada. The cost of drawing the milk, whey and cheese at each factory is probably \$1000 a year, 2,000,000 a year for whole country. It is quite certain that with roads anyway approaching those of England this cost could be reduced by a fourth. In other words, the profits of the cheese trade in Canada could be increased by half a million dollars each year, a very good interest on 13,000,000 output.

J. de L. Taché said that at present the Government was giving a bonus for winter made butter, but he thought it would be better if they changed that to a bonus for good butter exported during the summer. We could handle all the butter made during the winter in our home markets, but had no good outlet for the summer make. That he was one of a committee recently appointed at Ottawa to consider this matter, and that they were to make a report to both the Government at Ottawa and Quebec, and if the Hon. Mr. Beaubien would appoint a time, a delegation would wait upon him and lay their views before him this week.—(Star.)

## DAIRY CONVENTION CLOSED.

The Proceedings in Detail—Waterloo the Next Meeting Place.

(SPECIAL TO THE STAR.)

ST. JOSEPH DE BEAUCE, Que., December 7.—At the Dairy Convention, Hon. Mr. Beaubien, in addressing those assembled, began by recalling the services the clergy had rendered popular education in the past; they were now doing the same good work. When the people in the time past wanted political leaders they (the clergy established classical colleges. Now they have formed agricultural schools. The future of this province rested a great deal on the zeal with which the farmers followed the directions given them. He was glad to notice the pupils of these agricultural schools were increasing. He called attention to the necessity of more careful feeding of the cows during our long winter and spoke of the profits of butter-making in the winter. Most of the cows were allowed to remain idle too long. The farmers who had poor milk and the factories which turned out butter and cheese of a poor quality were depreciating the property of their neighbors. He invited the honest and intelligent manufacturers to devise some law to protect

them and promised his support. In concluding Mr. Beaubien referred to the movement on foot for the improvement of roads and promised his hearty support to this useful measure.

G. A. Gigault, Assistant Commissioner of Agriculture, followed, giving a very full résumé of his recent trip to England, Norway, Belgium and France, where he was sent by the province to study the question of agriculture, with the view of improving the condition of the farmers of this province. The principal reason the cheese of this province was not as much in favor in England as it ought to be was on account of the irregularity of the make. He urged the manufacturers to try and improve the quality. He said it was owing to this irregularity that the cheese made in Ontario sold for nearly one-half cent more than that made in Quebec. He strongly advised more attention be paid to butter-making. He gave a good idea of the requirements of the different markets he had visited, and said that England offered good markets for such products as poultry, pork, apples, hay, etc., provided they were prepared to suit the market to which they were sent. He called particular attention to the way the farmers in Norway cared for the manure; also to the care taken to destroy bad weeds.

J. C. Chapais, Assistant Dominion Dairy Commissioner, delivered a very practical address of which the principal points are here given: Dairymen of the Province of Quebec, though they can congratulate themselves on the success they had last year at the Chicago exhibition, must look forward and work again with all their might for the improvement of the dairy industry. Farmers must get better pastures, good succulent winter food for their cattle, take the best care of their cows, and aim to have the best dairy cattle possible by discarding all bad cows and improving by selection the French Canadian breed, which is one of the best dairy breeds for our province. The composition of good rations is one of the important points they have to consider. Cheese and butter makers must learn all they can learn in their trade; keep their factories very clean; receive only good milk. Never sell green cheese of three or four days' make. In butter-making they must look carefully to every detail; have first-class salt, and never hold their butter, but sell it fresh. Cheese and butter buyers ought to give all facilities to the patrons and makers of whom they buy the goods, and be very particular in weighing these goods. They should always pay a better price for good cheese than for poor cheese and never tamper with the local brands put on cheese. The Dairymen's Association itself was going to give as good help as possible and had decided to hold in different districts of the province local meetings, to promote the work and extension of syndicates. It would also favor the organization of an association for the making and improving of public roads in our province which are so important for our dairy trade.

Ed. A. Barnard, secretary to the Council of Agriculture, read a paper on the "Production of Lean Pork," fit for bacon and hams in the English market. He showed that while the total amount paid for imported cheese in Great Britain is about \$25,000,000 annually, the sum paid for its importations of bacon and hams amounts to about \$57,000,000. Moreover, the price obtained for this meat is so high that the laborer of Great Britain cannot afford to make it his staple food. In Canada fresh pork, wholesale, sells at

a much lower price than cheese, and no laborer would dream of making cheese his staple food. We can produce lean pork at even a lower cost than beef or mutton, of which we now export four millions of dollars worth annually. Salted pork can be carried to England for a great deal less than live cattle; it can be produced at a lower cost by the dairymen, whose skimmed milk and whey form the basis of lean pigs' rations, and therefore, there is now an immense opening for this trade, an opening which every Canadian statesman should study and help to increase as one of the best means of increasing to, perhaps, a wonderful extent our Canadian export trade of agricultural production. Mr. Barnard then shows what must be done in order to obtain full success in the raising and fattening of such pork. Animals of good conformation, long bodied and with the smallest offal, should be selected, such as the improved Yorkshire. They should be raised, if possible, in liberty, so as to build for them a good constitution. They must be fed regularly, with a sufficiency of digestible food, which can be raised on the farm and need not be expensive, as fat pork is undesirable, in fact the animal is in its best state for the market when it carries about  $\frac{1}{2}$  (Ed.) inch of fat on the back. Then Mr. Barnard goes on to advise the formation of rations based on scientific principles, such as the best practitioners have adopted, as the most profitable and successful. He shows that even whey can be so treated as to become a good foundation for the ration. It contains mainly carbohydrates. To these it will be necessary to add a sufficiency of protein, fat and a supply of mineral matter, of which a handful of wood ashes is recommended. He shows that in the preparation of rations mistakes are often made, to the extent of losing 33 per cent. of the food. So that a ration badly concocted which would be necessary for 2 pigs may easily be so arranged as to supply the proper elements of food to fatten three hogs. Of this he gives an example: If a pig be fattened on potatoes alone, and another on a rich grain ration, both pigs will waste elements of food which if properly mixed together might have been a sufficient ration for three similar animals. Mr. Barnard was asked if he could give any information about the new cattle food—molasses specially prepared for the use of cows, horses and swine. In reply, he said he could strongly recommend it, and thought that the farmers could not do better than use it—it was cheap, and a very little was sufficient.

J. A. Fisher, of Knowlton, also spoke in favor of this molasses feed; although he had not yet commenced to use it he had a supply on hand and would commence as soon as he got home. (1)

C. D. Tylee, of Ste. Therese, said he had been using it for some time and was more than satisfied. When put in the cows' ration everything was eaten up clean. It was a good feed for pigs.

Gloster cheese.—The cheese we mentioned some time ago, v. p. 184 October No., as expected from one of the tenants of the editor's brother, arrived, in good condition, on the 27th October. Monsieur Taché, who tasted it, thought it hardly so rich as it might be, and, with the perspicacity which distinguishes him, asked if the cows that furnished it were not of the "Dairy-shorthorn" breed: as they are.

(1) See p. 11 of this number.

The opinion of MM. Beaubien and Auzias-Turenne may be read in the letter that follows.

The cheese in question was made by Mr John Smith, Nupdown Farm, Hill, who took the first prize, at the Gloucestershire Agricultural Show, for thick-cheese, first prize for double-cheese, and first prize for thin cheese; so our sample may be said to be made by the best maker of Gloucester cheese in the whole county.

Many thanks, dear Mr Jenner East, for the delicious cheese. I gave a piece of it to the Hon Louis Beaubien and he was perfectly delighted with its taste.

Hoping that you still enjoy good health, I remain,

Yours, very respectfully,

RAYMOND AUZIAS TURENNE.

Montreal, Nov. 30 1894.

## ADVERTISEMENTS.

The Editor of the *Journal of Agriculture* wishes it to be thoroughly understood that the advertisement department is entirely in the hands of the publishers, Messrs. Sénécal and Sons.

The Editor is strictly forbidden by the Department of Agriculture to insert any *réclames*, i. e., editorial announcements, of implements, manures, foods, &c., in the *Journal*.

The second winter meeting of the Pomological and Fruit Growers' Society of the Province of Quebec will be held in Quebec at the Parliament Buildings on December 11 and 12. Addresses will be delivered and papers read by the Hon. H. G. Joly, President of the Society, Lieut Governor Chapeau, Hon. Louis Beaubien and others.

## The Flock.

### SHROPSHIRE SHEEP.

FIRST PRIZE, SHEBBROOKE, 1894.

A very common designation for Shropshire sheep among English tenant farmers is that of "Rent Payer," and I think in this country we cannot give them any title that more thoroughly expresses their many good qualities than that of "Mortgage Lifter." There is an old saying that "the sheep has a golden hoof" and from my experience with Shropshires I should call it a very true one, with this proviso added that just as the rough gold needs patient care and hard labor on the part of the prospector, and minor before it can be turned into an article that will call for its full value, so the sheep with its golden hoof needs patient care and close attention on the part of its owner before it will yield him the greatest return it is capable of, but, to return to my subject, my object in this paper is to tell you why I keep Shropshires, how I feed and care for them, and how they repay me for my trouble.

My answer to the question why I keep them were I to enter fully into the subject, would fill more space than I am allowed for my whole paper, suffice it then to say that I find them adapted to our rough and cold climate, their thick compact fleeces effectually turning the cold, and rain, where a more open fleece would become completely soaked. I find them prolific, it being no trouble with average care to raise three lambs from every two ewes kept and very often more; and I also

find that they produce a quality of wool and mutton that brings the highest obtainable price in the markets of this country; while they are good feeders and the ewes are nearly always good mothers with plenty of milk. Again for crossing on grades and other pure breeds I find the rams of this breed extremely potent, it being frequently very hard to distinguish the produce of three crosses on native ewes from pure bred sheep. For getting butchers' lambs I know of no breed that can surpass them for use in this province their capability for adapting themselves to varied circumstances giving them a decided pull over the Southdown, while their superior quality (i. e. absence of coarseness) should I think make them a better cross for our native ewes than the celebrated Hampshires. In our flock, which at the time I write numbers over six hundred head, we keep both grades and pure breeds about half of each and we find that the more Shropshire blood we can get into our grades the better they pay and the better the butchers like the lambs. Although they do not appear to be nearly as big as grade Leicesters, or Cotswolds, when put on the scales they have no trouble in holding their own, and as the butchers express it do well, seeming to have a faculty for putting on flesh in the places where it fetches the highest price, while the meat is always found free from the objectionable woolly taste so often to be noticed on the flesh of coarser breeds. And now for how we treat our sheep, beginning at lambing time, which generally commences for us in the latter part of January and February. We watch our ewes closely as we see them showing signs of approaching parturition, such as the udder filling with milk, the loosening and dropping of the hip bones etc., and I may say here that the object in breeding any ewes early is twofold, in the pure bred flock we need early lambs to enable us to compete successfully at the fall shows; and in the grade flock we breed a few ewes early in the fall in order to supply the demand for early spring lambs, as we find that lamb sold in March at at twenty cents per pound live weight, the price we obtained last March, pay better than lambs sold now for two dollars the price at which we are now buying lambs from our neighbours. When I say we watch our ewes closely, I do not mean that we look them over in the day time and then let them take their chances at night, on the contrary when our shepherd sees a ewe that is showing signs of approaching labor in the evening he watches her carefully all night, although we seldom separate the ewe from the flock until after she has produced her lamb, as we find if we have them in their accustomed place they are less liable to have trouble in lambing, and tell it not in this land of prohibition, and the Duncan Act, an invariable rule at Isleigh Grange is to lay in a jar of Scotch whiskey, and one of molasses, before lambing commences, for although as a general thing Shropshire lambs need very little nursing, being generally on their feet looking for a drink almost as soon as they are born, still with the thermometer down to 12° or 15° below zero, and a February snow-storm raging outside the shed, even a baby Shropshire is liable to become a little chilled, and take my word for it there is nothing that will set him right quicker than a spoonful of hot toddy, while a drink of warm gruel with a couple of spoonfuls of molasses in it will warm up the mother and help her flow of milk, the molasses acting gently on the bowels and preventing

any trouble for costiveness. After the ewe has lambed we place her and her lamb in a pen by themselves after rubbing the little fellow down with clean straw, and if the ewe shows any inclination to disown her lamb we tie her up until it has sucked a few times, and if a ewe should have a dead lamb while another has two or three we induce one to adopt a foster child. This is best done by flaying the dead lamb and placing the skin over the lamb you wish the ewe to adopt. As soon as the lambs are a few days old, we let the ewes and their lambs run in small lots in comfortable well bedded pens, and on fine days let them run out of doors as much as possible, feeding the ewes liberally on crushed linseed-cake, oats and bran, along with a few turnips and plenty of good hay. By feeding the ewes their grain and cake while the lambs are with them the little fellows soon learn to take a share, and as soon as we find them beginning to feed we make what is commonly called in England a lambs-creep, that is a little pen into which the lambs have access, but not the ewes, and here we place a mixture similar to that fed the ewes. In raising early pedigreed lambs for exhibition one of the hardest times I find to keep them going ahead as they should is during the month of April, at this time a lamb dropped in January or February, is getting to an age when he needs some succulent food as does his dam on whom he is drawing very hard and in my experience there is nothing like a few good swede turnips to supply the want. I often wonder why our farmers in Quebec don't grow more turnips. I have never seen better swedes in Canada than we grow round Danville, last year our crops averaged 800 bus. per acre, and this year we have seventeen acres that, I am sure, will average fully that. For my part I would be very sorry to try to keep any sheep without growing them a few turnips. After this little digression on the root question which I trust pardonable, let us go back to our lambs, which should be allowed to run out of doors as much as possible preferably on a piece of old sod which will not poach in wet weather while a piece of early sown fall rye will be found very useful in keeping up a flow of milk in the ewes if they are turned into it for a little while daily. As soon as the grass is fit, we divide our ewes and lambs, and the shearing ewes, into as many different lots as possible; and turn them out on the best pasture we have, taking care to select it as high and dry as possible. With a large number of sheep I find it very necessary to shift them from one pasture lot to another every two or three weeks and when a field gets somewhat stale, or foul, as it is sure to if heavily stocked with sheep, I like to run a chain harrow, over it, or else a bush harrow, which is an excellent substitute for a chain. If the season is dry and the pasture scanty I find it well to supplement the ewes feed with a little grain and cake, if I want to push the lambs ahead, and in the case of shearing rams intended, for sale in the fall, this will be found very necessary. Shortly after turning them out on grass the lambs tails should all be docked and any ram lambs intended for the butcher should be castrated before the weather gets too warm and very soon afterwards we begin shearing our stock sheep, those intended for exhibition we shear if possible in April. I have for the last eight years made a practice of not washing our sheep, as I can see no gain in doing so, the extra weight in the wool fully making up the difference in the price,

this year I sold our Shropshire wool at seventeen cents per pound cash, F. O. B. Danville, and our grade wool at fourteen cent both unwashed; with following results. One hundred and forty nine Shropshires clipped 1210 lbs of wool which realized \$205.70, or an average of \$1.38 per head, two hundred and twenty three grades clipped 1,320 lbs which realized \$181.80 an average of 83 cents per head. With the exception of about half a dozen half-bred Shropshires these grades were nearly all long wool crosses bought in the vicinity of Danville, and they were clipped a little later than the Shropshires. I may add that I have had Shropshire rams that clipped as high as sixteen pounds of wool at two years old. From four to six weeks after clipping, we generally dip our whole flock and every few weeks the shophord goes over their feet, carefully trimming off the loose horn, and wherever there is any unsoundness paring down the foot and dressing the diseased portion with foot rot dressing, of which there are several different kinds, in mild cases a mixture of pine-tar sulphate of copper and myrrh being very useful, while in more severe cases, I generally prefer butter of antimony. To enter into a description of the management of show-sheep would take too long here, so I will only say that we usually commence to house show-sheep early in the summer, feeding them in sheds from then on. The next most important point is weaning the lambs, and this we usually like to do as early as possible from the middle to the end of July. As soon as we take the lambs away from the ewes we shut them up for a night without feed, and place the ewes on a tare piece of pasture for a few days drawing the milk from their udders every two or three day, in the case of heavy milkers, till they are dried up, when we put them on moderately good pasture till the breeding season comes. After the lambs have been fasted over night we drench each lamb with a vermifuge to rid them of any tape-worms and then put them on a nice piece of clover aftermath, keeping them on such feed till the rape is ready which is generally from the 20th to the 30th of September although in the future I hope to have rape ready at least a fortnight earlier. As soon as we are ready to breed our ewes in the fall we put them and the ram on the best feed we can give them such as clover aftermath, rape, or a turnip field after the crop has been lifted, this practice is in England termed flushing and will be found very conducive to a good crop of lambs the following spring. I need hardly say that the pedigree ewes are carefully drawn to the different stock rams, each ewe bring separately examined by the shepherd, and myself, with a view to mating them so as to secure uniform lot of lambs. Sometimes when a ewe proves hard to get with lamb we find it necessary to give her a dose of salts, or to bleed her if very fat, and in the case of an old ewe we frequently use a ram lamb on her. We also try as far as possible to induce the ewes to come in season quickly, as nothing is more trying to a shepherd, or harder to carry through successfully, than a protracted lambing season. After the ewes have been bred we separate them into different lots and run them during winter in sheds throwing the doors open every day so that they can run in and out at pleasure; while the rams and ram lambs are treated similarly. Our usual winter rations being what hay they will eat up clear, along with a few turnips, and sometimes a little oats and bran, I am aware that

many flockmasters do not believe in turnips for ewes in lamb, but I have found no bad results if fed in moderation, say about two pounds per head daily. (1) With regard to the amount of butcher's meat that can be obtained from Shropshires, both pure bred and grade, I may say that my experience in Quebec is somewhat limited, our pure-bred lambs being almost all sold for breeding purposes, but I have fed grade lambs in Ontario that made 120 to 125 pounds live weight by November; and I see no reason why we cannot do the same here if we only give our sheep rational treatment. Before closing this paper I should like to draw attention to the following points in which I have noticed that the farmers of this province are very remiss; first, castrate your lambs intended for the butchers, as unless sold very early they are sure to lose weight and do badly as soon as the breeding season comes on; secondly, wean your lambs early, do not let them run with the ewes till late in the fall, as you need not expect a ewe to suckle a big lamb till late in October and then raise you one or more good lambs next spring; thirdly, try to grow a few swede turnips, and a piece of rape, you will be surprised how it will pay you, and pay you doubly, for the rape will fatten the lambs and the lambs will fatten the land by dropping their manure evenly all over it, and lastly treat your sheep with a little kindness, do not pelt stones at them if they come up to the barn in the summer, and kick them if they are in the way in the winter, see that they have plenty of good feed and water and salt them regularly this latter. I forgot to mention it before but I need hardly say we never leave our sheep without salt. (2)

