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THE ILLUSTRATED
Journal of Agriculture

Montreal, December 1, 1895.

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Notes by the Way.

Addresses.—The editor would feel obliged to all correspondents if they would address their communications to him as specified in the first paragraph of the first column of the outside page of the Journal, as more than one important enclosure has gone wrong during the last month owing to imperfect addresses.

The Robertson silage.—The mixture of corn, horse-beans, and sunflower heads has been tried at the Vermont station, and of the three the corn and sunflowers did well, but the horse-

beans seem to have been a failure, probably owing to their having been sown at an improper time of year. As we have said before, unless the beans are sown very early, they come into bloom just as the large black fly, called in England "the Nigger," is flourishing, the blossoms are cut to pieces, and of course, the pods never set. As the station cows "took sick" with tuberculosis, the trial goes for nothing; but the opinion of the experimenter is that, "under the conditions prevailing, the mixture did not in these cases appear superior to corn in feeding value." Well, if the beans, rich in nitrogen, and the sunflower-heads, rich in fat added, to the maize, did not make it better than pure maize, all the experiments of the past 50 years are worthless.

Soja-beans.—In another experiment at the same station, corn and soja-beans were tried against corn alone. Here the mixed corn and pulse caused the cows to give richer milk than the pure corn, but no increase in quantity was yielded.

When pease and oats, and tares and oats, both lots ensiled together, were tried against corn.

"Nearly 7 lbs. more butter were produced by 6 cows fed 6 weeks on pasture with ensiled oats, vetches, and peas than was made in the 6 weeks immediately preceding, on pasture, old silage, and fresh fodder corn, and nearly 40 lbs. more in the 6 weeks immediately following, when corn and rye silages were eaten.

"It is not claimed that this is a strictly controlled experiment, but it serves to show that oats and vetch, and oats and peas, ensiled, may be expected to produce at least as good returns at the milk pail and in the churn as will corn silage."

The mixture in the silo of vetches or tares, pease and oats is precisely what was tried by the Guévremonts at Sorel, 10 years ago, under our auspices, and proved, to use M. Pierre Guévremont's words, translated, "the best green food they had ever used for their milch cows." Only, people in general will not sow it thick enough: 2 bushels of oats, one of pease, one of tares, and a couple of pounds of rape-seed, are not too much for an acre.

Of the two mixtures mentioned above, the composition as compared with corn is worth attention:

Composition of green and ensiled material.

	Composition of dry matter.									
	Water.	Crude ash.	Crude protein.	Crude fibre.	Nitrogen-free extract.	Ether extract.	Nitrogen.	Phosphoric acid.	Potash.	
Corn fodder as put in.....	77.21	5.49	7.59	23.26	59.49	4.2	1.2	1.13	1.509	
Silage mixture as put in.....	74.91	5.87	10.53	21.36	6.07	6.17	1.68	1.49	6.12	
Corn silage as taken out.....	79.16	8.11	10.24	26.00	53.8	3.86	1.61	1.47	1.521	
Silage mixture as taken out.....	79.30	8.52	12.10	23.89	50.16	5.33	1.93	1.717	2.376	

Composition of green and ensiled soja bean and villous vetch.

	Composition of dry matter.									
	Moisture.	Crude ash.	Crude protein.	Crude fibre.	Nitrogen-free extract.	Ether extract.	Nitrogen.	Phosphoric acid.	Potash.	
Soja bean, green fodder.....	Pr. cl.	Pr. cl.	Pr. cl.	Pr. cl.	Pr. cl.	Pr. cl.	Pr. cl.	Pr. cl.	Pr. cl.	Pr. cl.
Soja bean silage.....	75.36	12.16	20.19	22.53	11.56	3.46	3.24	0.709	1.775	
Villous vetch and soja bean, green fodder.....	80.30	14.85	21.46	22.82	15.16	5.68	3.43	1.745	1.407	
Villous vetch and soja bean silage.....	81.50	19.73	18.90	27.12	27.2	7.0	3.01	1.869	2.935	

Rearing calves.—A very satisfactory experiment on rearing calves was tried last year at the Minnesota station; but, the facts are so commonly known to every farmer in Europe that it only adds another to the innumerable instances of a useless repetition of experiments on matters that ought to have been received fifty years ago as finally settled.

Nine calves were used, one being fed on whole milk during a period of 60 days, while the other 8 were gradually changed from whole to skim milk and flax-seed meal. By the bye, we are glad to see that the wasteful plan of giving whole flaxseed, boiled never so long, is exploded. The time covered by the trial varied from 12 to 24 weeks with the different calves. The following is a summary of the results:

Summary of feeding experiments with calves.

	Length of trial.	Cost of food.	Weight at end of trial.	Gain in live weight.		Cost of food per pound of gain.
				Total.	Average per day.	
Calf No. 1, whole milk diet.....	61	\$13.88	245	160	1.90	9.69
Calf No. 2, skim milk diet.....	84	3.48	160	100	1.19	3.49
Calf No. 3, skim milk diet.....	110	5.07	231	179	1.28	2.88
Calf No. 4, skim milk diet.....	140	4.22	205	133	2.3	3.81
Calf No. 5, skim milk diet.....	140	5.10	235	150	1.07	3.51
Calf No. 6, skim milk diet.....	168	6.58	257	192	1.14	3.47
Calf No. 7, skim milk diet.....	168	7.32	420	338	2.01	2.40
Calf No. 8, skim milk diet.....	168	5.33	270	210	1.25	2.51
Calf No. 9, skim milk diet.....	168	6.55	265	193	1.14	3.71
Average for calves fed on skim milk.....					1.25	3.23

As will be observed, the cost per pound of food of gain varies from 9.69 cents in the case of the whole milk calf to 2.40 cents a pound in the case of the most thrifty of the skim-milk and flaxseed calves; the average cost per pound of increase in the 8 of the latter being 3.23 cents. We recommended this food; skim-milk and crushed flaxseed, to our readers at least 16 years ago.