J. Y. ORMSBY,  
Manager,  
Isaloigh Grange Farm,  
Danville, P. Q.

#### SHEEP-FEEDING EXPERIMENTS. ENGLAND.

These experiments, which had been discontinued last year, were, by permission of Mr. Garrett Taylor, resumed this year on his farm at Whittingham. It will be remembered that in all the former experiments the mixture of decorticated cotton cake and barley (grittled) gave the best results, except in the last series, when it was slightly beaten by the linseed cake and malt hulms. We may take it therefore, that on the whole the decorticated cotton and barley has shown itself to be the most economical food for fattening sheep. Accordingly, this year the experiments were arranged to endeavour to ascertain what was the most economical ration of this mixture. In former years the sheep submitted to the feeding experiments have been pure-bred Southdowns, and on the last Hampshires. This year, however it was determined to use cross-bred sheep, and five pens, of twenty sheep each, cross-bred hoggets, ewes, and wethers mixed, were selected, together with a sixth reserve pen to draw from in case of mishaps in the other pens. The experiment was commenced on November 7th, and the sheep were weighed on that day, on December 5th, January 2nd, January 30th, and finally on February, 25th, when the experiment ended. This year, unfortunately,

(1) So small a quantity can do no harm, or even double that.—Ed.

(2) Very good advice indeed.—Ed.

the casualties were greater than in former years; eight sheep had to be replaced by sheep of almost identical weight from the reserve pen, but a slight allowance was made in the calculations. The rations of the several pens were as follow; Pen 1, throughout experiment,  $\frac{1}{2}$  lb. hay chaff per head per diem. Pen 2, throughout experiment,  $\frac{1}{2}$  lb. hay chaff and  $\frac{1}{4}$  lb. decorticated cotton cake and barley per head per diem. Pen 3, first month,  $\frac{1}{2}$  lb. hay chaff and  $\frac{1}{4}$  lb. decorticated cotton cake and barley; second, third, and fourth months,  $\frac{1}{2}$  lb. hay chaff and  $\frac{1}{4}$  lb. decorticated cotton cake and barley. Pen 4, first month,  $\frac{1}{2}$  lb. hay chaff and  $\frac{1}{4}$  lb. decorticated cotton cake and barley; second month,  $\frac{1}{2}$  lb. hay chaff and  $\frac{1}{4}$  lb. decorticated cotton cake and barley; third and fourth months,  $\frac{1}{2}$  lb. hay chaff and  $\frac{1}{4}$  lb. decorticated cotton cake and barley. Pen 5 first month,  $\frac{1}{2}$  lb. hay chaff and  $\frac{1}{4}$  lb. decorticated cotton cake and barley; second month,  $\frac{1}{2}$  lb. hay chaff and  $\frac{1}{4}$  lb. decorticated cotton cake and barley; third month,  $\frac{1}{2}$  lb. hay chaff and  $\frac{1}{4}$  lb. decorticated cotton cake and barley; fourth month,  $\frac{1}{2}$  lb. hay chaff and 1 lb. decorticated cotton cake and barley. Reserve pens were fed throughout the same as Pen 2. All the sheep had, in addition to the above, all the cut roots they would eat. The cake and barley were mixed in equal proportions, the barley being



A VERMONT HILLSIDE.

grittled. On comparing the monthly increase in each pen, Pen 1, having no purchased food, is a long way behind. All the other pens, which for the first month had same ration, increased as one would expect, almost the same amount. For the second month, Pen 1 was still further left behind, all the rest being very level indeed. At the third weighing, Pen 2, which still had the smaller ration,  $\frac{1}{2}$  lb. per head per diem, was far behind Pens 3, 4, and 5, whose rations had been increased. The most conspicuous increase is that which followed the increase of the ration of Pen 5, from  $\frac{1}{2}$  lb. to 1 lb. for the last month. Pen 4, which had  $\frac{1}{2}$  lb. for the last month, on y increased during that time 138 lb., while Pen 5, having 1 lb., increased during same time no less than 193 lb. From the tabulated statements as to the cost of purchased feed it is seen that the profit is greater for the more liberal rations; the largest ration given to Pen 5 gave about twice as great a profit as the smallest given to Pen 2. The rations were not the same for all the cases, so that the results are not strictly comparable. The Southdowns in 1887-88 had the smallest ration, and

the Hampshires in 1889-90 much the largest. On comparing the results it cannot but be noticed that the Southdowns, even when having the smallest ration in 1887-88, increased far more per 100 lbs live weight than either the Hampshire or the cross-bred sheep used this year.

#### SHEEPS HUSBANDRY.

By VICTOR I. SPEAR.

In keeping sheep with a view to the value of the lamb for mutton, one is not confined to any particular breed. One should consult his surroundings, and peculiar conditions and then choose that which is best adapted to the case. In small flocks of less than fifty it is probable that some of the larger breeds would yield the greater profit. The Shropshires, Southdowns and Cotswolds are all well adapted for the purpose; lambs from either of these breeds may be raised early and made to weigh fifty pounds or more the first days of May, and when so raised they command a high price. To raise them at that season requires warm barns, liberal feeding, and involves quite a heavy expense both in feed and care, and only a comparatively few persons are situated to do it;

winter or when eight to ten months old. To do this requires good care and that the breeding be from large sized animals. A middle course is quite largely followed, using grade Merino ewes and a ram of the largest breeds. Perhaps more of the lambs that go to market are bred in this way than in all others and results have been very satisfactory. The objection that the ewe will not afford sufficient milk for the half-breed lamb is a valid one, and has to be overcome by giving the ewe extra feed, or by supplementing with cow's milk. In some cases the expedient of having the lambs dropped after the sheep go to pasture is used, and this is an advantage. In any of these various ways, sheep are a profitable stock to-day in Vermont and the exact line each shall follow is to be determined by circumstances, since it is found necessary to use such sheep as are in a community as the expense of bringing from a distance would deter one from undertaking the business.

Fortunately for the shepherd, I know of no other animal which crosses and recrosses without being entirely ruined as can be done with the sheep. So that given poor breeding stock fair results may be obtained by using a good ram and giving good care and feed. It is a better policy to breed without wide crosses if possible. Merinos bred to large sized Merinos of mutton Merino type will give a more even and better result if the future of the flock is to be kept in view, and the same may be said of the larger breeds. Wide crosses produced uneven progeny and I only justify it in cases where the lamb are to be sold for mutton. It matters little in this case whether the lamb is like its sire or its dam, it is wanted at so much per pound. I know of many flocks of grade fine wool sheep that are kept in Vermont to-day that do not return over one dollar per head for fleeces and about the same for the lamb, if successful in raising one. For such cases violent treatment is necessary, and I know of no way to get a profit from such stock except to cross to the mutton breeds. On the other hand there are grade flocks of the larger breeds that will only shear from three to four pounds per head. A cross with the Merino is the only way to improve the fleece of these sheep. So, though theoretical, we may say that wide crosses should be avoided. There are practically many cases where I should feel justified in recommending that it be done.

The sheep is considered by some to be the negligent farmer's stock, and in some seasons of the year it is true that they need but little attention. It is likewise true that at other seasons they require the most exacting care and attention. After the 25th of May, sheep are usually in pasture and need little attention, except a weekly visit with some salt until weaning time for lambs. Lambs should be separated from the ewes from the 15th of August to the 1st of September, and put into good feed and taught to eat a little grain, and whether the lamb is being fitted for market or to be kept in the flock, the grain ration should be continued until they come to the barn for the winter. Then if hay is of nice quality the grain may be left off, or better replace it with some feed of a succulent nature, such as roots or ensilage. The treatment outlined for the lamb is likewise suited for the mother. As soon as feed becomes frosted, and sooner if the supply is not abundant, a grain ration should be supplied and continued until the sheep are in their winter quarters. It

with success. Lambs dropped later and ready for market from first of July to first of September and raised with less expense and care, and though selling at a lower price are considered by many as equally as profitable as the lamb marketed in May. Many of these later lambs are carried along and fed grain the following winter and sold in December and January.

For flocks to exceed fifty in number (1) the grade Merino has many advantages over all other breeds. They are adapted to run in large flocks, are peaceable in pasture, hardy and free, or practically so from disease or trouble from vermin. They mature more slowly than the larger breeds and live several years longer. The fleece of the Merino, by reason of its largely increased weight, brings a larger return than other breeds. As now bred, the lambs from the Merino may be made ready for market during the

(1) Our own flock of about 260 breeding ewes always ran together. We remember seeing 2,000 sheep folded in one flock at Jones Webb's farm in Cambridgeshire, and at Sam Jonas' farm if we remember, there were at one time 4,000 together feeding off rye grass and clover.—Ed.

has been said, and it is nearly true, "sheep coming to their winter quarters in good flesh are half wintered." If I had grain for my sheep sufficient only for one month, I should prefer them to eat it from the middle of October to the middle of November. A small amount of grain fed with regularly is a great benefit to a flock of sheep. For grain there is nothing equal to oats that I have ever fed, but in consequence of the expansive character of this feed, I substitute bran and corn or corn meal and like to use a portion of oil meal. I also feed roots, ensilage and apple pomace, either of which serves the purpose of affording a succulent food. Am of the opinion that corn ensilage is superior to roots or pomace, though my experience is not yet sufficient to make me feel any great confidence in my opinion on this point.

Sheep need to be fed with great regularity, twice a day is as good as more, but the feed should be forth coming at the expected time. A clock is hardly more accurate as a time keeper than a sheep. Have often looked into my sheep-pens half an hour before feeding time and seen them all lying down contentedly, chewing their cuds, within the next half hour every sheep would be on its feet looking anxiously for their food. With Merinos they may be kept in flocks of fifty in the winter, care being taken that weak ones may be kept by themselves.

With the larger breeds a less number should be allowed to run together, twenty-five being as many as I would recommend for a pen. During the lambing season the shepherd will have plenty to do. If the sheep have had grain through the winter they will bear a little addition at this time. If they have had none it should be fed at this time in small quantities and with great care. Where grain is not fed through the winter it is well to commence feeding three or four weeks before lambing. If provided for them, the lamb will commence to eat grain at one to two weeks old, and their growth is increased by this means.

From the middle of April to the first of May the sheep should be shorn. (1) This should be done two weeks at least before turning the sheep to pasture in order that the ends of the wool may close up and the fleece get a little new growth to serve as a protection when turned away to pasture. The old custom of washing sheep and shearing about the 1st of July has so nearly gone by that little needs be said in reference to it. The markets at the present time demand unwashed wool and it is bought on a basis of what it will clean and the person who washes his sheep is likely to get but little if any increase in price over his neighbor who does not wash. It is unkind to the sheep to be made to carry its fleece through the warm days of May and June and then be stripped of it only to have the hot sun of July scorch the exposed skin. Sheep shorn early thrive better, and the shepherd gets more for the wool than those washed and shorn late. There is no reason for continuing this practice and I hope soon to see it entirely abandoned.

### SHEEP IN SUMMER

EDS. COUNTRY GENTLEMAN—Should the ram be allowed to run with the ewes during summer? I have twenty ewes—is one ram enough for that?

(1) We prefer washing about June 1st and shearing ten days after.—Ed.

number? I should like to know how to manage both sexes, so that the young lambs will come about the 1st of April. How long do sheep carry their young? J. W. M.

Centre Moriches, N. Y.

The mating period of sheep depends upon the special management of the flock, whether for the production of market lambs that must be sold at a certain season when this kind of meat is scarce and brings a high price, or for the ordinary purpose of wool and mutton. There are several ways in which money may be made out of a flock by good management and taking advantage of whatever special conveniences the farmer may possess for any particular kind of product. For ordinary purposes, when the fleece and the mutton are the objects in view, the breeding period comes in September—by which the lambs will begin to come in February and March—and on from September until October, or even early in November, thus bringing the lambing at the time when the ewes are on the pastures, for this very much simplifies and eases the labors of the shepherd at this otherwise exacting season. The ewes have more and better milk, and are in the very best condition to go through the risks of this period. As a ewe goes five months with lamb, it is easy to fix the time when the mating should be begun for the purpose in view.

One vigorous young ram is able to thirty or forty (2) ewes; if a larger flock is kept, it is desirable to separate it into small ones, with one ram at the head of each. Rams are exceedingly jealous and pugnacious, and will fight for the possession of a ewe so fiercely as wholly to spoil the flock for breeding. This quarrelling has often been a loss of one-half the expected lamb product, as the ewes go unserved at a critical time, and either the lambs come later than is desired or they do not come at all. The ram should be put under feeding this month, so that he may be in the best condition for service—strong, active and eager for duties. (3) This will tend to bring the lambs all within five months from the month of service, as there will be few misses. Of course the ewes are to be put in preparation as well, to fit them for successful service.

The choice of the ram is thought by many to have much to do with the sex of the lambs. If ewe lambs are desired, the ram should be a young one and the ewes well fed. Some experiments made by one of the French agricultural societies some years ago, indicate that there is a physiological principal involved in the breeding of animals, that when everything tends to luxurious living, the produce will be female to a large excess, thus giving expression to the idea that when a race is well provided with food, and vigorous, the young males will drive off the old ones and appropriate the flock to themselves, the progeny being mostly female, so that the number will increase with the favorable conditions present for its support. The following figures are taken from the report made by the Severac Society:

(1) About 21 weeks. Young ewes a few days less than old ones.—Ed.

(2) 60 to 80. a ram we hired from Jonas Webb, of Babraham, served 110 ewes and got a large proportion of twins.—Ed.

(3) Hampshire men usually employ lamb-rams.—Ed.

### SERVICE BY RAMS OVER TWO YEARS OLD AND UNDER.

Age of Ewes.	Male Lambs.	Female Lambs.
2 years.	14	26
3 "	16	29
4 "	5	21

### SERVICE BY RAMS OVER FOUR YEARS OLD.

Age of Ewes.	Male Lambs.	Female Lambs.
2 years:	7	3
3 "	15	14
4 "	32	14

By extra good feeding it is quite possible to advance the time of breeding, at least to some extent. We have found it possible to get the ewes served in August by taking every care to bring them into the highest condition; and in a flock of ewes fed for the fall market, purchased the fall previously and bred for lambs and then fattened on good clover pasture and mixed corn meal and bran, the ewes were in season for the middle of August; while the previous year they could not be brought into condition until October, and this only by high feeding. On this account we found it most desirable to keep the flock for early lambs over to the second year when the lamb could easily be got by February.

During the past few years there has been an advance on the time when early lambs were most salable. Twenty years ago April was quite early enough for the market, as then the early vegetables were coming in, and lamb without the accompanying green peas and spinach, was before its time. But now these vegetables are in market by Christmas, and the tender lambs are called for at the same time. To get the ewes into condition for the ram is one of the main points of this business. The Dorset ewe is a precocious breeder; and the Shropshire by good care in the way above indicated, may be brought to the ram in time for the lambs to come by the new year, or earlier if it is so desired. The earliness, however, is to be cultivated and gradually advanced year by year, so that the flock for the earliest lambs should be kept for some years, and by saving the most forward ewes it will not be long before the habit of early breeding will become fixed on the flock. (1)

This month and the next, is a good time to select and secure the ewes if a flock is to be kept for this purpose. The good feeding, the early removal of the lamb in the spring and the due preparation the next summer, will advance the time of breeding year by year, until the flock will be about as early as the Dorset, which are only an example of what may be done by a special purpose in the breeding and rearing of sheep.

One of the most profitable ways of keeping a flock is to buy store ewes as early in the fall as may be, turn them into a clover pasture with a good Shropshire ram, feed them well, and get a crop of lambs in the spring. The first lot will be in time to make and average of \$6 or \$7 for the lambs, selling the males and keeping the best of the ewes for a breeding flock. Then in the late summer or early fall, selling off the ewes except the best of them, thus making at least \$12 for

(1) Almost all the great Hampshire-down flocks lamb down in January; therefore they must take the ram in the middle of August. As we have said before, more than once, rape is the stuff to bring ewes into season.—Ed.

each ewe purchased the year before at \$4 or \$5. The manure made will pay for the keeping of the flock (1) and the money made is clear profit. After a few years, a good flock of grade sheep will be gathered, and by purchasing a lot of common sheep every year, feeding the hay and straw, with some of the grain made, the land will quickly increase in fertility and so give another profit to the farmer. There is no better locality than the New England States for this enterprise, and land may be got at such a price that the profits of the first year will pay for it.

### FEEDING GRAIN TO LAMBS.

Bulletin No. 41 of the Wisconsin experiment station details the results of feeding grain to lambs, based upon an experiment carried on during the years 1891-'13, and extending to Jan. 31, 1894. The three methods of fattening lambs in general practice among American farmers, are: 1. They are fed grain from the time they will begin to eat it, until put upon the market ten months or a year later. 2. The lambs do not receive any grain until the fattening begins in the fall when the sheep are put in sheds. 3. By this method the lambs receive grain from weaning time until finished for market.

The object of the experiments in question was to study the differences in the effects of these methods and the profits resulting therefrom. In each of the three trials the experiments were divided into three periods, viz: a, the period preceding weaning; b, that after weaning; c, the period of fattening in sheds during winter. The number of lambs fed varied from two lots of three animals each, to twelve ewes and their fifteen lambs in three different lots. Lot one—in the various trials—were those having grain since birth; lot two, had no grain previous to the fattening period; lot three was fed no grain previous to weaning. Weights were carefully made each week during the entire period of the several trials; the gain per head during each period; and the extra cost of grain per head during each period. The results were manifest in the weight of the lambs and in the character of the wool. The most important fact from these experiments bearing on farm practice is that it pays to feed lambs grain from the time of birth until they are marketed. Of the grains fed before weaning, bran was found best for lambs of that age. Ground oats are good, but their hulls were left almost untouched. A mixture of one-fourth, by weight, oil-meal with the bran makes an excellent mixture. If they have access to provender the lambs will begin to eat when from two to three weeks old. When four weeks old the lambs will be eating about one-fourth of a pound of oats daily; as weaning time approaches they will be eating half a pound daily which should be the limit till fattening starts, after which corn may be added. The lambs may be started on one pound per head, daily, equal mixture of corn and oats, and when well started feed them all they will eat up clean, the average daily ration being two pounds per head. When finishing off add a small quantity of oil-meal, about one-fourth quantity by weight. The average of three trials shows that the grain-fed lambs before

(1) Not if the sheep are allowed to lie about under the fences and in the bush; instead of being kept in the fold.—Ed.

weaning required four pounds of grain for each one pound of gain made over lambs that had no grain. The average weight of the grain-fed lambs was 140.2 pounds when sold; and that of the others 121.7 pounds per head. The former brought 75 cents per 100 pounds more than those that had no grain before winter feeding. There was no appreciable difference in the gain made during the winter fattening between the lambs that had grain previous to fastening and those that had not; and there was no difference in the character of the meat in the carcasses of the lambs that had grain continuously and those that had not. Taking the average of the three trials the lambs receiving grain from birth averaged 9 lbs unwashed wool per head; those receiving it from weaning time averaged 7.1 lbs, and those not receiving any until winter feeding started, averaged 6.8 lbs per head. The length of the wool fibre from the lambs continuously was 4.5 inches, while that from the lambs that were not fed grain previous to winter fattening was but 3.7 inches.

At WEYHILL FAIR last week 25,000 sheep were penned. The attendance of buyers was very large, the plentiful supply of winter keep and the short number in the country, together with the fact that as many farmers as can afford it will winter their sheep, rendering it difficult to meet the demand. The result was that recent high values were fully maintained, while, as there seemed a large demand in some quarters for quantity rather than quality, the prices for culls went up slightly, and better value was obtained for them than for good-class animals. The trade, however, at the outset dragged, but though buyers held off for a reduction, sellers were firm. Late in the day the demand became more brisk, and wether lambs made 50s. 6d. to 35s. 6d.; chilver (1) lambs, 46s. 6d. to 37s. 6d.; mixed lambs, 39s. to 29s. 6d.; small two-teeth ewes, at 47s.; four and six-teeth ewes in lamb, 45s. 6d.; grazing ewes, 39s. to 28s. 6d.; fat rams, 52s. to 44s. In the open fair most of the lots changed hands at similar values to those realised by auction, which represent fully 20s. per head advance on last year's fair.

Correspondence.

MOLASSES FOR FEED.

To the Editor of the Star :

Sir,—I am glad to see in your report of the Dairy Convention held at St-Joseph de Beauce, a recommendation of molasses for feed. In 1870 the turnip crop was a failure in Scotland and farmers were in doubt for a substitute. The firm I represented made a venture of several cargoes of molasses from New York, which were soon disposed of and filled the bill with satisfactory results. The *modus operandi* was to cut oat straw, with a machine, about an inch long and mix the same with hot water and molasses, which was done by the largest farmers and breeders, who command the highest price for beef in the London market.  
J. N. CHRISTIE.

With reference to the above we may say that, as long ago as January 1889, we recommended Mr. Vernon of Tush-

(1) Chilver-ewe —Ed.

ingham House, Waterville, Q., to use molasses and crushed linseed for his fine herd of Herefords. If the West-Indian negroes grow fat during the sugaring season; as they invariably do; cattle would benefit by the use of treacle, as it is called in England. The only question is: the price.

Again, in January 1892, we mentioned that "Messrs. Lightbound and Ralston, McGill St., Montreal, wholesale grocers, were selling Barbadoes molasses, averaging 60% of saccharum, for 31 cents a gallon. A pint of this dissolved in hot water, poured over a heap of chaffed straw, pease-haulm, &c., will induce the consumption of a good deal of rough provender that would otherwise be rejected.—Ed.

Montreal, Dec. 18th 1894.

ARTHUR R. JENNER FUST, Esq.,  
4 Lincoln Av, City.

Dear Sir,—We are in receipt of your valued favor of the 16th and carefully note contents.

The present price of Barbadoes molasses is 28c per imperial gallon or equal to 2c per lb. This grade of molasses weighs 13½ to 14 lbs. per gallon. The percentage of sugar is about 55.

We agree with you that the feeding of molasses to cattle must be very wholesome and nutritious, but we think the molasses used should be the product of the cane. We understand that one of our largest local refineries is selling their best molasses for feeding purposes. This product is vile in smell and flavor, and we think it can hardly be a good diet for cattle. As it is quite unsaleable, the refiners dispose of it at a very low price and it can be bought at about 10c per gallon or about ¾c per lb.

Yours sincerely,  
JOHN PINDER & Co

Messrs. Lightbound & Ralston quote the Barbadoes molasses at :

By the 10 puncheons.. 20c gallon.  
" puncheon..... 30c "  
" barrel..... 33½c "

Brockville, Ontario, Dec. 4, 1894.  
ED. JOURNAL.

My famous Jersey cow, Massena, dropped a fine heifer calf last week, and she will be 19 years old, the 8th March next.

She is hale and hearty, carries a splendid udder, and milks nearly 40 lbs milk a day.

In her 16th year, this cow gave me over 8,000 lbs milk, which churned 654 lbs of the finest butter, all within the year. Who can beat it?

I am glad to tell you that my little book, "Dairying for Profit," which tells all about my Jerseys and Dairy, is having a great success, over 100,000 copies have been sold already and I have filled orders from England, Australia and China. Mrs. E. M. JONES.

Petite Côte, Oct. 17th 1894.

A. R. JENNER FUST, Esq.,  
Editor of *Journal of Agriculture*.

Sir,—Having just finished taking up what I consider a pretty good crop of mangel wurtzel for this dry season, I thought it might interest you to know about what they would estimate. I have not a scale large enough to weigh all the crop but in company with my brother we weighed 10 feet in length of row, the weight was 65 lbs., the rows are 27 inches apart, all English measure. They were Yellow Globe which is not considered the heaviest cropper. I think that is very near as good as onsilage.

I remain yours truly,  
DANIEL DRUMMOND.

The Dairy.

BUTTER-FAT AND BUTTER.

THE EFFECTS OF DIFFERENT FEEDS

One of the judges at the last London Dairy Show sends to the *Agricultural Gazette* an interesting letter on several obscure points in butter-making that have been much discussed in this country, and in fact the only authorities that he quotes are Americans, Drs. Armsby, Sturtevant and Henry, and it is on an American invention, the Babcock tester, that he relies as the ultimate arbiter. We copy the essential parts of his article :

The question at issue is that in the analysis of the milk a certain proportion of butter-fat is found; this is calculated into the total pounds and fractions in the average yield of milk for one day, and the marks obtained for this go to swell the total of that cow for the milking prizes. In the other trial the milk is taken, separated, and the cream actually churned, and the prizes awarded to the animals having the largest total quantity, without any reference to the time from the calving or the butter ratio, and these two tests do not agree in the case of every cow. The fact should be noted that in the milking trials the fat is calculated on the average milk yield of two days, while the butter is derived from one day's milk only. Further, the fat percentage need not correspond with the quantity of butter made, because the latter depends on quantity as well as quality. Unless these points are attended to there will be great confusion and error in comparing the results. The correspondence should exist between the percentage of fat and the butter ratio, and also between the calculated pounds of fat (on the first day's milk only) and the butter from churning. I have taken the trouble to work out the result in the case of the ten Short-Horns for both test and have put the figures in parallel columns, so that they might be easily compared. It will be seen on exami-

No. of Fat, Butter Fat, Butter, Lb.  
Cow per ct. Ratio. lb. lb. Milk.

1.....	4.95	29.6	2.81	1.93	57.4
2.....	4.59	23.7	2.31	2.12	50.4
3.....	4.65	20.8	2.51	2.62	51.6
4.....	4.98	19.0	2.26	2.37	45.2
5. ...	4.87	26.5	2.35	1.31	48.1
6.....	2.92	34.8	1.86	1.84	64.2
7.....	3.03	35.4	1.14	1.07	38.2
9.....	3.59	27.4	1.57	1.59	43.7
10.....	2.62	43.6	1.20	1.06	46.4
11.....	2.96	45.3	1.57	1.15	52.4

nation that the figures of all correspond approximately, with two exceptions—viz., No. 1 and No. 5; that is, if the animals were put into order, beginning with the highest fat percentage, and also into order, beginning with the best butter ratio, the two lists would very nearly agree, barring these two cows; and so also of the pounds of butter-fat and pounds of butter. Assuming that my arithmetic is right, the question narrows itself down to a consideration of the discrepancy in the case of these two cows. My explanation is that they are accounted for by the various degrees of the churnability of the cream, and also of the separability (to coin a word) of the milk. It has long been known that while mixed milks will throw up their cream (on the setting system) pretty well, the milk of individual cows sometimes retains it, and only throws up a small proportion. As a breed, the Jersey exemplifies

great riscable power of the cream, and the Ayrehire the reverse, while similar differences occur between individual cows of the same breed—the microscope showing that one reason of this is the varying size of the butter globules, while another may be the viscosity, due to a minute proportion of fibrin present in milk. Now, it is possible that the same variation may be found in separator work. The modern separator removes all the fat down to a very small fraction—next to nothing; but it is usually mixed milks which are used in ordinary work or in trials, and I have not seen any trials of the milk of special cows to note if there is any variation in the percentage of fat left in the separated milk, as there would be with any of the ordinary setting systems when tried with individual cows. I suggest that there is this variation, and that it accounts for part of the butter. But now, taking the question of churnability, we are on surer ground. It is definitely and unquestionably proved that the quantity of butter recoverable from a given quantity of cream varies considerably—varies when the different creams are known to contain equal quantities of fat, and are churn and treated all alike. This variation may in some cases be due to the breed of the animal, or to some inherent or constitutional peculiarity of individuals, but is certainly also largely due to the nature of the food. Dr. Sturtevant found that out of 100 lb. of fat contained in the milk the churn recovered very different quantities, according to the food which had been given to the animals. Thus the milk from hay, maize meal and bran, yielded up 84 per cent. of its fat, that from hay and gluten meal only 64 per cent., or a difference of about 30 per cent. Armsby found that green grass and bran yielded up 91 per cent., while the same cows the next week on dried grass and bran fell to a yield of 81 per cent., where analysis showed the presence of the same total fat to begin with. In fact, every change of food brings with it a change in the percentage of fat recoverable as butter, the residue going off in the buttermilk, and perhaps in the skim-milk as well. In order, therefore, fully to test cows in trials of this sort the separated milk and the buttermilk should be analyzed as well, so that it be shown that the fat is there, though the churn does not take it out. I am not arguing for more work at these trials, for they are pretty heavy as they are, but as a subject for investigation it is worth doing. It is worth finding out which of our ordinary foods yield the most churnable cream, for there is little use in producing rich milk if it will not show its richness in the cream gauge and the churn.

Yet another point offers itself for investigation. It will be in the remembrance of some readers that about four years ago I first mooted here the subject of the effect of food on the composition of the milk, and on the authority of Prof. Henry of Wisconsin stated that the composition was not affected thereby, but only the quantity. Much evidence has been collected to prove that since then, but many men have asked if they could not believe their own eyes when they see a higher percentage of cream in the gauge, and more butter in churn, when the animals get more nitrogenous food. Such are hereby informed that they must not believe the evidence of their senses, for Burns once saw four horns on the moon, and dairy farmers now go to dairy conferences. Dr. Babcock's

machine has now brought the testing of milk within the reach of every farmer, and it shows that the fat is there all the same whether we get it as cream or butter or not; and I suggest that this question of the churnability, varying according to the food, is the explanation of a part at least of discrepancies found in practice, and why we believed that the milk itself was affected when we judged only by what we could get out of it, without taking into account what was lost in the skim and buttermilk. These are lines of investigation worth following up, and which might lead to valuable knowledge in the feeding for the best results, and also perhaps in breeding of the animals themselves.

#### HAECKER ON BUTTER MAKING.

*The Farmer* in a recent issue collected from various sources the leading points made by the travelling dairy instructors in Manitoba. Below will be found the opinions of Professor Haecker, of the Minnesota State School of Agriculture, at St. Anthony Park, which in substance coincide pretty fully with Canadian home authorities.

**CREAM RAISING.**—Those who commence dairying in a small way can hardly afford to go to any great expense for a hand separator or cooling tank and cans, and where a few cows only are kept, good results can be obtained by setting milk in pans in a cool cellar or "dugout," leaving it open nights and closed days. If 12 or more good cows are kept, it will pay to get a hand separator, which will practically take all the fat or cream out of the milk, and the increased yield will pay for the machine the first year. The greatest loss of fat is in the deep setting system; but it has one important advantage, it makes less work, as there is not nearly as many dishes to keep clean. Milk in pans should not be allowed to stand more than 36 hours—more time makes the cream "leathery," and, if the cream be not carefully strained, there may be white specks, caused by the hard lumps not souring or ripening as rapidly as the balance of the cream. If the cream is thoroughly stirred, quite often, or is kept closely covered, the lumps will dissolve and the cream ripen evenly. If a few neighbors living near each other, were to club together and buy a hand separator, and use it once a day, say in the morning, warming the nights milk, about 70°, it would save some of the difficulties.