Cotton-seed.—Some years ago, we mentioned in this publication that the late Sir John Abbott had lost several of his Guernsey calves owing, as he and his man supposed, to their having been fed on cotton-seed-meal. As this provender is of a very constipating nature, it is hardly ever given, even to cows, without a mixture of

linseed cake, which has the reverse effect. So, we were not surprised to hear that, at one of the stations in the States, of three calves fed skim-milk with from 1/4 to 1/2 a pound of cotton-seed meal—per head, per diem, we suppose—was added, not one survived longer than 6 weeks.

Anthomyia radicum, the root maggot, has been very destructive to the plants of cauliflower this season. The best safeguard is tarred paper, applied to the young plants when setting them out. No doubt "crushing the eggs by rubbing the stems of the plants with the fingers every few days, and hand picking the maggots, might prove effectual," but, as the writer of the article continues, "the amount of work required is hardly likely to

recommend the process' Carbolic emulsion, and violent poisons of that kind, injected into the soil, seem to have answered, but as they have to be repeated once a week, from planting till heading time, the market-gardener will prefer the simpler plant of not allowing plants of the cabbage tribe to succeed one another, except at long intervals.

The horn-fly, from what we hear, has not been so active this year as usual. Judging from what we ourselves saw, they were endurable, and the cows under our immediate observation did not fall off very much in their yield of milk. Spraying with kerosene emulsion, repeated occasionally and sprinkly fresh-slaked lime over the droppings, are good plans.

Apple-maggot.—It is really sad to see the damage done to our fine Fameuses apples by this wretched creature. The beast lays his eggs in the pulp of the apple, instead of the skin, and deposits them from July to frost, so that he provides a continuous succession of adult offsprings. All wind-falls should be destroyed; by hogs preferably; and lime, ashes, salt, &c., scattered over the ground to destroy the larva when about to change to the pupa. Of course, every sensible man uses some insecticide or other, and sprays his fruit-trees as a regular part of his spring and summer work.

A good lot of cows must be that kept at the Minnesota station, for the record for the year 1893 shows that the 23 milked there averaged 6,400 lbs. of milk, at a cost of 62 cents per 100 lbs. and turned out 365 lbs. of butter in the 12 months, at a cost for food, &c., of 10 1/2 cents a pound!

Effects of change from house to pasture.—Cows, at the Vermont station; a new herd after the old one had been destroyed by tuberculosis, we presume; ate, before and after the change,

a liberal ration of corn meal and bran, with hay and silage, and slept in doors during the pasturage period. They gained in both quantity and quality of milk, and made more butter when at pasture. The average gain was nearly 3 lbs. of milk and nearly a quarter of a pound of butter per *dum p r annum*, while the fat was increased over a third per cent. The quality of milk was increased 1, and on account of its increase in both quantity and quality, the butter yield was increased nearly 1/4! So, here is another experiment the results of which tend to prove that you can feed fat into milk, as every practical farmer *chez nous* knew long ago.

Free nitrogen assimilation.—Herr Frank, a well known German agricultural chemist, seems to agree with us in the opinion that the amount of nitrogen that accumulates in the root tubercles of leguminous plants is not sufficient to supply the amount which they, when mature, possess in their feeds and other parts. The value of nitrates applied to the soil is, he says, best shown when the plants are young and the power of assimilation weak. As to this point, see our article on *Nitrogen*, page 000 of this number.

The London Dairy-show.—A very satisfactory exhibition for there were, this year, 126 entries against 87 last year, and 86 in 1893. The challenge-cup, given by Mr. Titus Barham, was won by a cross-bred Shorthorn Ayrshire cow, the total marks she received being 139.8. Next in order came a cross-bred Shorthorn, with 137.5 points. The points awarded to the best of the cows of different breeds were as follows:

SHORTHORNS.			
136.64	123.6	118.7	113.0
1st	2nd	3rd	Reserve.
JERSEYS.			
110.8	110.72	89.0	88.4
1st	2nd	3rd	Reserve.
GUERNSEYS.		RED POLLS.	
94.46	91.8	113.0	97.16
1st Reserve.		1st	2nd Reserve.
AYRSHIRES.		CROSSED BREEDS.	
108.22	139.8	137.82	123.86
1st	1st	2nd	3rd Reserve.

Here again, for we are in luck this month in meeting with confirmation of our views from influential sources, the writer, Professor Wrightson, of the Agricultural College, near Salisbury, England, is speaking of wheat after clover—see article on nitrogen, p 238 of this number:

The crop is happily placed. It follows clover, when it finds the ground (premising that the clover root is abundant and strong) full of nitrogen in combination, ready to be liberated. It is the aim of the farmer to grow good crops with the least outlay, and he sees his opportunity in taking wheat after clover. Let the matter be explained by Professor Warington or anyone else, but it cannot be altered, and it has been known to farmers for a number of years. It was appreciated by Scotch and English farmers 80 years ago. Not only was wheat likely to succeed after clover, but, strange to say, better wheat could be grown after clover mown than after clover fed. Further, it was known at that benighted period that even better wheat could be grown after clover seeded than after clover grazed,

and all because of the superior development of clover root under such circumstances. That one good crop begets another is a very old agricultural dictum, and it is explained to us now. It is "crop residues" which exert the greatest influence—the fall of the leaf, the stores of freely formed roots, and the immediate dressings of animals—which readily yield organic matter in an active condition. To explain is not to create, and this is a lesson which some scientists should take more to heart than they do. British agriculture is very complicated and truly scientific, as every-one knows who tries to practise it, for only long training in the best methods can give the necessary skill.

Ploughing in Vetches.—V. S. J.—I have a field in which I wish to grow a crop of winter vetches, with a view to ploughing them in as manure next summer. Will any of your readers kindly tell me the best way to plough these vetches under, as it appears to me a difficult matter to bury a heavy and probably tangled crop of vetches with the plough? I should be glad also to know to what height the crop may be allowed to grow. [There are conceivable circumstances in which the proposed course might be the best, but a crop of vetches in these days is far too valuable to plough in. If you have no sheep, other people have, and, in any case, you might almost as well plough in any other valuable crop instead of securing it. If your crop of vetches turns out well, you will find it impossible to plough it in. Make hay of it, sell it on the ground, soil it in folds, or let it ripen for seed, but do not destroy it.] (Bravo! Ed.)