**RIPENING CREAM.**—Much has been said in regard to the source from which butter gets its flavor. Judging from most winter store butter, the flavor comes from the cow stable. To avoid this, great care must be taken to keep cows and stables clean; it is utterly impossible to make butter with good flavor from filthy udders, on filthy cows kept in filthy, ill ventilated stables. If the milk is not sweet and clean when it comes in to be strained, no subsequent treatment can restore it to a condition which will produce a first grade article. Next to cleanliness comes age and degree of acidity. The souring of cream is nothing more than the growth of a certain species of bacteria in it, the development of which is promoted under certain favorable conditions, such as properly cured feed, free from must and other unfavorable odors, cream held at a low temperature, say 40° to 50°, until the ripening process is to commence, and a proper temperature during process of ripening. This depends somewhat upon

local conditions. A safe rule is to ripen cream not below 62° or above 67°, cream ripened below 62° may develop bacteria which gives it a bitter taste. I am aware it is not always possible to maintain an even temperature. At the experiment station and dairy school, where it is necessary to have the condition about right, we ripen cream in a vat having a dead air space on all sides, which holds it at an even temperature, and by incorporating into it a little sour milk, about the consistency of jelly, we can develop the kind of bacteria which gives butter a "quick," nutty flavor. The sour milk mentioned is usually called a "starter," which should be made from clean, sweet milk heated to 90°, then placed in an earthen or glass jar, or a fermenting can, and closed tight and kept in a warm place for twenty to twenty-four hours. Warm cream to 67° in winter and strain through a sieve about a pint of this sour milk to every five gallons of cream, stir, close up and allow it to stand undisturbed from 20 to 24 hours, when it will be found thick and sour.

**CHURNING.**—Cream should have a sharp, pleasant acid before it is churned; it should be at a temperature of from 58° to 62° when put in the churn. Use a box, barrel or better still, a triangular churn; turn at a speed of about 60 revolutions per minute. Never fill the churn more than half full—less than half full will secure more exhaustive churning and the butter will come quicker. When the granules are the size of a radish seed, stop churning. If the butter separates from the buttermilk readily, draw it off through a sieve, one of hair being preferable, but any sieve will do. If the butter comes through in large quantities, throw into the churn a handful of salt or a little cold water, turn the churn slowly 6 times and draw off all the buttermilk, then pour in very cold water, filling the churn nearly full and let stand a few minutes to allow the butter to cool; draw off and fill again, nearly full, with cold water, then stir gently with a ladle, to free the granules from buttermilk, fill again with water at a temperature of 54° and let stand awhile, stirring as before, then draw off this third wash-water, draw thoroughly, when the butter will be hard and in granular form.

It is important that, at this stage, the butter should be at a temperature of 54°, as, at this temperature it will not stick to worker or ladle, if they are first scalded and then thoroughly soaked in cold water. Now with the ladle draw the butter to one side of the churn, scatter a few handfuls of salt evenly over the surface, draw back this salted surface to the thickness of about one inch, scatter more salt, draw back as before, and so continue until the whole mass is salted in the churn; then mix gently until the salt is evenly distributed. Use about an ounce and a half to a pound of butter. It is difficult to describe the process exactly or lay down rules, as different conditions require some variation in treatment. In winter the last wash-water should be 55° instead of 54°. The degree of acidity of the cream has much to do with the flavor of butter, hence it is important that the cream be of proper age; if too old it gets bitter, which makes "off flavored" butter. Be very careful in working not to slide the ladle over on the butter, as, in doing so, it makes it look greasy. Work until it has a watery texture, but take great care not to overwork and thus spoil the grain. In

packing butter do not stamp it, but press it gently into jar or tub.

There is no profit in dairying, even under favorable conditions, as long as one sells butter to the grocer. No matter how good the butter may be, if sold or traded to the grocer, it will bring from 8 to 12c., as it must go for common store butter regardless of its quality, while if put up in neat packages and sent to the best market it will bring nearly double the money.

#### THE MAMMOTH CHEESE.

A piece of the mammoth Canadian Cheese, which was one of the most talked about exhibits at the World's Fair was held over and exhibited by the purchaser, Mr. Jubal Webb, of London, Eng., at the great dairy show in London, in October, 1894.

Among the other things said in its praise, the "English Live Stock Journal" has the following:—"It is now more than two years since the cheese was made, and it has kept good in an extraordinary manner, considering that it passed through those months of tropical heat in the Chicago fair, and ran the gauntlet of Arctic cold in a Canadian winter. The cheese is sharp to the tongue, but it is sound and of good quality, while in its youth the flavor must have been of a high order of merit."

#### A SCOTTISH MILKMAID'S GUIDE FOR SELECTING A MILK COW.

The examinations for diplomas in dairying of the Scottish Dairy Institute and the Glasgow and Southwest of Scotland Technical College were held recently. One of the examiners told the agricultural editor of the *Kilmarnock Standard* that he had rather a good passage at arms with one of the female candidates, which brought to the front a very important point with regard to the future improvement of the dairy cow in Scotland:

"What would guide you," he asked of the candidate, "in your selection of a milk cow?" "I would see how she milked," was the reply. "Yes, but would you be guided by no outward point—by the general look of the animal, by her figure?" "No; I would just see how she milked." "Would the shape or size of the milk vessel, or the appearance of the milk vessel, not enable you to come to some conclusion in the matter?" "No," she still replied. "I would just milk her." If she had a large milk vessel, would you not consider her likely to fill the laggie?" Still she shook her head, and said, "No," adding further, "There's many a cow with a big udder that gives very little milk." "A' well, lassie," replied he, "you are not far wrong; your test is the best after all."

#### THE LONDON DAIRY SHOW.

The Dairy Show came to an end last night, after a very successful four days' exhibition. The attendance has been in excess of previous years. Several important competitions were left over until the last day. Amongst these were the milking trials. The Shorthorns, as was the case in the *butter tests*, were at the top of the tree. Mr. B. Morry's cow was first amongst the Shorthorns, with 140.1 points, Mr. Birdsey coming second. Mr. Bird-

sey's cow gained first prize in the *butter tests*. The Lord Mayor's Champion Cup for the best Shorthorn in the milking trials went to Mr. Morry. The Ayrshires came next to the Shorthorns in points. Mr. John Holm's cow, Jessie, scoring 121 points, and taking the first prize. After the Ayrshires came the cross-breeds, with 119 points, scored by Mr. Morry's cow. The Jerseys were next with 100.8 points scored by Mr. Edward Carter's cow, who gained the first prize and the Lord Mayor's Champion Cup, Mr. Morry being second. Both these cows beat Mr. R. T. Pope's, which took the first inspection prize. Mr. Blackwell's cow, which took first butter test prize, was the reserve number in the milking trials. Following the Jerseys were the Red Polls, with eighty-four points, gained by Lord Rothschild's cow, which also gained the first of the inspection prizes. The Guernsey milking test prizes went to Sir F. A. Montefiore, who took first and second. The Lord Mayor's Cup, for the best cow in the milking test trials amongst the Guernseys, Ayrshires, Red Polls, and cross-breeds, went to Mr. John Holm. There were three butter-making competitions yesterday—two for all comers and the champion contest. Miss M. Knight and Miss A. M. Watts were first, and Miss H. M. Joseph and Miss A. A. Walker were second in both classes respectively. The champion contest was for winners of first prizes in the preceding contents or at the Dairy Shows of 1891, 1892, or 1893. Mr. James Blyth offered a first prize of £5, which went to Miss Elsie G. Cook, Southdown Farm, Surbiton. Miss Cook took the champion prizes at the Royal Show at Cambridge and at Canterbury. Last year at the Islington show she was first every day, third in the championship contest. Mrs. J. F. Blackshaw, of Chelford, occupied the second place, and Mr. Alfred Baynes, of Dunmow, the third. In the class for new inventions relating to the dairy industry, silver medals were awarded to the Dairy Supply Company for a standard butterfat finder, to the Dairy Outfit Company for an "Empress" cream separator, and to Messrs. T. Bradford and Co. for a new fish-back churn. Bronze medals were awarded to the Dairy Supply Company for a cream separator, to Messrs. Pond & Son for a retail delivery milk churn, and to the Cylinder Steam Cooker Company for a cooking apparatus. In the account of Messrs. Hayes' success with vehicles for conveying milk, it was stated that they swept the board. This is not quite accurate, as Messrs. Vipian and Ready, of Leicester, take the first prize for a vehicle designed for farmers' use.

#### Household-Matters.

**Stale Bread.**—In every house there are always little bits of stale bread left over, and if they are put into a paper bag where they will be free from dust, there is no reason why any of it should be wasted. It makes such light puddings; and should you want bread crumbs for frying, you have only to hang some bread in a bag near the stove, and every now and then take out the contents and smash them up, pass them through a sieve and put the crumbs into a wide mouthed bottle or jar for use. You will find it very handy, some day, when in a hurry, to prepare some nice cutlets, by dipping into egg and bread crumbs. Then, for stuffing meat or poultry, there is nothing better, as

fresh bread at best only makes a soppy mess. A cupful of crumbs will help to lighten a pudding and save eggs at a time when they may be expensive.

**Pancakes from stale bread.**—Soak well in hot water any bits of bread handy, pour into a colander and after letting them drain well, pass them through it. Suppose you have about a quart of this, mix in a little at a time about a tea cupful of flour, and one or two well beaten eggs do not add any water, the preparation must be about as stiff as you can make it to get nice pan-cakes. Fry nicely in very hot fat; do not make them larger than a small saucer, and you will have no trouble in turning them. Should they break, add a little more flour. They must be double the thickness of flour pancakes and of course will take a longer time in cooking; but after trying them once I think you will find it a very palatable way of using up some of the stale bread. To be eaten with sugar of any sort, syrup, or molasses, according to the taste of the eater.

**Pudding from stale bread.**—Prepare the bread as for pan-cakes; add a cup finely chopped, very fresh suet, 2 cups of currants, half cup of sugar a little flavouring, and 4 eggs well beaten. You may have to put in more flour, as the batter must be quite stiff before you put it in the cloth to boil. Tie up firmly, and boil  $1\frac{1}{2}$  hours: you must judge according to the size of the pudding.

The same mixture baked, makes a very nice change, but in this case it must cook very slowly.

#### Plum Cake.

1 lb Raisins, washed, dried and stoned.

1 lb. Currants, washed and dried.

$\frac{1}{2}$  lb. Citron and Lemon peel cut up very fine.

1 lb. White sugar

1 lb. of flour, to be well mixed with the B. Powder.

4 Teaspoonful of Baking Powder.

10 Eggs, to be beaten and added to the whole.

Beat butter and sugar up well, then add a little of the flour at a time; after this is well mixed add the fruit, say a handful at a time. Now put in the eggs and continue the mixing till the whole is well incorporated.

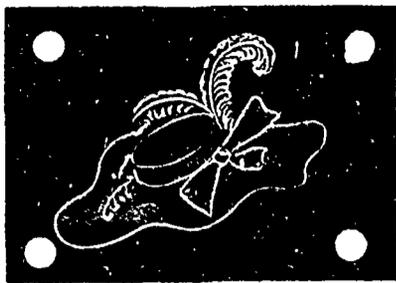
Butter a pan, or better still cut out a bit of brown paper the size of the bottom, butter the paper and put it in the bottom buttered side up, this will prevent the cake from sticking, and you can turn it out without breaking. Bake, in a moderately heated oven, 4 hours.

**Icing for Cake.**—A quick, and very easy way to ice a cake.

Half a pound of confectioners sugar. Mix well with just as little milk as possible. It must be very stiff so that it can be spread all over the cake with a knife or spoon.

The advantage of this icing is that you can mix a little more so quickly if wanted, thus saving sugar, and as you know exactly how it is made and what is in it, you need not fear children eating it. This icing needs only cooling, the cake is not to be put in the oven after it is iced. It is only meant as a pretty and wholesome covering, good for all, not like the half inch of unwholesome stuff put on the show cakes in the Confectioners window.

**Illustration.**—This very pretty child's dress, for winter wear, will look well made up as shown, but can be made richer by putting in a velvet yoke; the frill at the elbow is quite fashion-



Pretty winter hat for a child.

able just now, and is a change for the better, a slight child should have a puffy dress, and frills of any sort to make the little figure look nice; but a stout child should never be given too many frills as she does not require



Child's afternoon dress.

it, and will look far better with a plainer dress, trimmed with lace, as that falls better than frills and looks well any way.

The hat is inserted to show those living in the country a fashionable hat and how to trim it.

**A few things worth knowing.**—HOW TO CLEAN FURS.—Ermine and seal skin are best cleaned with soft flannel. Rub the fur delicately against the grain, and when it has been thoroughly lifted and reversed, so to speak, dip the flannel into common flour and rub lightly any spots that look dark and dirty. Shake the fur well and rub with a clean, dry flannel until the flour is all removed.

Sable, chinchilla, squirrel and monkey skin may be very nicely cleaned with hot bran. Get a small quantity of bran meal and heat it in the oven until it is quite warm. Rub stiffly into the fur and leave for a few minutes before shaking to free it from the bran.

Mink may be cleaned and freshened with warm cornmeal, and, like the other short-haired furs, may be done without removing the lining. But the long-haired furs are best ripped apart and freed from stuffing and lining.

Those who may not care to go to the trouble of taking fur garments apart, will find that the simple remedies described will go a long way toward making theackets and capes look clean, even if not ripped apart.

**Try, Try Again.**—Soaking a wick in vinegar and drying before using to prevent smoking.

Spirits of salt for ink stains on mahogany.

A slip of ivy started in a hanging glass bowl of water.

A weak tea of tobacco water for insects on plants.

Washing potted plants, pots and all, in suds and rinsing in tepid water once a week to kill insects.

Resting half an hour before dinner.

Threading a needle from the end of the thread last cut from the spool.

In cutting goods, to get out the waist and draperies first.

Placing a pin under the button you are sewing on.

A little kerosene on a flannel to rub the furniture.—Good Housekeeping.

**To Clean Gilt Frames.**—To clean gilt frames rub them with a little sal volatile mixed with cold water, or, after dusting the frames well, paint the gilding with a camel's hair brush dipped in the following mixture: One gill of water in which one ounce of common salt, one ounce of alum and two ounces of purified nitro have been dissolved. V. W.

**Boys and Girls Corner.**—MAPLE CREAM—Two cups b. sugar,  $\frac{1}{2}$  cup milk, 2 tablespoons molasses or maple syrup. Butter size of a walnut—flavor with vanilla. Boil six minutes, turn out and cut in squares.

**A toy fish that swims only in salt water.**—Take a piece of light pine wood, about six inches long, and cut it to the shape shown in this illustration. Paint two of the sides black and the third white, to give it the appearance of a fish. You can prove to your friends that this fish lives only in sea water by the following device. Place it in a basin of water, into which you have thrown several spoonful of salt,

and then makes believe to wave a baton; he hums a lively air, in which all join, imitating by voice and gesture the instrument on which they are supposed to play, such as the violin, the flute, the cymbals, etc. After he waves his phantom baton, when all cease playing, and he calls "solos," all are now attention, and he makes believe to play on a particular instrument, imitating its sound and motion. Hereupon the person who is supposed to hold that instrument is bound to instantly join him in the tune and gesture; failing to do so, a forfeit is the result. A forfeit is also incurred when any instrument comes in at the wrong time. The object in this game is to make as much noise as possible.

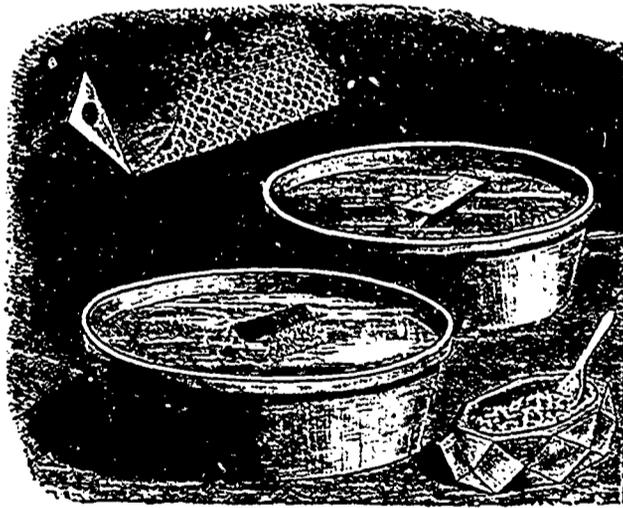
R. N. Y.

### The Poultry-Yard.

Some thoughts for the New Year—Small profits make a large sum in the aggregate—The hen advances her claim—An experience of Summer Eggs—A Happy New Year.

A. G. GILBERT.

Did any of your readers ever give place to the thought that if every farmer in the Dominion was to make One hundred, or even fifty dollars per annum profit out of his poultry—and he could do so with what is comparative waste—what an enormous amount it would represent in the aggregate! If every farmer would only make every department of his farm pay him any of the aforementioned sums, what a rich Agricultural Community we would soon become! But our farmers go in for big licks. In my humble opinion they attempt to farm too much land. It may be that they develop one department at the expense of another;



and it will float with its back out of the water like a real fish. Now put it in a basin of ordinary fresh water and it will instantly turn on its back and show the white under surface, like a dead fish. This trick is extremely puzzling to people who do not know that the water in one basin is strongly impregnated with salt. The phenomena are merely due to a difference in the density of the liquid.