Ag. Gazette.

The Scotch experiments on fertilisers for hay.—The hay-crop experimented on was rye-grass. It will be observed that in the two instances of the use of potash alone, whether in the form of muriate or in that of kainit, the effect was to create a dead loss. As the yield of the undressed plot was 3690 lbs., it may fairly be supposed that the land had been well done by for some years and, consequently that the regular doses of farmyard dung it had received had given such abundant supplies of potash to the land that no more was needed. Another instance in support of our favourite theory that, when strong land has been well farmed and manured in its regular turn, the addition of kainit or potash in any form is unnecessary.

Manures per acre.	Cost of Manures	Average Yield of Hay per acre.		Increase	Value of Increase	Profit or Loss per acre.
		cwt qrs	cwt qrs			
2 cwt. muriate of potash....	18/6	39 0	5 1	0 15 9	- 0 2 9	
1 cwt. nitrate of soda.....	10/3	43 1	9 2	1 8 6	+ 0 18 8	
2 cwt. superphosphate....	7/..	39 1	5 2	0 16 6	+ 0 9 6	
2 cwt. muriate of potash..	28/9	47 2	13 9	2 1 8	+ 0 12 6	
1 cwt. nitrate of soda.....	25/6	45 3	12 0	1 16 0	+ 0 10 6	
2 cwt. muriate of potash..						
2 cwt. superphosphate....	35/9	52 0	18 1	2 14 9	- 0 19 0	
2 cwt. muriate of potash..						
1 cwt. nitrate of soda.....	19/9	39 2	5 3	0 17 3	- 0 2 6	
806 lb. kainit.....	18/..	34 2	0 3	0 2 3	- 0 15 9	
20 tons farmyard manure...	100/..	54 3	19 0	2 17 0	- 2 3 0	
10 tons farmyard manure...	50/..	45 1	11 2	1 14 6	- 0 15 6	
10 tons farmyard manure	60/3	57 1	21 2	3 4 6	+ 0 4 3	
1 cwt. nitrate of soda.....						
Nothing.....	33 3	

Seeds.—Lord Leicester, of Holkham, Norfolk, England, of whose estate we have spoken before, finding that in his light sandy soil the 4-course rotation of crops left no profit to the farmer, has laid down 2/3 of his farm of 850 acres to temporary pasture. Although a "Belted Earl", Lord Leicester is about as practical a farmer as any of his tenants. The new plan is to answer well. Why it has not been more extensively imitated by other Norfolk farmers is because some who tried it persisted in leaving their ordinary leys—red clover and common rye grass—to stand, and, on the hot sand of that district, soon found out that they would not stand more than two years. Lord Leicester's mixture of seeds are given here:

SEEDS FOR TEMPORARY PASTURE ON LIGHT LANDS.		
Lb.		s. d.
4	Cocksfoot, <i>Dactylis glomerata</i> , at 11d.....	3 8
2	Pacey's Perennial ryegrass, <i>Lolium perenne</i> , at 2 1/2d....	0 5
2	Italian ryegrass, <i>Lolium italicum</i> , at 3 1/2d.....	0 7
1	Timothy, <i>Phleum pratense</i> , at 6d.....	0 6
1	Fall oat grass, <i>Avena elatior</i> , at 10d.....	0 10
1/2	Golden oat grass, <i>Avena flavescens</i> , at 3s.....	0 9
2	Meadow fescue, <i>Festuca pratensis</i> , at 8 1/2d.....	1 5
1	Hard fescue, <i>Festuca duriuscula</i> , at 7d.....	0 7
1	Tall fescue, <i>Festuca elatior</i> , at 1s. 3d.....	1 3
1 1/2	Alsike clover, <i>Trifolium hybridum</i> , at 9d.....	1 1 1/2
1	White clover, <i>Trifolium repens</i> , at 1s. 2d.....	1 2
1/2	Yarrow, <i>Achillea millefolium</i> , at 3s. 4d.....	0 10
17		13 1 1/2

The Italian ryegrass will not stand our climate, and the yarrow we have no experience of, as it is only, as a rule, grown in Scotland; but the rest of the seeds are pretty sure to take here. For the Italian ryegrass and the yarrow we should substitute two pounds of the true cow-grass, *trifolium pratense perenne*.

Harrowing wheat land.—If wheat is to be broadcasted, the importance of good ploughing is most evident; but if the drill is employed, some of the faults of bad ploughing may be corrected by repeated harrowings. In any case ploughing ought to be well done, and harrowing ought to be thorough.

It is almost impossible to over-harrow wheat land. In the case of broadcasting on a pressed furrow, six strokes of the harrow is the minimum, and eight or nine are not too many. In drilling upon a rolled furrow eight or nine harrowings may well be given before drilling, and one after drilling. The effects of the harrowings are—first, to break and pulverise the furrow; secondly, to obliterate the slices and produce a uniform seed-bed; thirdly, to complete the continuation between the ploughed surface and the subsoil, so that the roots may descend without encountering hollow spaces.

The managers of those Agricultural papers that do us the honour to exchange with us, would do us a great favour if they would address their publications to our private residence 4 Lincoln Avenue, Montreal, Q.

Nitrogen is decidedly cheap in England at the present time, the price of nitrate of soda at Liverpool being only £7. 10s per 2240 lbs., which is equal to \$32.70 per 2,000 lbs, our ton, or \$1.63 per 100 lbs. Now, though 100 lbs of nitrate of soda should contain 16 1/2% of nitrogen, let us take only 15.50% and we shall find that this excellent constituent of fertilisers is worth at Liverpool only, approximately, 10 cents a pound! And yet we see the calculations of the U. S. experiment stations are based on a valuation of nitrogen at 15 cents a pound!