I. B.

**The game of concert.**—This play is commenced by the company selecting a conductor. The players then seat themselves in a semi-circle, and to each is assigned an imaginary musical instrument, with instructions how to play on it. The conductor next or-

that is they may make one department pay and lose the profit in another. They keep no account of the different departments, to find out which pay and which do not. They come out at the end of the year satisfied that they have made a living, but not sure whether they made or lost in so doing, but quite certain that they had to work hard for that living. If a merchant finds that he is rather losing, than making, by carrying a certain line of goods, he drops it. On the other hand he develops those lines which yield him a profit. He finds out all this by "taking stock" regularly. Do our farmers take as careful stock of the different departments of their farms? The same business rules ought to govern the one as the other. We

hear a good deal about the great agricultural wealth of France, and we are told that wealth is created by the farmer of that country cultivating a small rather than a large farm, but making it pay. The amount made may not be much, but it represents profits and in the aggregate it assumes an enormous proportion of the national wealth of that country. And a good deal of the money made by the French farmer is made out of his poultry. I am sometimes asked to describe the relation of poultry to Agriculture. And I always unhesitatingly reply that it represents a mine of undeveloped wealth. And it is really so.

THE HEN PUSHES HER CLAIM.

A short time ago I had the honour and pleasure of addressing a meeting of the Cornwall Farmers, Institute, held in the compact and beautiful town of Cornwall, Ont., and of course I advanced the claims of the hen as a revenue producer. In so doing I made the following statement which I hope is worth attention. "It is not many years since the cow was a neglected animal, but with wise aid and as wise management, this comparatively useless agent has been converted into a source of wealth to our country. As with the cow so will it be with the hen. She only requires at a little of the encouragement the cow has received to become an important factor in placing money in the hands of our farmers. Official figures show that England every year expends from 18 to 22 millions of dollars in European countries for eggs and poultry, and we ought surely to try or bring seven or eight of those millions into the pockets of our farmers? Our farmers can easily do so by conforming to the conditions required as to size of egg and arrival in good condition. There is no country better adapted to production of eggs and poultry than Canada. And why do we not take advantage of our opportunities? Again, we have our winter home market—with large prices as inducement, a market at our very doors, and yet a comparatively undeveloped one." I do not think I exaggerated anything in so attempting to push the claims of the hen. I am sure that many of your intelligent, thinking readers will admit the truth of what I said. And it is only through the medium of such meetings and such Agricultural journals as yours we can reach the great Agricultural Community. I think it would be better for us all if our farmers had more confidence in their resources, in their means of making money out of departments hitherto neglected.

There can be no danger from over supply, for the superior article will always command a tip-top price. Certainly at spring time eggs are at their lowest value, because everybody's hens begin to lay at that period. But, we have already pointed out that the time to make your hens produce was at the period when eggs were at their highest value. Why meet the pessimist who exclaims "What money is there for the farmer in eggs at twelve cents per dozen?" I refer him to the first article which appeared in this Journal, from me, on poultry, and he will find by the calculation made then, that there is a good margin of profit in eggs and poultry even at that period of low figures.

AN EXPERIENCE OF SUMMER EGGS

Last summer I had occasion to note the purchase of eggs on the market and the results thereof. Dozens of egg

were purchased during July, August and September at twelve cents per dozen and one half were not fit to eat. The actual cost was therefore twenty-five cents per doz. As a matter of fact hardly any had the flavour that a new laid egg invariably has—that is an egg from a hen fed on clean wholesome food. I have not space to give the reason for the unsavoury condition of the eggs in this article, but may do so at another time. Let me, however, give the statement recently made by an extensive farmer, in New York State, who sends thousands of new laid eggs to New York City weekly. I have forgotten the farmer's name but he says: "Should a broody hen, by carelessness, or otherwise, be allowed to sit on a new laid fertilised egg, for only twelve hours, the flavour of that egg is ruined." And undoubtedly he is right. I will guarantee that if the farmers will take the trouble to keep the male bird away from their laying hens there will be very few ill flavoured eggs sold during the Summer Season.

A HAPPY NEW YEAR.

And now another New Year will have come ere this reaches your many readers. Let me ask them as they relish the savory and toothsome Turkey, goose, duck or chicken, to remember the development of the poultry department will be to their own interest. Should *mater familias* have experienced any difficulty in obtaining new laid eggs for the Christmas pudding, let it be an incentive to her to so house, care and feed the faithful hen, that another Christmas will not be without a plentiful supply of large brown or white new laid eggs. Let me wish all the readers of the *Journal of Agriculture* a very "Happy New Year."

GAIN OF WEIGHT IN FATTED POULTRY.

It will be remembered that a year ago, after the Dairy Show of 1893, Mr. C. E. Brooke gave me some very interesting and suggestive figures, showing the increase in weight of the table fowls exhibited by him at that exhibition. I am glad to be able to give now similar particulars as to Mr. Brooke's exhibits at the show now being held at the Agricultural Hall, but that gentleman has very kindly enhanced the value of this information by keeping a strict account as to the quantities of food consumed and its cost, and also shows the net gain after killing and plucking. Twenty-four birds were put up for fattening, and they were killed on October 8th. Of course it must be borne in mind that they were being prepared for exhibition purposes and thus the system was carried out to a degree which would not be found under ordinary conditions.

This shows that the greatest amount of gain was up to the end of the second week, and thus confirms the experience of last year's work in the same direction. The average gain during the different periods are of interest, namely:—

	Gain.
	lb. oz. lb. oz.
Average wt. Sept 10th (24 birds).....	4 15 1/2
" " Sept 17th.....	5 8 1/2
" " Sept 24th.....	6 14 1/2
" " Oct 1st.....	7 4 0 1/2
" " Oct 8th.....	7 5 1/2

Total average again over whole period. 26

It will be seen from the table given above that the greatest and smallest increase of weight was in Indian Game, one pullet adding 3 lb. 1 1/2 oz., whilst a

cockerel of the same breed only put on 1 lb. 9 oz. When we come to examine the different breeds and crosses in detail, it is interesting to note the average increase in weight, but we are surprised to learn that the Indian Game-Dorking come out worst. However, it is better to let the figures speak for themselves.

	Total Gain.	Average Gain.
	lb. oz.	lb. oz.
6 Houdan-Indian Game.....	15 12 1/2	2 10
6 Indian Game.....	14 3 1/2	2 6
4 Plymouth Rocks.....	9 2 1/2	2 4 1/2
8 Indian Game Dorking....	18 1 1/2	2 4

The high position occupied by the Houdan-Indian Game cross is indeed remarkable, and shows that this is a cross to be encouraged.

When we come to consider the cost of the fattening we are face to face with a very practical part of the question. The quantities of food consumed from September 10th to October 8th were as under, and by Mr. Brooke's courtesy I am enabled to give the actual cost:—

171 lb. of ground oats.....	£0 18 0
165 lb of barley meal.....	0 9 0
12 lb. of buckwheat meal.....	0 2 0
18 1/2 lb. of fat, at 4d. per lb.....	0 6 2
37 gallons of skimmed milk, at 4d. per gallon.....	0 12 4
Total cost for food.....	£2 7 6

The Farm.

DEEP CULTIVATION AND WHEAT GROWING.

Sir John Lawes writes as follows to the *Echo*:—My attention has been called to a letter in the *Echo* of November 3rd upon the subject of wheat-growing. The writer, W. Sowerby, F. G. S., &c., appears to think that the Rothamsted experiments upon wheat-growing have done more harm than good; and I am quite willing to admit that they hold out no hope that "had the two millions of acres which J. B. Lawes says were laid down for wheat been thoroughly cultivated, the result would have been not the eight millions of quarters estimated by him, but 24 to 30 millions of quarters, or sufficient to supply the whole population from native sources; and if a few more thousands of acres had been planted we might have been exporting instead of importing grain, &c., as this country has done before." Mr. Sowerby further says:—"General Sir A. Cotton has himself produced during several successive years not from 16 to 33 bushels per acre, but from 100 to 120 bushels," and he adds:—"Pray do not let your readers assume that thorough cultivation is visionary, or carried on in flower-pots; it is no now-fangled system, and there are many within the last eighteen months who have adopted the method over large areas, both at home and abroad, with the best possible results." It may be mentioned in passing that the average produce of wheat per acre in the United Kingdom is between 27 and 28 bushels, which is more than that of any other country in Europe, more than twice as much as the average of the United States, and about as much as the average of the whole of the wheat lands of the world. But, so far from raising any objection to attempts to improve our agriculture, I am prepared to give them every encouragement. There are, obviously, two important questions to consider: first, whether so much as from 100 to 120 bushels of wheat can

be grown per acre on ordinary arable land? and, secondly, whether if a crop of this magnitude can be grown, it can be done at a cost which will give a profit to the farmer? If Sir A. Cotton, or any one else, will grow 1,000 bushels of wheat on ten acres of fairly average wheat land, spending as much as he likes on the cultivation, I will give him £250. Further, in order to ascertain whether our country can grow sufficient wheat to feed our population, and even, perhaps, for export besides, upon from two to three million acres, I will give £1,000 to Sir A. Cotton, or any one else who will grow 100 bushels of wheat per acre, on ten separate acres of wheat land, one in each of the ten English counties growing the largest acreage of wheat at the present time, the cost of production being less than the value of the crop, so as to prove that such crops could be grown profitably by our farmers. Should any one be disposed to accept my offer, I would propose, in order to ensure the validity of the experiments, and that the results should have sufficient authority and publicity, that the trials should be carried out under the inspection of a committee appointed by the Council of the Royal Agricultural Society of England, supposing they will kindly undertake to appoint such a committee.

ORGANIZE AND CO-OPERATE.

IMPORTANCE OF SUNFLOWER INDUSTRY.

The discovery of sunflower oil as food was an accident. It being recommended to a Russian farmer to prevent sickness, he tested its remedial values and then began its use as food to his family and the cake to the stock. So popular for oil and food has the sunflower seed industry of Russia become, that in 1881-2 there were 367,889 a. in cultivation; in 1886-7, 704,496 a. Seed is of the large and small varieties, the latter used for oil, the former eaten the same as peanuts. A Russian farmer gives the yield of seeds at 1450 to 1600 lbs p a and nets the grower \$28 to 31 p a.

Mr Duncan, an extensive cotton planter in the Mississippi bottom, who visited Russia last year for the purpose of gaining information in regard to the culture of the sunflower in that country, gives his observation as follows: "The Russians, who grow the plant, generally sow the seeds after a crop of wheat and rye has been harvested from the land. Some sow after oats and buckwheat, but have found it less profitable to sow after the latter, as the buckwheat takes up such a large per cent of potassium from the soil, the flower does not pay. It thrives and heads well after crops of rye and clover. The land intended to be planted is thoroughly plowed in the fall and left until the next spring, at which time the seeds are sown, either in drills or broadcast. If in rows they are planted from 12 to 24 inches apart, depending largely on the fertility of the soil. On some of the rich black lands, they grow from four to six crops without resting the land. The Russians estimate that the stalks and leaves of one crop, if left on the land, will mature the soil sufficiently to yield six or more crops consecutively without additional fertilizing. The roots of the stalks soon rot in the ground and leave about one ton of manure per acre in the soil, which is very fine for the next crop. The plant requires but little attention and labor after planting. When it is about 10 or

12 in high, the field should be thoroughly cleaned of grass and weeds. That is all that will be required until harvest. Harvest time varies according to soil, climate and exposure of the flower to the sun. The usual time is fixed from Sept 1 to Oct 15. When the seeds are fully ripe, the heads of the flowers are cut from the stalk and placed in drying sheds for the purpose of curing them, the same as curing leaf tobacco. When the flower is fully dry, the seeds are threshed from the cups, and screened and run through a fan mill, and are then ready for the seed mill."

Mr. Duncan continues, "After carefully examining every feature of this new and novel industry, as conducted by the Russians, I am induced to believe that, with our improved modes of farming, together with our climate and soil, the cultivation of the sun flower can be made one of the best paying crops that the average American farmer can raise. When we take into consideration the great saving of labor and expense in producing the crop ready for market, as compared with others, it is wonderful."

An American chemist, living in St. Petersburg in 1868, made a compound lard, taking sunflower oil as the base, which was pronounced superior to hogs' lard, in every respect, for domestic purposes. Some of this compound was sent to a food exposition in Holland, and took the first prize, as pure refined hog's lard. He then produced, from the same oil, oleomargarine, which also took a premium as creamery butter. From the residuum of the oil he manufactured fine washing and toilet soaps, which are standard brands in Europe and South America. Druggists use the refined oil in preparing liniments, salves and hair lotions. When properly treated, it is used on the most delicate machinery as a lubricator.

The annual output of all the sunflower oil mills, in value, is estimated at \$1,700,000 for the oil only. Oil cake is put at \$600,000. The oil cake is largely consumed in Russia, Germany, England, Sweden, Denmark and Holland, as feed for cattle. The stock raisers and farmers of these countries regard the oil cake as the best food to be obtained for cattle. They claim for it superiority over hemp or rapeseed for producing flesh on beef cattle, and equally as good for increasing the supply of milk in milch cows. A German farmer reports that he increased the flesh on an ox 2 lbs p. day by feeding on sunflower oil cake. These people also hold it in high esteem as a horse feed. They say it produces flesh and gives the hair a lively, slick appearance. The dried cups are fed to sheep, and the faulty seed are used as feed for barnyard fowls. In many sections, where wood is scarce, the stalks and shells are used as fuel, which answer as a good substitute. The ash from the sunflower contains a large per cent of potassium. Experiments have proven that 1000 lbs of dried stalks yields 57 lbs of ash and from 1000 lbs of ash 350 lbs of the best potassium is obtained. According to the analysis of chemists, the ash of the sunflower contains about 30 per cent of potassium, and it is also claimed by these scientists that, if the soil is very rich, the plant will take up 50 per cent of potassium. The ashes are sold to soap makers. From the fiber of the stalk is manufactured the finest varieties of writing paper, which bear a close resemblance in color and texture to parchment.—John Trimble, Secretary National Grange.

*The Farm at home.*

## THE CEREAL CROPS, 1894, IN ENGLAND.

Our special reports on the yield of the corn crops this season show considerable variation. Where threshing has been resorted to the yields are irregular, whilst in the majority of cases threshing has been indefinitely postponed, so that the estimates which are now made are necessarily liable to modification according to the condition in which the grain will eventually come out of the stacks. With regard to the wheat crop the counties of England fall into three groups, about equal number each, of which the counties of one group report an average of over 32 bushels; of the second group, of 30 to 32 bushels, and of the third group, of under 30 bushels. The counties of Beds, Essex, Lincoln, Northampton, Notts, Berks, Kent, Leicester, Cambridge, Warwick, Derby, Lancaster, and Worcester make up the group with the highest estimates. The average for England works out at between 31½ and 32 bushels per acre, and (1) though this is a good average, so far as bulk is concerned, it must be remembered that the quality is exceptionally inferior. The average for Wales is calculated at about 30 bushels, and for Scotland at about 36 bushels.

In the case of barley seven English counties—amongst them Lincoln, Cumberland, Westmorland, and Durham—report 40 bushels or more per acre; for 20 counties the average works out at 36 and 39 bushels; the remainder range between 30 and 35 bushels per acre. The calculated average for England is between 36 and 37 bushels per acre, for Wales about 39 bushels, and for Scotland about 38 bushels.

For oats our lowest average, 40 bushels per acre, comes from each of counties of Cumberland, Westmorland, and Durham; Cambridge, Suffolk, Lincoln, and Essex are glad to find themselves near the other end of the list. In England 13 counties work out at 40 to 45 bushels per acre, ten counties at 46 to 50 bushels, eight counties at 51 to 55 bushels, and the others at 56 to 59 bushels. The general average yield for the whole of England is calculated at about 50 bushels per acre. In Wales it comes out at approximately the same figure. For Scotland the average works out at only about 43 bushels per acre, the highest estimate from north of the Tweed being 56 bushels and the lowest 32 bushels.

The foregoing averages are calculated from the estimates sent in by the growers themselves. They, so far, confirm the impression that the season will be memorable for the great bulk of its produce, and it is to be feared not less so for the inferior quality. The official estimates collected under the supervision of the collectors of inland revenue are not likely to be published till six months hence.

*Ag. Gazette.*

## Manures.

### The Use of Mixed Fertilizers.

The *Rural New Yorker* asked the following question of Sir J. B. Lawes, of Rothamstead:—Some fertilizer firms hold that their goods are superior to other goods because they use nitrogen and phosphoric acid in varied

(1) Lawes looks for an average of 34 lbs. These numbers are sent in "by the growers themselves," and they are not likely to overrate their crops, on account of the rent!—Ed.

forms, thus giving to plants the food they need as needed. For instance, phosphoric acid is given in bone-flour, in bone-superphosphate, and guano—no rock. Nitrogen is given in nitrate of soda, sulphate of ammonia, tankage, &c. Do you think there is any decided advantage in this? Would it not be as well to use fine bone, sulphate of potash, or unleached ashes or mariate of potash for most crops, and enough nitrate of soda to give more nitrogen than the bone furnishes? The question is, would not farmers do better to buy bone flour, nitrate of soda, &c., separately, and spread them?"

### REPLY.

"I can quite understand a manure-maker preferring to sell a compound manure, and he is able to make a large profit. The prices of nitrate of soda, bone flour, and rock superphosphate are well known, and a farmer can mix them in the proportion he requires with much less cost than he can purchase the mixture. The same holds good in food. We have any amount of cattle cakes in the market. A man goes into the market, purchases various grains, &c., grinds them, calls the substance a cake, and charges about £2 or £3 per ton above the cost of the raw substance. To call a thing a cake does not increase its feeding properties. I once wrote a paper on the subject, pointing out that cotton cake and linseed cake were the refuse of the production of oil, and that they would still be made even if farmers did not purchase them. So they sell exactly for the price that farmers think it worth while to pay for them and no more. I have known linseed cake to sell at £14 per ton, while cotton cake would only make £5, and now one sells for £7, and the other not much less. With reference to farmers purchasing their own manure, it may be said generally that for grain crops bone is hardly used at all; for wheat, if autumn-sown, only nitrate of soda is used, for spring-sown grain crops mineral superphosphate and nitrate of soda. Fine ground bone is used upon some kinds of soil for turnips, and it is also used for pasture land. In my opinion, bones act too slowly to be used for annual crops, but they are of great value as an ingredient in compound manures for sugar-cane, coffee, tea, &c.

"My fifty-first crop of wheat which I am now cutting has been much damaged by the heavy rains; if we had had a dry July, I think I would have grown over 50 bushels per acre upon the highest manured land; but some of the less highly manured crops will yield well, and, taking England altogether, I consider it to be a year of great abundance. Every crop is good some remarkably so. A short time ago I called attention to the fact that all the years in my experience ending with a 4—34, 44, 54, 64, 74, 84—have had large wheat crops. I think I might say now that 94 will add to the number."

### PLASTER OF PARIS—SULPHATE OF LIME.

EDS. COUNTRY GENTLEMAN.—So much has been said lately regarding this salt and its action, that it seems like a waste of time to write more. To explain why it fails to be of any use to most land is an easy matter; and the chemical effect claimed for it, as I often see in the agricultural papers, is a very erroneous one, and

it has surprised me to find the error repeated over and over again, and even by those who surely should know better.

It is a thankless task to undertake to prick the many popular bubbles that in not a few cases are so misleading to the unsuspecting farmer, and often cost money and labor before the mistake is realized.

Some years ago I read "What I Know of Farming," by Horace Greely, the bulk of which was: Use the stones for fencing and spread plaster, or go west. As we have no stones on the Eastern Shore, the advice could not be followed on the fence question, but a free use of plaster was tried, and from the hour it was applied to the present, I have never seen the least effect, although on repeated occasions I have marked out spots on the grass and clover fields with a heavy dressing of the sulphate of lime. With carbonate of lime (powdered oyster shells), I have seen decided effect in a few days. Sir J. B. Lawes wrote me that he had seen the same with chalk—another form of shells.

In the vegetable kingdom there is but little use for sulphur hence but little taken up by the plant; but, little as it is, this seems to be a *sine qua non* for the development of those complex substances known and satisfied as albuminoids, which are so beautifully arranged in the proper proportion in corn, wheat, rye, barley, oats and the grasses, without the aid of cottonseed meal and other by-products of factories. These latter are stimulating in their nature, but are not albuminoids, nor allied to the gluten and albumen of the cereals or the gluten and albumen of the animal. Plaster being comparatively an insoluble salt of lime, and so little of the oxide of sulphur (sulphuric acid) being used by the plant, one dressing will last a long time, even if there were no other supply of it used. Owing to the value placed upon soluble phosphoric acid, or rather soluble phosphate of lime, as a fertilizer, millions of tons are annually sold to farmers; and every ton contains at least a half ton of plaster of Paris, the result of combining sulphuric acid (oil of vitriol) with the phosphatic rock. The acid extracts two-thirds of the lime, forming the sulphate of lime or plaster, leaving the other third combined with the phosphoric acid.

The reader will see that where high or low-grade phosphates are used, there is no good from the use of natural plaster, hence a waste to apply it; yet years ago, before the days of superphosphates, it proved of great value to land that needed sulphur. I have not a word of condemnation for the use of acid phosphate, as it is without doubt a good form of applying oxide of phosphorus because it admits of such a fine division; but it is a question whether the application of so much sulphur to land will not in the end do a damage. For it is a well-known fact that sulphates in the presence of organic matter change to sulphurets with the escape of a poisonous gas (sulphuric hydrogen), which is destructive to both animal and vegetable life.

The most positive and decided effect of any fertilizer applied during my experiments of twenty-five years, was seen from the application of a bone dust prepared some years ago by a Boston factory. Owing to the expense of reducing the bone to dust, it has long since gone out of the market. There was no plaster or soluble phosphate of lime in this. While in Florida, I saw large quantities of a phosphate that would admit of being re-

duced to a very fine powder without much expense, and as this phosphate cannot be treated with vitriol—being a phosphate of alumina which would form liquid alum instead of plaster—I suggested to the land speculators to have it reduced to a fine powder and try it on their poor worthless sands. I have tried to procure some of it for experimental purposes, but it is not in the market. The owners are for selling the lands. I think if some of the stations would make experiments, it might lead to farmers obtaining a valuable source of oxide of phosphorus without the sulphur, and using in its place alumina or oxide of aluminum, the base of all clays. One of the popular bubbles that I think worth pricking is the belief that plaster is decomposed by ammonia. For this reason farmers are advised to use it on their manure pile to fix the ammonia by setting free the lime and uniting with the sulphuric acid. Such absurd statements are published and repeated in scientific lectures. Every schoolboy ought to know that lime and sulphuric acid are too strong friends to be separated by such a feeble, uncertain, short-lived gas as ammonia. (1) If there is any value in the sulphate of lime, it is a mechanical one, and good garden soil with with a due share of carbon will answer a far better purpose. Of all the mechanical agents to absorb ammonia I have never found anything to equal charcoal. A handful of powdered charcoal sprinkled over offensive meat and fish will at once stop the escape of the offensive ammonia and sulphur, by simply absorbing the gas.

Just here a word to suffering humanity. If troubled with indigestion, foul stomach, offensive breath, or foul exhalations from absorbed gas from faecal matter, use charcoal in fine powder. It will absorb foul matter, act on the bowels and carry it off. I speak from many years' experience and observation of its effect on both the animal and vegetable kingdom. It is a remedy reach of all. The grain of wheat can be reduced to charcoal in a closed pot over a hot fire, and then ground to powder in a coffee mill. The carbohydrates as well as albuminoids of the grain will soon pass to carbon when deprived of their water in a red-hot covered pot. Usually charcoal prepared for medical purposes is made from willow; but it can be made from any form of carbohydrate, be it sugar, starch, cellulose or wood.

I will say that I am not ignorant of the fact that from a solution of sulphate of lime (which is slightly soluble in water), by the addition of a solution of carbonate of ammonia, owing to the insoluble nature of carbonate of lime, a mutual change takes place: carbonate of lime sinks and sulphate of ammonia remain in solution. (2) But this is not the condition when plaster is spread over a manure pile with escaping ammonia. Therefore, I say to the farmer: Trap your ammonia in the manure pile or land by a carbonaceous soil; and instead of the cry being nitrogen, in which the soil abounds, let it be carbon, that will condense oxygen, and oxidize nitrogen and ammonia into oxide of nitrogen, from which plants secure their small percentage of nitrogen. If the minute microbe gets the credit of it, I have no objection. A. P. SHARP. *Baltimore.*

(1) Precisely what we have been saying for the last 18 years.—Ed.

(2) This is all right, and has been mentioned in the Journal time after time.—Ed.

## Swine.

### SWINE FROM START TO FINISH.

There is considerable interest in the study of the history of the hog, from the time the unclean spirit entered the herd of swine up to the time Germany raised such a wail about American pork. From the exciting chase after the wild hog to the domestic hog pen, from the 90-11 hazel splitter than can poke its nose through the crack of the fence and did three rows of potatoes to the Chester Whites of 500 or 600 lbs, from the fattening pen to the packing house, from the packing house to the grocer and the grocer to the consumer, there is much said about lack in raising hogs. Those who use the best judgment in breeding and exercise and the best care in feeding, have the best success. Those who keep a brood so a year for one litter of pigs and let her go so poor she has to be propped up to feed are not apt to make money in swine raising. A thoroughbred hog will starve as easy as a scrub; in fact, the scrub will live when the thoroughbred would die. The advantage in a thoroughbred is they will yield greater returns and in less time, for good treatment and plenty of good feed.

A brood sow should not be kept too fat. Feed plenty of grass or some succulent food. Hogs running on mast (1) are apt to die off every few years; some farmers lose all their stock this way. They should feed some grain as a preventive. Breeding stock should be of mature age. Each breed represents a certain type, therefore I advise pure bred hogs. (2) Grades are better than mixed breeds, for mixed breeds are bred away from a certain type, and grades are breeding to a certain type. Never exchange a good motherly sow for a young one of doubtful qualities. Each sow should bring two litters of pigs each year. Sows should farrow in March and September. Begin feeding the pigs as soon as they will eat. Nothing beats milk and wheat bran to make pigs grow. Wean pigs when 7 or 8 weeks old. If you have no clover or green pastures to turn the pigs on, plant a succession of Evergreen sweet corn every 2 or 3 weeks through the season, and feed stalk and all. Stock peas can be planted from May to July and hogs pastured on it. Growing hogs may be benefited by feeding swill. Sour swill leads to rheumatism and kidney disease. Do not neglect to feed some grain of which wheat, corn and oats are all good. If you have a stubble field, turn the hogs in; it will benefit them and save the waste grains. Wheat should be soaked, boiled or ground, as hogs will bolt the hard grains and wheat should be ground before it is bolted. Finish off fattening on hard corn. Corn necessitate mastification. Mastification promotes the secretion which aids digestion and digestion is as necessary as feed.

If the pigs have been properly handled, they can be put on the market when 9 mos old, at 250 to 275 lbs, and the fall pigs when 6 mos old, at 200 to 225 lbs. It never pays to keep a fattening hog longer than a year—imply because it can consume the waste. The rule of root, hog or die does not apply to the production of pork. If you sell everything you can and feed the rest to the hog, the hog will retaliate by small returns. When

(1) Beech-mast and owns?—Ed.

(2) Well, we do not for bacon. Yorkshires crossed with Tamworth is probably do best for the very lean hogs now required. A Yorkshire boar and Tamworth sow.—Ed.

you go to raising pork, you should enter into a reciprocal treaty with the hog, by which the hog will yield the largest returns for the best treatment. For home use, I begin by butchering one small plumb hog when cool weather sets in. When that is consumed, repeat throughout the winter. By this means I have fresh meat half the time and the trimmings are used fresh and not wasted. It is poor economy to eat stale, strong meat and waste the trimmings, which are the best part of the hog. Some people make meat to salt and strong they can scarcely eat it; call that economy and then grumble about the hard fare of the farmer. They could and should have the best of everything. For summer use I kill in January. The weather is cold then and the trimmings can be used. Thoroughly cure the meat. Make a platform or take a stable, cover with salt, lay the skin side down. Cover with salt. Rub salt and saltpeter in the joints; do not leave one piece on another, as the salt extracts the secretion. Drain off and do not allow it to be reabsorbed in the meat, for it spoils meat in a few days in warm or a few weeks in cold weather. The meat is ready to hang and smoke and then you have a good sweet bacon.

Who does not relish roast ribs, boiled back bone, fried pork steak and good old sweet ham, and who would forego the usual piece of bacon in the cabbage and pot of beans and greens? Those who complain most of strong fat bacon are those who do not properly cure the meat. Build your smoke house in your own yard and stock it with the best you have. Better have meat to sell to your neighbors than buy from a distant city.—[J. E. Prather, Sac and Fox Agency, Okla.]

*The Farm.*

### SCALDING PIGS.

Last spring W. M. Champion, of Reabarn, gave in *The Farmer* his idea about scalding pigs. The hints there given have since gone the round of the American farming papers, and for the sake of farmers who are thinking about pork killing they are here repeated:—If a pig is properly scalded there will be no shaving required. When he comes out of the water you will be able to take each foot and leg in your bare hand, give them a good ringing twist and all the hair will be off in less time than it takes to read this. Then go at the head and do that before the body. Be sure the water in boiling before you kill the pig. Take a barrel that will be strong enough, slant it about 40 degrees, so you can handle the pig easily, into this barrel put 7 or 8 pails of boiling water, give it a stir and pop in your pig, head first. Do not let it stay more than 3 seconds in any one position. Turn it over in the barrel, then draw it out and try if the hair will start back of the ears. If it does start there, try the bristles on the back. If they come, that end of your pig is done, then turn him round and scald the other end. Do not be afraid to pull it out of the water several times to try if the hair will come. It ought not to take more than 4 minutes to scald. If the water is too hot it cooks the flesh slightly, and then we say we have scalded the hair on. The hot water heats the hair, and after it cools for a few seconds the hair will shrink and come out by the roots. You will notice with very little practice that the hair will not come as soon as you take it out of the water, and will start

in two or three seconds after the air has got to it. All this work must be done quickly. It is something like striking the iron while it is hot, and you will do more work in one minute after the pig comes out of the water than you will do in 10 shaving him with a razor.

### AN EXHIBITOR ON JUDGING.

Andrew Muttter writes from Brandon—"I am well pleased with *The Nor' West Farmer*. It contains matter that is of some use to all who have stock. The Winnipeg Industrial was good, but I hope that next year they will put another man on to judge the dairy classes that will not give so much cause for dissatisfaction in his awards. You did not hear of the same in the beef breeds and I am sure they do not need to go out of Canada to get a judge, either on Holsteins or Ayrshires. Mr Shaw was quite able to judge the whole lot by getting the two days and I am sure he would have given more satisfaction in the dairy classes than did Mr. Gregg, whose awards in one class contradicted them in another, and if you will just look at his own explanation you will see that awards were brought down to a very narrow point; a little difference in the hair caused him to give the prize. Now, if he had come to the Ayrshire bulls and summed the points up in the same way the yearling bull would have won the diploma by a good many points, but he did not do that, he only placed the old bull up against the rope, stopped down and fingered for that hole he puts so much stress on, looked at nothing else and before he gets up he shouts out. "This fellow gets it." "This fellow gets it," the like I never saw done in a show ring in my life. He also says he likes to get plenty of loose skin in the bull where the udder is in the cow. Here is another point in which the young bull can beat the old one by Mr. Gregg's own words. I saw Prof. Shaw try to get a hold of the skin of the old bull in that very spot and he could not catch it all, he is so tight and tucked up in his quarters, he came to the young bull and he came to the young bull and he got his hand full. The yearling Ayrshire was far more entitled to the diploma than the Holstein. This bull is just what is wanted here, more size and being a Scotchman from Ayrshire born and brought up among Ayrshires in the centre of the very place where they are exported to Ontario, I am annoyed at hearing so much about the Ayrshires being so small. If we are to take what we see here as a good sample then they are small, but I look upon any that I have seen here just quite the reverse; the only really good Ayrshire cow I have seen since I came here was Mr. Steel's red cow shown at Winnipeg three years ago and this yearling is spoken of by men that know an Ayrshire far better than Mr. Gregg does, as being the best that they have seen since they left home and I say the same. The points that Mr. Gregg and Prof. Shaw mentioned, the hole and the large milk vein, in my opinion don't hold good and after looking closely at all my own cows, (16) some of my best milkers have very small veins and as straight as fit to be, and I have some first-class milkers. A year ago, at Brandon show, Prof. Shaw was judge. I was first in the dairy class with a splendid milkor. Prof. Shaw took this cow to give his views on as to stamp. According to his views she would be a good dairy cow, this same cow was second this

year but it was a butcher that judged, then I got beaten for size, this cow has large and tortuous veins, fine udder, saw-tooth back and prominent in every point that we heard mentioned at Winnipeg by Mr. Gregg, and at Brandon by Prof. Shaw. After I heard these points mentioned, when I got home I looked my 16 cows all over and I can state for a fact that they do not hold good, for I have three cows that can beat the cow that was first at Brandon when Prof. Shaw was here and they have not one of these points prominent, the veins you can hardly feel and their back is as smooth as fit to be, but if you judge any of these three cows all over then you have an idea that they are milkers, but they could not beat the other one if Mr. Gregg or Prof. Shaw was judge. Prof. Shaw might do so for he does not get carried away by a craze of his own, he judges a cow from head to foot; you see him go round and round a beast, saying nothing, he has no standard of his own but judges cattle in a style that any one who has seen large shows and practical men on as judges can see that Mr. Shaw knows what he is doing. Mr. Gregg's awards should be criticized he gave dissatisfaction in all the classes he judged. I see your reporter is of my opinion about the Ayrshire cow, he knows better and larger ones can be got and as he says, it will be a pity if they get a footing here, it's going to injure one of the best dairy cows that is in existence."