Perhaps this may not strike some of our readers as a very monstrous difference, but apply it to an acre of land and then see. A fair allowance for a dressing for wheat is 40 lbs. of nitrogen; this, at 10 cts. a pound would cost \$4.00, but at 15 cts, the expense would be \$6.00, and supposing the wheat crop to occupy 10 acres, the extra cost would be \$20.00, equivalent, at present prices of wheat, to all but 2 1/2 bushels. And yet, we hear of Canadian dealers asking three dollars for 100 lbs. of nitrate of soda, making the price of nitrogen about 19 cts. a pound, a perfectly prohibitive price, for we really, with all our advantages, cannot grow stuff for England if we are to pay nearly 100% more for our most useful fertiliser than the English farmer pays. We are nearer the nitrate beds of Chili than England is, and the only reason why we should pay higher prices for their product is that the sales here are so small that the dealer is, so to speak, obliged to import on such a small scale, that he cannot live without making an enormous charge on the goods he sell. So, it is just the old argument over again, as in the case of insurance of farm-stock here: there are so few insurers that the companies have to make high charge, and the charge being so high, there are many farmers who prefer running the risk of loss to paying such premiums.

Price of mangels in the U. S.—Mangels are quoted in our exchanges as being worth \$15.00 a short ton in many markets of the New-England States. In England, they are selling in the S. E. counties at less than \$4.00 a gross ton = \$3.50 for a short ton! As it is by no means difficult or costly to grow 30 to 40 tons of mangels on an acre, provided a fair allowance of nitrogen be added to the usual dressing of dung, would it not pay to export mangels to the States, if we could get nitrate of soda or sulphate of ammonia at a fair price? Thirty tons, at \$15.00, comes to \$450.00: there is a great deal of margin for expenses in

such a sum as that! It is very clear they do not know how to grow mangels in the States, or else every farmer in New-England would have a field of them and soon swamp the market.

Weight of English wheat.—The quality of the '95 wheat is very fine. It weighs from 64 to 66 lbs. the imperial bushel—struck—; at the latter weight, it would take 110 American bushels to equal 100 bushels of English wheat.

Potatoes in the States are a large crop this year—'95—, as a very extensive planting was made in the spring, though the average yield per acre is but small, 84 bushels of 60 lbs., equal to 90 English bushels of 56 lbs. The average English crop is nearly 6 tons, equal to 224 bushels of 60 lbs. The return from Scotland is still larger; said to be between 8 and 9 tons 8½ tons are equal to all but 320 bushels of 60 lbs.

Price of wheat.—Is wheat really once more going to prove a paying crop to the English farmer? By the last week in October—'95—market reports, it seems that, at Reading and other country markets, best white wheats fetched as much as 32s a quarter of 8 bushels, though the average price over the whole of the country was only 25s. 7d. Well, in 1852, we bought our seed wheat for some eighty acres for 36s. a quarter: the finest white "Chidham" too; so there is only 6 pence a bushel between the present and the '52 prices. The crop of the year '53 fetched 10s. 6d. a bushel: a pretty difference from one October to another! It is devoutly to be wished that no such prices may occur again, for nothing but a war could bring it about.

The above reminds us of a speech of "Tom Webb," an uneducated Cambridge farmer; "He did not care much," he said, "about politics, or whether Sir Stratford Canning's management at Constantinople was all right. What he wanted to know was: can they get them stones out of the Danube." The said stones preventing the grain shipped from descending that river, and thereby kept up the price of English wheat.

Barley.—Finest English malting barley is only worth 38s. a quarter, while Moravian sells in Mark Lane for 44s. The finest sample of barley exhibited at the Brewers Exhibition, in October, came from Hungary! Good grinding barley is fetching 20s. a quarter=400 lbs., while U. S. maize only sells for 18s. per 480 lbs.; a mysterious difference to those who do not know that barley-meal is the prime food for making small pork for the West-End of London trade.

Suffolk-downs.—It is really wonderful how Lord Bristol and other breeders of the county have improved the breed of the Suffolk-downs. Forty odd years ago, when we first knew them, they were poor, loggy brutes, hard to keep within bounds, as their ancestors had been used to lead a free life on the barren heaths between Suffolk and Norfolk; and harder still to fatten, though, when fat, no mutton fetched a higher price on the London market. Like the Shropshire, the improvement now visible was made first by a cross of Southdown blood on the old stock, and turnip-feeding did the rest, till it is almost impossible to recognise in the modern Suffolk-down the sheep for

whom Crabbe, a Suffolk rector, sang, some eight or a hundred years ago: "They reared a common-pasture wild [and wide; Small, black-legg'd (1) sheep devour with [hunger keen The meagre herbage, fleshless, lean and [lean: Such o'er thy level turf, Newmarket, stray, And there, with other black-legs, find their [prey."

State of English agriculture.—It is curious to note, in the reports of the crops, &c. in the English farm-papers, all contributed by practical agriculturists, how very different the state of things is in various parts of the country. Norfolk men talk of "utter rain;" no rents can possibly be paid this year, as wheat is a poor crop, barley only middling, and as for oats, they do not grow much of that cereal. Cumberland and Westmoreland, on the contrary, seem pretty jolly, as does Lancashire. Why this difference, in districts only two-hundred miles, at most apart? The answer is simple and easy to find. Norfolk farmers have, as a rule, held large farms, and, while the good times lasted they lived high—some kept three and even four hunters—and in spite of the fall in rents of from 25 to 60 per cent, as a rule, and a remission, in some cases, of the whole rent, they have been sorely tried. Work, they never did; and if they did now, what would be the use of the work of one pair of hands on a farm of 1,200 or 1,500 acres? Until 1894, no tenant on the great Holkham estate—40,000 acres—of Lord Leicester had ever thrown up his farm; yet, in that year, eight of the tenants gave up at Michaelmas.

But, in Westmoreland, Lancashire, and Cumberland, a very different state of things exists. There we have a number of smaller farms, occupied by men who, like their fathers before them, do, with their families, almost all the work of the farm themselves. In fact, they behave as most of our farmers in this province do; they not only work hard, but they do not put their trust in grain alone. In Cumberland, out of 581,949 acres of cultivated land, only 98,543 were sown with grain. Cattle-breeding, sheep-breeding, and dairying are the chief lines followed. Rents have been lowered, but not more than 20% on the average. Indeed, after reading in the *Agricultural Gazette* the woeful jeremiads of the Southern farmer, it is quite a treat to turn to the reports of our Northern friends and see how industry and the exertion of common-sense has proved equal to the contest with the hated foreigner and his abominated goods. Contrast the following two reports (condensed), one from West Sussex, in the extreme South, the other from Westmoreland, in the extreme North:

"Sussex.—Autumn grass abundant, but will not help us much longer. Cattle and corn for cattle cheap enough, mangels good, and swedes not bad; but, then, what is the good of it all? At present prices, no rent can be paid. Rates, tithes, and labour require it all. Dairying and fattening stock are thought to be the only remedy, but our colonies are doing a good deal to depress the market in these directions. Our great commercial fleet, that we are all so proud of, is likely to make depression stay, and Ministers see they can do nothing. Markets are very flat, beef is dull, pork hardly saleable, &c., &c.; all in the same helpless tone.

(1) Suffolks are still as black as coals in the face and legs. The great racing stables are just within the borders of the county of Suffolk.

Now, turn to the North, and a very much pleasanter feeling pervades the report:

"There is plenty of food for cattle still—October 21st—; in fact, all pastures are still luxuriant. Capital second hay-crops. Our gardens are still bright and sweet, and French-beans and scarlet runners are abundant. Potatoes are a large crop, fine in size, and keep sound and good. At several sales in this district, sheep were present in large numbers and in splendid condition, so that they realised high prices. Butter about here is selling for 1s. 3d to 1s. 4d., rather a high price."

Lancashire reports about the same:

"Grass lands full of feed; cattle and sheep doing well upon them. Potatoes are a very heavy crop, and very little disease to be seen. The farms advertised to let in this district,—North Lonsdale—could be counted on the fingers of one hand, and still have some fingers left. On Thursday, fat sheep and fat calves met a brisk demand at good prices. Cows nearly due to calve sold well, up £24.10s., and store sheep had an all round improvement, both in demand and price."

What a difference between the tone of these reports! Our Southern farmers must look out, or else they will go to the wall. Already a large colony of Scotch dairymen has invaded Essex, and now an irruption from Ayrshire is threatening Kent. What will the end be?

Prices for mutton.—Small neat wether Down tegs—60 to 64 lbs. the carcase,—are worth, in S. E. England, 11d. a lb., i. e., from \$12.60 to \$13.80 a head. Canada sheep—64 to 68 lbs the carcase are only selling for 4s. a stone=\$8.00 to \$8.50 a head. In other words, the sheep the best meat-trade requires sells for 60% more than the sheep that is only fit for common trade, even with an additional half stone of meat thrown in. As we only send our best dairy goods to England, ought we not to try if it will pay to send a better style of sheep thither.

Cotton-seed cake and linseed cake are selling very nearly at equal rates at Liverpool. American thin linseed cake, of prime quality, is only worth £5 0s. a gross ton,=\$21.70 the 2,000 lb., and best decorticated cotton-seed cake is about the same price; both in bags. Undecorticated, the best form of cotton-seed cake for sheep, is worth only £3 12s. 6d.=about \$15 the short ton. It seems to us that there must be money in feed stuffs, at these prices. Cannot we import direct from the States as cheaply as the Liverpool men do?

Oats and butter.—Mr. Macfarlane, in an article which will be found at p. 000 of this number, strongly advises farmers not to sell their oats to grain-dealers but to their cows. Oats are worth less than 36 cents a bushel, and it costs something to take them to market. Now, a bushel of oats, according to Mr. Macfarlane, will make two pounds of butter, and as butter is worth 22½ cents a pound, it follows that, in that form, oats are worth 45 cents. And we must add the extra value of the dung of the cow while eating the oats, a rather difficult thing to get at. And, we suppose, the cost of carrying the grain to mill, and the miller's "Thirlage," (as the percentage deducted for grinding used to be called in Mr. Macfarlane's old country, at the West-

side of Loch Lomond; (1) *Glenfalloch*, was it not?) must be reckoned on the debit side of the oats account. So, upon the whole, we fancy the money value will come to about the same in both cases, but the advantage to the land in retaining the manurial constituents of the grain must be very great, provided the manure is carefully guarded from deterioration by some of the means recommended by our friend and frequent contributor Mr. Moore. Still, the consumption of the grain at home might raise its market price.

Linseed and butter.—Linseed is said to make butter soft and oily. Well, if it is given to cows in such monstrous quantities as we once saw recommend in a U. S. paper—7 lbs a day—, it would doubtless have that effect. Our practice was never to give more than 2 lbs a day to fattening beasts, and less to milch-cows, and the butter was always firm and good. Mixed with 3 lbs of corn-meal or barley-meal, 3 lbs. of pease-meal, and a bushel or so of roots, with oat-straw for "roughage," as the modern term seems to be, if the butter is not good, the fault must be with the maker. If cotton-seed cake is used, the addition of a pound of crushed linseed, steeped in lots of water, cold or hot will make it safe to give each cow more cotton-seed cake than without it. There is nothing like linseed for regulating the bowels and keeping the coat in good order. We remember well M. Lavallée, of Sorel, looking at our cows, in 1885, and protesting that they must be regularly carried every day, while neither curry comb, brush or wisp ever touched them: all the effect of the linseed.