#### WINTER-FEEDING.

The use of roots for winter feeding is being more and more discussed, and the newer barns are often arranged for the storage of large quantities of roots in safety. But is a troublesome job to handle and feed roots largely in the cold North. There is little reason, so far as we can see to prefer roots to silage, and the last is much the least trouble. Corn fodder, well grown and well handled, is even less trouble than silage, but much more room is required. Grain and good hay will serve the same purpose, and no one method will answer every man's requirements.

Cabbage is highly recommended as a cow feed in winter. Experiments show that with cabbage feeding the milk increases in quantity without a decrease in the percentage of butter; but the butter lost in keeping quality. With beets (mangels) the butter is of prime quality, and considering the ease with which these roots are grown and housed, they are probably the very best food of that class which can be raised in Vermont. But it requires very extensive and well constructed cellarage for any of these kinds of cow food. In fact the barn should be planned and built on purpose for root storage and feeding. With our old-fashioned barns we incline strongly to the belief that corn fodder, well grown, and well got and handled, is the best and cheapest.

We also incline to think that with corn fodder it will prove profitable to feed bran pretty freely to our cows. It supplies largely an element, the nitrogenous, which is least abundant in the corn fodder; and we notice that the cows eat it as though they felt it go to the right place, and do them good.

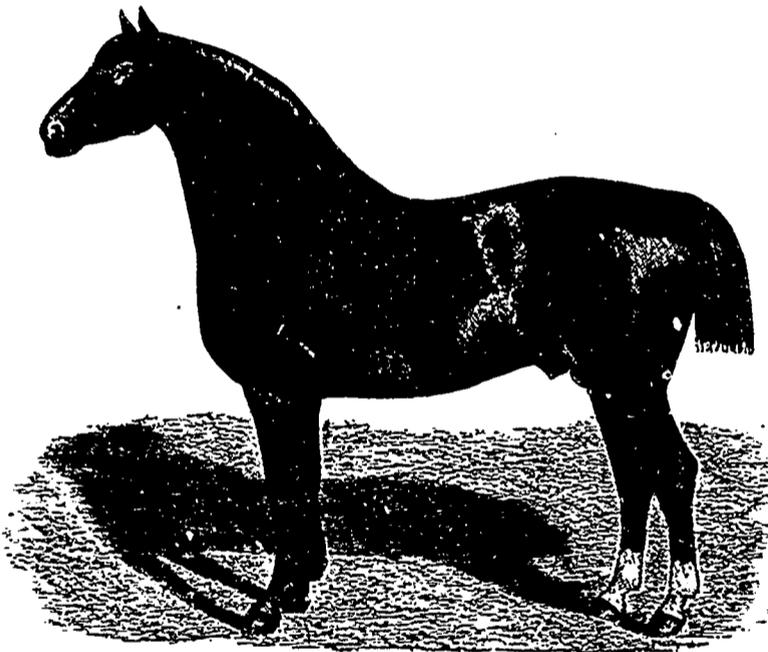
The dairymen are still discussing the origin of "flavor" in butter. "Bacteria" have the credit, with

some who claim great wisdom, of giving the flavor; but we note that the best chemist are slow in asserting what men of less note are quite sure of. Science has its place in the dairy, but good common sense and experience have also their places; and these are not to be undervalued in favor of a class of two for a-cent scientists who "know it all," but are constantly changing their notions about these matters.

Primarily, there is little occasion to doubt that the flavor comes from the food; but there are many modifying agencies to be considered, the most important of which are pure water and pure air. With these, and suitable food, intelligently handled and fed, there should be no difficulty with the butter, if the milkers and makers understand their business, and their duty.—*Vt. F. Advocate.*

#### THE TUBERCULOSIS SCARE.

Tuberculosis is certainly not a trouble to be trifled with, but outside of pure-bred herds, of which one or more individuals have been brought in from breeding stocks infected, but



THE MORGAN.

unsuspected at the time when the introduction took place, the risk of the disease is almost infinitesimal. Of the many train loads of cattle that have gone out of the Territories and Western Manitoba for shipment to England, it is quite possible that not a single case of well-defined tuberculosis will be detected. These exports are trifling in comparison with those from the other side of the line, but only the other day the Breeders' Gazette showed that out of over 24 millions killed at Chicago the year before last, only 1 in 500 was found affected with the disease. It is quite unlikely that the closest investigation of beef cattle here would show anything approaching to the same extent of infection as is found in the States. That the proportion of the disease among too closely housed dairy herds and fine breeding cattle is much greater on both sides the line than among common cattle, recent revelations make quite clear. The worst developments of tuberculosis all over Canada and the United States have all along taken place among herds that were best housed and most carefully treated, but it would be a mistake to infer from this that bad care is the best safeguard from disease.

Inbreeding, too close confinement and too little contact with free air, in tenderly-reared stock, have been largely instrumental in starting the disease where it did not previously exist, and predisposing the same sort of cattle to infection when introduced from outside. Once in, the royally-equipped stable was the best possible for spreading the disease, while at the same time keeping its spread unnoticed and unsuspected till the taint had got a masterful hold of the greater part of the herd. In the human subject it is well known that the sputa, or spittle, of the diseased person, if not disinfected but allowed to dry and get mixed with the air of a room, will be spread when the room is swept, and if inhaled by a susceptible system, will start there the germs of the disease. The use of the same drinking trough and pails, and the sweeping of the stable, will do for stock what in the other case is done for the human subject, and the good care and good feed will help to keep away any distinct manifestation of disease till the whole herd has got in time affected, without any outward symptoms to cause the slightest alarm. Such, in substance, is the natural history of tuberculosis in its most insidious form, and no sales ought to be permitted from any herd,

especially for breeding purposes, in which even one such animal has been detected. This policy may bear hard on the unfortunate individual who owns the herd, but it is the only policy by which the most valuable stock can be saved from infection. Tuberculosis infection is not a thing that will catch from contact only in the same way as small-pox, but if given time and suitable conditions, it will catch, and the fact that it may be years before it shows any appreciable proof of its presence is only a stronger reason for intelligent forecast in the way of prevention. A mere care can do no good, but quiet vigilance against the unconscious spread of the disease is indispensable to the best interest of the whole country.—*R. W. M.*

#### THE MORGANS.

The following statement from the American Breeder will be of interest to all owning horses of Morgan blood.

"Ever since the standard was established the American Horse Breeder, which is an outgrowth of 'Horse Notes' in the American Cultivator, has been encouraging breeders to hold

on to their good, old-fashioned Morgan mares, regardless of whether they were standard or not, and breed them to the best stallions within their reach. With but one or two exceptions the Cultivator and Breeder were the only papers in New England to advocate this course. At first the Morgans had but comparatively few friends. The majority of breeders, large and small, were rushing blindly for standard-bred stock. The great leader, Mr. Wallace, and his followers were emphatically announcing that the standing had come to stay, and were pointing with pride to the inflated prices which had resulted from its adoption. In one sense it did come to stay. Its influence will surely be felt by many New England breeders and their descendants for generations.

"Some, however, were not carried away by the standard craze but kept right on breeding for merit. Such are now being rewarded, particularly those in Maine, New Hampshire and Vermont who kept their best Morgan stock. Their animals are now in demand at fair prices, while the standard-bred one lacking in merit of the neighbors are going begging for customers at ruinous figures. Mr. George H. Bishop of New York city, who buys quite a number of horses in Maine every year, has this to say of the Morgans as published in a Maine paper not long since:

"I was just through western New York, and found that they have been breeding trotters there, but had forgotten to have some good old stock left. I found only one or two old fogies for the day that did not know how to breed, but they had some good ones.

"I am here in Vermont, the home of the Morgans, and you can't think what a treat it is! If some of the readers of the Journal will come up here and get some good, large, fine Morgan mares and breed to Harbinger and some of those fine Morrill and Fearnaught stallions and bring back those fine drivers you used to have, they would be something of a benefit to the farmers and a pleasure to visitors to your state.

"It is a great shame that Maine don't take the lead and hold it for fine horses, but she won't till you go back to first principles; get some Flying Eatons, Draws, and until things come back, don't breed to those long legs because they can go some, but get horses not records.

"When I was last in your state it made me sick. Got some large Canada horses, that the farmers got for \$10, and you would do much better than you now are doing. I like the breed, but the kind you are getting are worse than nothing, as they don't nick with the Morgan at all. We meet buyers here from the West after Morgan mares to enrich their stock, and they say they don't want anything else."

"Breeders who are disposed to profit by Mr. Bishop's advice must use care in selecting their mares to get animals of merit. Don't buy a mare lacking in quality for brood purposes, simply because she is bred in Morgan lines. Let your motto be the individual first then the pedigree. Had the breeders of standard-bred stock stuck to this course the horse market would have been in a different condition today from that which now exists."—*Poultry and Horse Review.*

The great London job-masters, who buy their 3 and 4-year-olds, give them 12 months' feeding and training before they are fit for even compara-

tively light and considerate service. Indeed until they are turned six the best class of big carriage horses are not expected to do anything like full work, and even when on job they are only played with. The like time and patience are expended in the training of valuable hunters. As 4 or 5-year-olds they have short days, carry light weights, and thus gradually attain condition and learn their business. Were the same principles applied in the breaking and consequent use of other descriptions of horses they would be more sound, serviceable and lasting!

## Garden and Orchard.

### MONTREAL HORTICULTURAL SOCIETY

AND

Fruit Growers Association of the Province of Quebec.

Montreal 12th November 1894.

How can a knowledge, and a taste for Horticulture be best advocated amongst our rural population?

It is only too painfully manifest to the most casual observer that our rural cottages and farmers houses all over the Province are destitute entirely; or nearly so; of any attempt at out door; or horticultural embellishment whatever; with a very few exceptions. The rural cottages above referred to are those more especially owned by families who reside in; and are employed in the neighbourhood; generally speaking the cottage or villa occupied by the city merchant or clerk during the summer months is better provided for horticulturally, having generally shady lawns; comfortable walks; pleasing flower beds &c., and the wonder is that the example is not felt farther. Perhaps if a few of the more essential features requisite around a cottage or farm house were pointed out and also a way suggested, whereby these features might in most instances be obtained at a trifling cost in both labor and material, some of the apparent difficulties may be in a measure removed. The same principles will be necessary in guarding us whether the house is that of the farmer or that of the cottager; only in the case of the cottager whose lot is generally small there will be less room for operations and variety. The whole of the surroundings may be treated under these different headings Viz. 1st Location of house and buildings, 2nd Proper drainage; 3rd Convenience to a supply of pure water; 4th Ventilation of house and buildings; 5th Necessary roads; 6th Planting trees for shelter and ornament; 7th Planting of fruit trees and small fruits; 8th Making and keep of lawns; planting of shrubbery and flower beds; 9th Vegetable garden. The location of the house and other buildings required on a farm is of the very first importance. The site should be chosen after very mature consideration, and consultation should be freely indulged in with every authority obtainable. The position of the house and other buildings should be decided upon, principally as regards the healthiness of the position. Most authorities agreeing that a

loose subsoil that can be efficiently drained is preferable to one of a tenacious character. Drainage in every case should be one of the unalterable laws efficiently and firmly enforced. And let it be mentioned here simple as it may appear to many, that there is drainage, and drainage. The drainage of a house or cottage to be properly constructed requires to be properly thought out and rightly executed. To take away all superfluous moisture from the foundation of a house or cottage, and not at any time to act as a chimney poisoning the inmates with foul air is one of the many points in constructing a house drain. This is not exactly horticultural, but it is of equal importance. It is also here strongly advocated never to build a cellar below your house on the farm; or pollute in the country. Land is not so scarce that it is necessary to be so economical. By never constructing a cellar below your house you will never pollute the air with the fumes from decaying vegetation; or other unhealthy vapors slowly poisoning yourself in your rooms above. It is about as economical and far better in a sanitary point of view to construct your root house as a separate building; also your dairy which may be pretty convenient to the house in fact it may be attached, if house and dairy are properly ventilated, ventilation coming in my estimation next in importance to drainage. What a cruel mistake to stop up every little hole whereby a breath of fresh air can enter; cruel it is and we have to stand the punishment; ventilation in house; in dairy; in stables; in root house, is only imperfectly understood; and practised in a very slipshod manner. We have not attained perfection in either of these necessities by a long way.

Next in importance to choosing the site of a house is the pure water supply. In different localities that will best suggest itself to the proprietor: if the supply is to be obtained from wells in the neighbourhood of the house or outbuildings sufficient provision will have to be guarded against any sewerage soakage reaching the wells. The front of the house should, if possible, face the sunny side which is the pleasantest, if attainable the barns and stables should also face the same exposure, and be so arranged that the buildings themselves would shelter the stock to the very best advantage. Planting trees of the proper sorts and in their proper places, will assist in thus sheltering the buildings and their occupants. The trees most suitable for wind-breaks are our native evergreens; cedars planted closely together and not too close to the building answer the purpose admirably. A few taller deciduous trees planted outside the cedar belt together with an occasional pine, spruce or balsam will help to vary the appearance of the wind break and make it more ornamental. Now all these can be had for the trouble of going and lifting them out of your own or your neighbour's bush. It seems to take several generations before the feeling of destroying trees can be replaced with one of planting trees in the Canadian heart. Individually and nationally this tree planting problem deserves much more attention than it has received in the past. A national tree planting policy and preservation of the forests now left should be vigorously inaugurated. How many thousands of acres are fit for nothing else; and these could be replanted and brought up in value at a trifling expense.

(To be continued.)

## THE PREVENTION OF FUNGUS DISEASES NEXT YEAR.

H. H. LAMSON.

The season for the active treatment of fungus diseases by spraying is drawing to a close; but the season will soon be here when much may be done towards the prevention or lessening of next year's diseases. The little plants or fungi which produce the diseases are continued from year to year by the means of seeds known as spores, or germs, which are produced in almost countless numbers. Many of them, retaining their vitality, remain on the affected plants, or parts of plants over winter, and are ready to start the disease anew in the spring. Some fungi even develop an additional form of spore on the fallen leaves or fruit. Hence the importance of destroying in the fall all affected parts, thereby destroying the seed for next year's fungus crop.

In the orchard the disease known as the scab is a serious pest to the apple and pear, affecting both the fruit and the foliage. All diseased fruit which cannot be used should be thoroughly removed from the trees and from the ground under the trees, and burned or buried; the fallen leaves and rubbish should be raked up and also burned. In this way not only the spores of the scab, but the spores of other diseases affecting the trees, and many insects as well, will be destroyed. The parts of pear trees, branches and leaves killed by fire blight should be removed and burned. This, however, should be done as soon as the disease makes its appearance. To insure thorough work the limbs should be cut off at some distance below the dead part.

Carefully remove from on and under plum trees all fruit affected with the rot, and destroy it. When the leaves have fallen from the plum and cherry trees, examine them for black knots; cut the knots off and burn them. If large wounds are made cover them with paint. Before the black knot can be exterminated the wild cherries will have to be looked after, as well as the cultivated ones. Leaves of cherry and plum trees attacked by the "shot-hole" fungus should be burned. From strawberry patches affected with leaf blight remove and burn the dead and diseased leaves. Potato tops should be burned, to destroy the spores of the blight or rust and all rotten potatoes should be destroyed, for they also contain the germs of the disease. Gather and burn corn smut; do not throw it on the manure heap. In short, as far as possible, destroy this fall all parts of plants affected with disease. There can be no doubt that if this were attended to by farmers generally, in a few years the losses now caused by fungus diseases would be greatly lessened.

## SAVING AND CARE OF SEEDS.

L. R. TAFT, MICHIGAN EXPERIMENT STATION.

The method to be used for treatment of seed to secure its preservation will depend largely upon the character of seed and the amount to be raised. In a general way we may divide seeds into classes—those with a dry covering or pod, and those that are formed within a fleshy fruit. For working with either class, although not necessary, a series of sieves is desirable. About three sizes are used for each size of seed; a coarse one, to remove the larger stems, leaves, etc., one that is just large

enough to allow the seeds to pass through, and a third so fine that the seeds cannot get through, but which will allow of the removal of the dirt and lint. If large amounts are to be grown, a flail and fanning mill will be desirable. When most of the seeds are ripe, the stems are cut off, or in some cases the entire plant is pulled. If the seeds do not ripen evenly, it is sometimes necessary to make several cuttings. In case they shall readily, the stems are placed upon papers or cloth sheets, and left in the sun until dry enough to thresh. This is done with the flail if large quantities are to be threshed, but small amounts can be rubbed out with the hand, using a coarse sieve if it is available. The seed should then be cleaned, using the fanning mill for large quantities, or by pouring them upon a sheet and allowing the wind to remove the lighter particles. The final cleaning can be given by passing them through the sieves as mentioned above, although if these are not available, very good work can be done by washing them, as the good seeds will settle to the bottom, while the light ones will float with the chaff. Whatever method is used, the seeds should be thoroughly dried before they are placed in bags.