Gluten-meal.—If as Prof. Woll says, in a letter to *Hoard's Dairymen*, "the Vermont Experiment station obtained 17% more butter-fat per diem per cow, when gluten meal was fed, than where bran and corn meal were used, cut hay and corn-silage being fed in addition in both cases; it follows that fat can be fed into milk. We have no experience in the use of this food, so dare not say anything about it, but if the account the Professor gives of it is, as of course it is, correct, it must be a very valuable commodity. The gluten (protein or albuminoid) and oil of the corn, without any admixture of the hulls or germ." The analysis, as compared with the feeding stuff is as follows:

ONE HUNDRED POUNDS CONTAIN POUNDS DIGESTIBLE MATTER.

	Protein	Carbohydrates	Fat	Total
	lbs.	lbs.	lbs.	lbs.
Barley.....	9.5	66.1	1.2	76.8
Wheat bran...	12.6	44.1	2.9	59.6
Gluten meal...	29.5	39.6	12.8	81.9
Gluten feed....	18.6	48.3	11.1	78.0

F. W. WOLL.
Wisconsin Experiment Station.

Vetches or tares.—Nothing is simpler than the cultivation of vetches or tares. In districts where the climate is mild

(1) Don't we remember the scene, and the family Piper, Dougal Macfarlane, the best of men! And the old pibroch of the clan, called in Gaelic, if we retain our memory, "Hoggil nam Bo," in *Sassenach*, "Well drive the bullocks," &c. Hence, the moon was called "Macfarlane's lantern," on account of the light she afforded the clan when engaged in this pretty sport. The bullocks were not their own property, we fancy; but Saxon beasts.—E.B.

enough for the growth of *trifolium incarnatum*, crimson clover, the *small winter tare* may be sown after a grain crop, the last of the rotation, say, about the 1st September. Two bushels of seed with one of rye, is about the quantity for an acre. The idea of a seeding of 3 pecks to a bushel being enough is absurd, and, if that has been the general experimental seeding, fully accounts for their failure in the States. The land should be ploughed a fair depth, and the seed drilled in at least 2 inches deep. In the spring, a good harrowing with lightish harrows, followed, a week afterwards, with a roller, will do more good than farmers, who in the States never seem to do anything to their fall-sown crops, would believe. Mow, for soiling cattle, etc., when in bloom; not before. *Spring tares*, though by no means so good for stock as the winter sort, are still very useful. The seed is much the larger of the two kinds, so half a bushel more must be allowed to the acre, and we should mix a bushel of oats or wheat with it rather than rye. Otherwise the treatment of the spring

There is of course, with the above two gases, a little carbonic acid and moisture, with a newly discovered gas in infinitesimally small proportion. **Assimilation of nitrogen.**—One of the most important offices of the roots is the supplying of nitrogen to the plant, it is almost always taken up in the form of nitrates, not but that plants can utilise it in the form of ammonia, but as that and other nitrogenous bodies are converted with great facility into nitrates in the soil these compounds come, so to speak, the handiest. **Conversion of nitrogenous matter into nitrates** is carried on by oxidation, this is accomplished by certain bacteria in the soil, carbonic acid, ammonia, and finally nitric acid being produced. Nitrification only takes place in a moist soil, sufficiently porous to admit air. Some base, too, must be present with which the nitric acid may combine; thus, if carbonate of lime be present, at it usually is in most soils, nitrate of lime (calcium) will be found. **Absorption.**—A most valuable discovery of modern times is this: that,

English farmer has had a practical acquaintance with the fact that pulses and clovers, in some way or other, did not rob the land of its productive powers, but rather helped to maintain its condition. The well known Norfolk or 4 course rotation is founded upon this very principle.

1st year..... roots
2nd " barley
3rd " clover
4th " wheat, and over again until the land by frequent repetition of the clover began to get tired of that plant, and the course had to be extended. For instance, in Essex and the other S. E. counties, on the heavy land, the rotation became one of eight years.

1st Roots
2nd Barley
3rd Clover
4th Wheat
5th Roots
6th Barley
7th Beans
8th Wheat

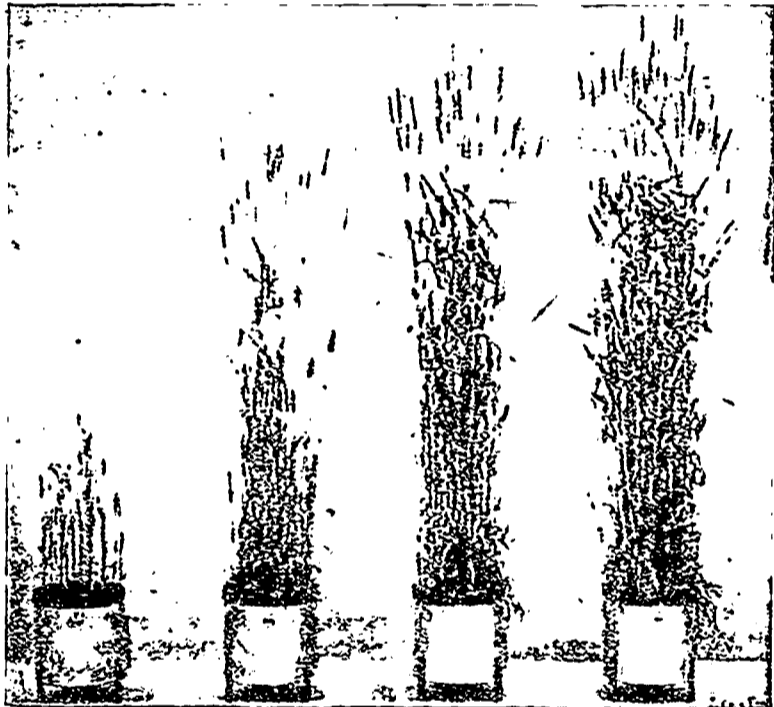
Always, observe, a pulse or a clover be sown the grain crop of the course.

Accumulation of nitrogen in the soil.—The chief aim of a rotation of crops is the accumulation of nitrogen in the soil. We say the "chief" aim, because the destruction of weeds and the pulverisation of the land are also important objects.