When the seeds are in fleshy fruits, they should be ground or mashed and placed in barrels or other receptacles to sour. In the case of cucumbers, melons, etc., the interiors only are scraped out. In from 30 to 100 hours, fermentation will have advanced sufficiently to admit of the ready separation of the pulp from the seed. The mashed fruit is placed in coarse sieves and suspended in tubs of water. The seeds will drop to the bottom, while the light pulp will float and can be thrown out; they should then be sent through a finer sieve, and after three or four washings can be taken out, spread upon cloths, and dried. With many seeds it is well to wring them in cloths, and thus remove the surplus water. Many persons do not take the trouble to wash out seeds, when growing a few for home use, merely scraping them out upon a piece of cloth, and drying them in their pulp. Most of our vegetable seeds keep best, after being thoroughly dried, in a moderately warm, dry place. Paper or cloth sacks will answer to hold them if hung up or placed in boxes, where mice cannot get at them. The seeds of our fruits and nuts, however, would give a very low germination if treated in this way, and care must be taken that they are not exposed to drying influences for any length of time. They may be planted at once after they are gathered, or, after being partially dried, they may be placed in thin layers, in a box of sand. This stratification prevents the loss of water, and they will be in good condition for planting in the spring. It will be found desirable—especially with the fruits—to place the boxes out of doors during the winter, and thus expose them to the action of frost. In the case of the peach and other stone fruits, it is often well to crack them with a hammer if the frost has not done its work.

If care is taken to select seed, and if it is so preserved that its vitality is not impaired, a marked increase in the yields of our crops can be obtained. Most of our seed dealers take special precautions to keep up their stocks by careful selection, but errors may creep in, and if care is given a farmer can often get better satisfaction if he saves his own seeds, but otherwise he will find it better and cheaper in the end if he buys his seeds from a reliable dealer.

BENEFITS OF SPRAYING ORCHARDS.

A correspondent of the Rochester (N. Y.) Democrat and Chronicle has collected data on the extent and results of spraying orchards in western Monroe, Orleans, and a part of Niagara counties.

John Collamer of Monroe, who took first prize for Twenty-Ounce apples at the world's fair last year, did not spray, but plowed his orchard late last fall, and thinks most of the fungous spores were killed by freezing.

Three Orleans growers sprayed with Bordeaux mixture before blossoming, and with the mixture and Paris green after blossoming.

Their orchards bore large crops, though one of them for several years has yielded little and poor fruit.

Another neighbor, from 150 sprayed trees, picked nearly 1,000 barrels. Another, who did not spray, and had promise early in the season of 5,000 to 8,000 barrels from 15 acres, could only cull out 200 barrels, and hauled 700 bushels to the cider mill and dry-house.

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"In Normandy the utmost care is taken in the selection of the situations and the soils best adapted for the cultivation of apples for cider-making, whereas in Devonshire and, I presume, in the other cider counties of England no attention is now paid to the matter, not even in Herefordshire, which was only so late as the reign of Charles I, converted into the true Pomerania of England.

"In Normandy, again, the greatest discretion is exercised in the selection of the varieties of apples cultivated for cider-making, and to such a pitch of refinement is this carried that the fruit of the selected varieties is discriminated by the season in which it is born, as in the first, second or third year of the tree, and is never used for cider-making in any other year.

By the use of Dr. LAVIOLETTE'S SYRUP OF TURPENTINE the cause of the malady is from the first attacked. No narcotics or poisons enter into its composition, it is as safe for the young child as for the robust and healthy man.

"I have found that nothing is better calculated to bring a deserving, but neglected and languid, national industry into popular notice than to organize a special or series of special exhibitions of it. I have seen this do great good even to a national industry in so desolate a condition of decay as the silk manufactures of the United Kingdom.

"The attention of the readers of the Journal of Agriculture is directed to the prospectus, on another page, giving particulars of the recent improvements made in the 'NEW CHATHAM' Wagons, as now manufactured by The Chatham Manufacturing Co.

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McGILL UNIVERSITY. FACULTY OF Comparative Medicine and Veterinary Science.

This School affords the advantages of a full University course. The laboratories and other appliances of the University are open to the students of this faculty, thus giving opportunities of acquiring a thorough scientific training.



Light and comfortable, gives entire satisfaction, and in every way the most perfect Truss made.

WHAT IS Dr. Lavolette's Syrup of Turpentine?

TURPENTINE is a volatile essence extracted from the health giving pine tree. Its effects when used as a lotion or liniment are well known, but through long recognized as possessed of wonderful healing properties.

BEWARE - Since the great success of Dr. LAVIOLETTE'S SYRUP OF TURPENTINE many unscrupulous persons offer for sale, or prepare for their own use a concoction of syr p and raw spirits of turpentine, which dangerous imitation they palm off as "the same" or "just as good."

"Capital and Labor" Brand of Belting for HIGH SPEED MACHINERY Electric Light.

ISALEIGH GRANGE FARM DANVILLE, P. Q.

Guernseys.-Bull calves (only two left) fit for service in spring, sired by best imported Bull in Canada. Worthy to head any herd.

Improved Yorkshires and Berkshires. I have for sale some very fine young stock of both sexes. Also some choice breeding s. w. s. All stock registered, bred from imported stock.

EASTERN TOWNSHIP'S HOME OF THE AYRSHIRES.-A. McCallum & Sons, Breeders of Pure Bred Ayrshire Cattle of the deepest milking strains and largest percentage of Butter fat.

THE "BAIN" WAGON

-Is popular everywhere.- Thousands sold giving Best Satisfaction.



SOMETHING NEW LOW-DOWN WAGON

with regular height wheels. Runs Light.-Turns Short. No high lifting in loading. Admired by everybody at the Fairs.

GEO. J. RECORD'S DOUBLE TIN S&P SPOUTS.



The Best and Cheapest. Over 5,000,000 in use. Ask your dealer or write for free sample.

STE. ANNE DE BELLEVUE, QUE.

AYRESHIRES - We have some splendid Calves for sale from imported stock. Head of the herd GLENCALIN III, Prize Winner at the great Ayr Show, Scotland.

MAMMOTH BRONZE TURKEYS, weight 35 to 40 lbs., a few young birds to sell, price per trio \$10.00, 1 cock and two hens.

GOLDEN SILVER WYANDOTTES from Imported American and English strains.

JAMES BOWDEN, Manager for R. RECORD, Ste. Anne de Bellevue.

VESSOT'S GRAIN GRINDER (PATENTED).



This Grinder is the most perfect and economical in the market, and has proved its superiority over all others in competition wherever shown.

We beg to call the attention of Farmers and Millers to our Improved Grain Grinders.

THE LITTLE CHAMPION



is especially adapted for horse-power and is sold very cheaply. Our Larger sized Grinders are adapted to grind from 20 to 50 bushels per hour.

Agents Wanted. Machines will be sent on trial. For further information, circulars, etc., Address, N. VESSOT & CO., Sole manufacturers, Joliette, Que.

CHESTER WHITE SWINE and DORSET HORNED SHEEP

Are Specialties at Mappleview Farm. Write for prices and particulars to R. H. HARDING, Prop., Thorndale, Middlesex Co., Ont.

Do You Want the Best Fence?



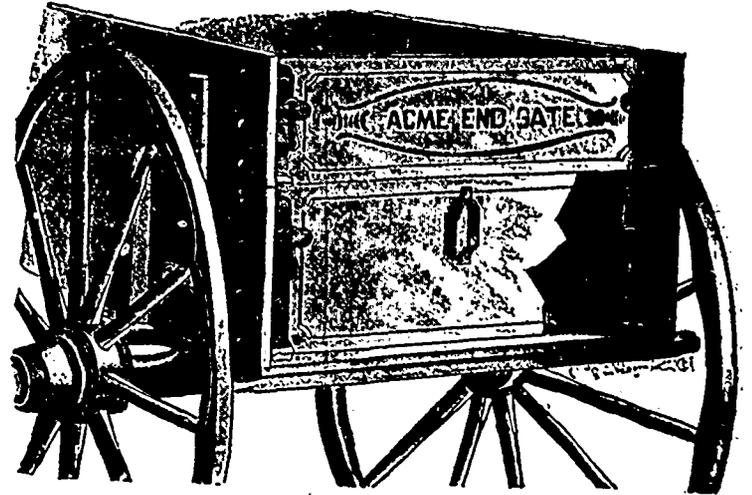
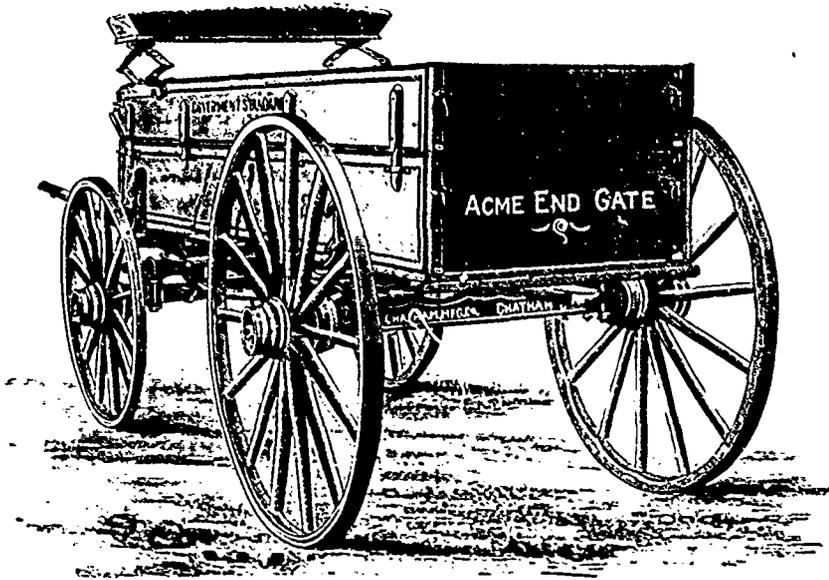
The PAGE FENCE is guaranteed to turn all kinds of stock and to give satisfaction. There is more of it used by farmers than of all other wire fences put together.

The Page Wire Fence Co. of Ontario Ltd. 10-94 WALKERVILLE, Ont.

# THE NEW CHATHAM WAGON

AS IT WILL BE PRODUCED HEREAFTER BY THE

## Chatham Manufacturing Company, Ltd., CHATHAM, ONTARIO.



### To the Trade.

WE are soliciting orders for spring delivery, and in doing so permit us to say, we feelingly lament the wagons turned out of our works, under a different management, although as good, to say the least, as any turned out at the same time by any other Canadian concern, were not what they should have been, but we can now truthfully say, all defects in the old Chatham have been remedied, and for this and the following reasons, and improvements we now call our wagon **The New Chatham**, and assert without fear of successful contradiction that it stands without a rival on this continent, of which the judges on vehicles at the World's Columbian Exposition, Chicago, give us an unequalled certificate in the shape of **A Gold Medal and Diploma**. Beside being made of the best bone-dry lumber and best of iron by the best mechanics in a wagon works furnished with all the latest and most approved machinery, wheels all made of best of White Oak, bone-dry, and thoroughly saturated with cooking linseed oil before the tires are set and the tire set cold, the New Chatham is equipped with Van Allen's Patent Malleable Giant Arms, Simpson's Patent Malleable Adjustable Stakes, and Patented End Gate Fastenings, deservedly styled the Acme and our boxes will be grained to represent various fancy woods instead of being painted the old time fady green—for most valuable improvements not found in the construction of any other wagon made in Canada or the United States, making it intrinsically worth 25 per cent. more than any other wagon made in America, and yet our prices will be found very little, if any, higher than asked for old timers.

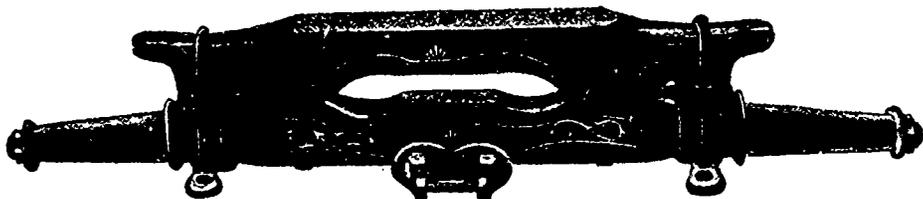
**The First of which Improvements.**—The Giant Arms (pronounced by the judges on vehicles at the World's Fair, Chicago, to be the greatest improvement ever made in wagon building, do away with the old time breaking point of axles, render truss rods unnecessary and the axle unbreakable, a will be apparent from the following cuts:



Van Allen's Patent Arm

These Arms are superior to Steel Skeins because more durable and easy running, and wagons equipped with them are very much lighter for the capacity than ordinary cast arm wagons. All our 2 1/2 and 3 inch Giant Arms (the sizes generally used in farm wagons) are best refined malleable, and therefore, like the axles, unbreakable. We still cast our own 3 1/2 and 4 inch Arms, but when specially ordered we make wagons with Malleable Arms of these two sizes also.

We also give wagons the Chautauqua front gearing (see cut below) instead of the front bent bound gearing, when specially ordered, at no additional cost.

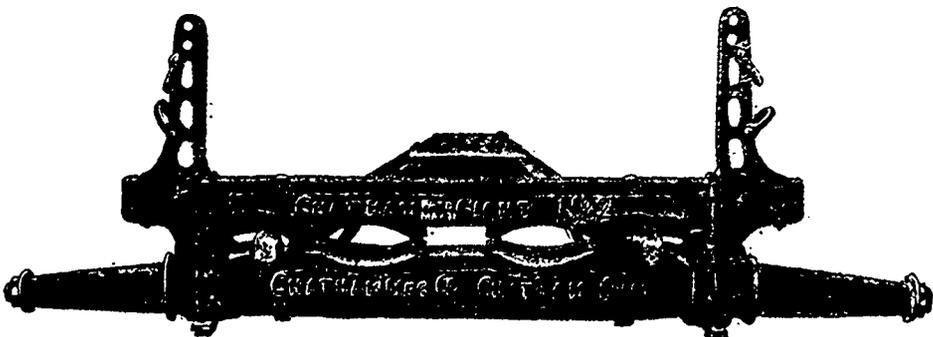


Applied to Front Axle of Chautauqua Giant.



Applied to Front Axle of Chatham Giant.

require. In the meantime we solicit correspondence with responsible French and English Dealers all over the Province of Quebec, excepting in the territory reserved below, with a view of arranging with them to sell the wagons above referred to:



Applied to Hind Axle of Both the Chautauqua and Chatham Giant.

**The Second of which Improvements.**—The Malleable Adjustable Stakes (seen in foregoing cut of hind axle) are practically unbreakable—what would bend these would break an ordinary woolen stake—and if one get bent can be taken to an anvil and straightened, and although broken ones are supplied free of cost at the factory, not five of the many thousands in use have been asked for to supply place of broken ones. These stakes admit of the bolsters being plated from end to end, making the bolsters very much stronger than as generally made, with big stake mortices through the ends, and the plating only reaching to the stakes. Each stake being adjustable two inches simply by slackening two nuts, is found a very great convenience, and then if it is desired to put a platform on the wagon these stakes can be removed entirely.

**The Third of which Improvements.**—The Acme End Gate (see second cut above) entirely dispenses with rods and saves the delay and bother of unscrewing and taking them out to roll in barrels, and makes the strongest, most durable and convenient end gate ever introduced. Either the upper or lower gate can be taken out without disturbing the other, or both taken out and several barrels rolled in and gates replaced in the time it takes to unscrew and take out one rod.

**The Fourth of which Improvements.**—Is an entirely new departure in the way of painting. By a patented process, for the use of which we have the exclusive right, we propose to grain the boxes of our wagons to represent various fancy woods instead of the old time fady green, making such boxes as in the past have only been seen at fairs. It is a well-known fact to all practical painters that a good job of graining is the most durable as well as the most beautiful and attractive of all painting.

Before closing we feel we may justly point with pride and satisfaction to the fact, although we have sold no wagons for use in the North-West this year, we have already sold 500 more for use in Ontario and other parts of the Dominion than we did up to the 15th November of last year, when 250 of our output went to the North-West.

We have ample capacity for 4000 wagons annually, and have only made 2000 this year, but we indulge the hope that with your kind assistance and that of our many other friends our output in the future as in the past will continue more closely to approach our capacity.

We are now getting out a new Catalogue, and when received from the printers we will have the pleasure of supplying you with as many as you may desire over the Province of Quebec, excepting in the territory reserved below, with a

- R. J. LATIMER'S TERRITORY—reserved to him, 25 miles every way from Montreal, Huntingdon, St. Hyacinthe and St. John's.
- LATIMER & LEGARE'S TERRITORY—reserved to them; 25 miles every way from Quebec City.
- LATIMER & BEAN'S TERRITORY—reserved to them, 25 miles every way from Sherbrooke.
- WILLIAM GRAY'S TERRITORY—reserved to him, 25 miles every way in Quebec, from Ottawa.

ADDRESS:

Chatham Manufacturing Co.,  
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