Now, in our younger days, almost all the heavy land in England were worked in a rotation beginning with a bare fallow: the land was ploughed, grubbed, &c., for a year, and sown with wheat. What happened during this space of time? The land was rendered more amenable to treatment; no doubt some of the mineral silicates were disintegrated and thereby potash, &c., were set free, ammonia (hydrogen and nitrogen) was absorbed from the air, the rain brought with it ammonia and nitric acid; and ammonia was oxidised, nitric acid being produced.

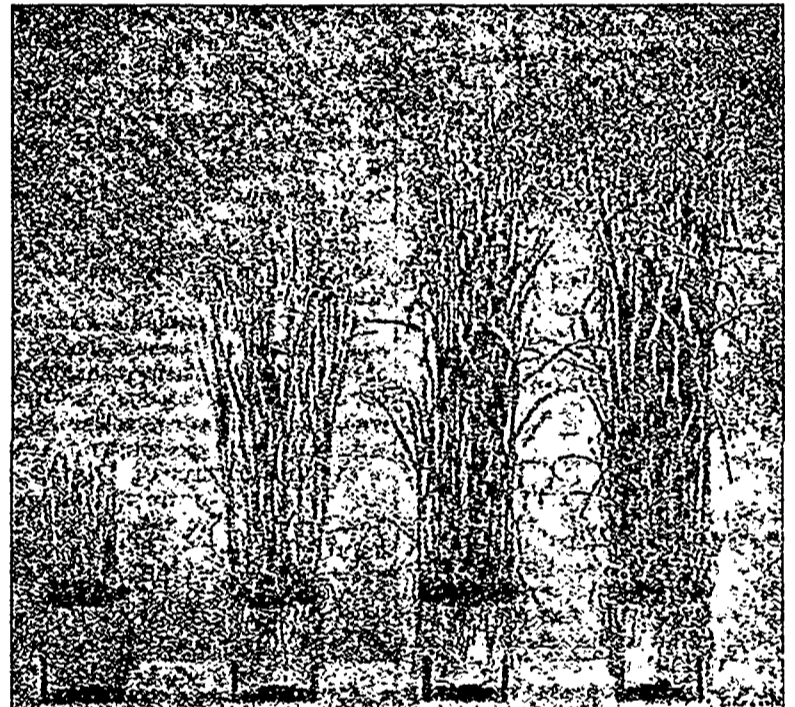
Says Sir John Lawes: In ordinary farm soils at Rothamsted left as bare fallow, there has been found at the end of the summer from 34 to 55 lbs. of nitrogen per acre, in the form of nitric acid, in the first 20 inches from

ENG. 1—EFFECTS OF NITROGEN ON WHEAT.



I—Phosphate and potash no nitrogen. II—Phosphate and potash plus ½ gr. nitrogen. III—Phosphate and potash plus 1 gr. nitrogen. IV—Phosphate and potash plus 1½ gr. nitrogen.

ENG. 2—EFFECTS OF NITROGEN ON OATS.



I—Phosphate and potash no nitrogen. II—Phosphate and potash plus ½ gr. nitrogen. III—Phosphate and potash plus 1 gr. nitrogen. IV—Phosphate and potash plus 1½ gr. nitrogen.

tare is just the same as the treatment of the winter tare; in both cases the harrowing after sowing should be thorough.

NITROGEN.

We have been requested by M. Gigault, Asst. Com. of Agriculture, to write an article on *Nitrogen*, presumably in reference to the accompanying engravings that appeared in the French edition of the Journal for October. It is by no means an easy task, and, if we are a little discursive, we must be pardoned, as a full and connected essay on this subject would occupy several numbers of this periodical.

The French, very rightly, use the word *azote*, to express what we call *nitrogen*. Azote is a compound of two Greek words signifying *without life*: it extinguishes flame, and cannot support the combustion of any substance; it is irrespirable, suffocating animals if they attempt to breathe it undiluted. Common air consists of 1 part of oxygen to 4 parts of nitrogen; it is a mixture, not a compound.

under certain circumstances, plants of a certain family have the power of absorbing the free nitrogen of the air. All members of the *leguminosæ*, such as pease, beans, tares or vetches, as well as all the clovers, when sown in ordinary (unsterilised) soil, have *tubercles*—little lumps—on their roots. When the seeds of these are sown in sterilised, or baked sand, with the necessary ash constituents of plants, but no nitrogen, only a small, stunted growth is obtained, and the roots show no tubercles. If, however, a minute quantity of ordinary soil is added, tubercles appear on the roots, and the plant grows vigorously. At the end of the experiment, it is found that the quantity of nitrogen in the crop is far greater where the tubercles have been formed than where they were absent, indeed, in the former case, the quantity of nitrogen in the crop and soil at harvests much exceed that originally present in the sand, seed, and added soil. Whence could this gain of nitrogen have been derived, if not from the free nitrogen of the atmosphere? Now, as we said this is a modern discovery; but it is highly satisfactory to know that, for considerably more than a century the En-

On the light lands of the Eastern counties, pease were grown in the 7th year, and the course was extended to 12 years, *trifolium procumbens*, yellow, or hop trefoil, being sown in the 11th year: *but always a clover or a pulse in between the other crops*. So that, like the use of bones as a manure, farmers first found out the practical use of the cultivation of these crops, and the chemist kindly explained their mode of action. But though there is now no doubt about the absorption of the atmospheric nitrogen by the leguminous plants, a very long experience leads us to warn farmers in general not to imagine that the addition of nitrogen to manure for such crops can be safely or wisely omitted. Among other things, the most enormous crop of tares—vetches—we ever grew was dressed with a fertiliser containing 43 lbs of nitrogen to the acre, with a very small quantity of phosphoric acid and a trifle of potash. The tares were, when in blossom, "higher than the hurdles," (1) as our phrase went in those days, and we fancied there were at least 18 tons to the acre.

(1) Hurdles are about 3 ft. 6 in. in height, in S. E. England.

the surface. The whole amount of nitrates produced during the 15 months (1) that the land remains without a crop has been estimated at not less than 80 lbs. of nitrogen per acre for the fields under ordinary (2) cultivation at Rothamsted. If these 15 months are tolerably dry, this increase in the available nitrogenous food will probably enable the land to produce twice as much wheat as it could yield without the "long fallows."

But, if a rainy season obtains, the nitrates produced will be more or less washed out, and the crop will thereby suffer. A mass of soil at Rothamsted, 5 feet deep, left for 20 years uncultivated, unsown, unmanured, but kept free from weeds, has lost by drainage in the last 13 years from 28 to 47 lbs. of nitrogen, in the form of nitrates, per annum.

By this we may learn that the long fallow is not an advisable proceeding on light land and in a rainy climate.

(1) Wheat-crop harvested, say, August 5th, 1895, land fallowed from that date to November 5th 1896, when wheat would be sown again
(2) *U. dmary*, that is, not in the experiment plots.

Now, let us suppose that land is laid down to grass with plenty of clover-seeds; as long as it is covered with a thick coating of vegetation, the loss of nitrates will be trifling, and if the grass is fed off on the land, the surface soil will be considerably enriched, at the end of three or four years, with both ash constituents and nitrogen. The deep hunting roots of the herbage, especially of the clovers, will have collected the former from the subsoil, and they will have been returned to the surface in the dung of the animals. The nitrogen includes the accumulated receipts from the atmosphere and the subsoil during the pasture "lay out," minus the loss by drainage and the percentage assimilated by the stock that fed it off. No wonder, then, if the grain-crop that follows such treatment turns out a good one.

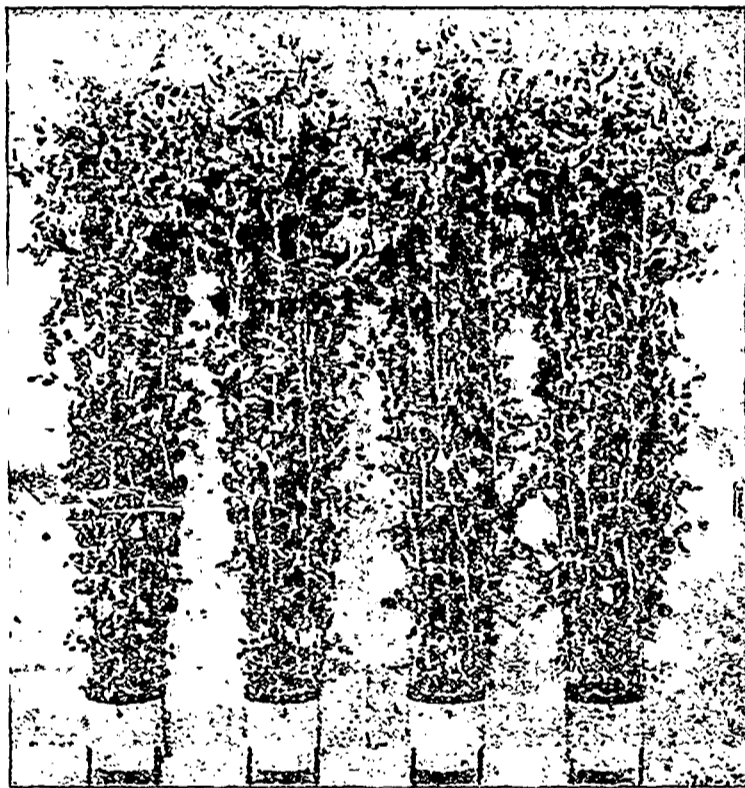
At Rothamsted, to quote Sir John Lawes once more, some arable land laid down to grass had gained, at the end of 33 years, 1716 lbs. of nitrogen per acre, or 52 lbs. per acre per an-

num per annum bought for their consumption, and that, lastly, half a ton of straw is fed per acre in the course of the rotation, and the rest used for litter

The question is: if the whole of the manure is returned, without loss, to the land, the quantity of nitrogen lost during the 4-years' rotation, as excess of exports over imports, will be as follows:

	lbs.
By feeding swedes, 14 tons.....	6.8
By sale of barley, 38 bushels.....	32.3
By feeding seeds, 3 tons of hay.....	10.9
By sale of wheat, 28 bushels.....	30.8
By feeding straw, ½ ton (11.20 lbs.).....	1.2
	82.0
Deduct manure from 440 lbs oats and 700 lbs. cake.....	36.5
Total loss in the four years.....	45.5
Average loss each year.....	11.375

ENG. 3—EFFECTS OF NITROGEN ON PEASE.



I—Phosphate and potash no nitrogen. II—Phosphate and potash plus ½ gr. nitrogen. III—Phosphate and potash plus 1 gr. nitrogen. IV—Phosphate and potash plus 1½ gr. nitrogen.

num! And it has been proved that, in a good crop of clover, the accumulation of nitrogen in the form of roots, stubble, and decayed vegetable matter is so considerable, that the whole of the above-ground growth may be removed as hay, and yet the land remain much richer in nitrogen than it was before, and in a state to produce an excellent crop of wheat; as is seen every season in S. E. England where wheat invariably follows clover, mown twice for hay and often a third time for green-meal, the succeeding wheat-crop being almost always—barring wireworm—the most prolific on the farm.

Loss to the land of nitrogen during a 4-course rotation. — Suppose nothing except grain and meat is sold off the farm; that there are 14 tons an acre of swedes, 40 bushels of barley; 3 tons of hay; and 30 bushels of wheat to the acre. Moreover, let us suppose that 2 bushels of wheat and the same of barley are sown to the acre; 700 lbs. of cake given to the stock that consume each acre of swedes; that the horses have 110 lbs of oats per acre

By the way, we may mention that, under the same conditions, the average annual loss of potash per acre is so small—23.4 pounds—that it may be neglected; hence, perhaps, the contemptuous way in which we often speak of that fertiliser.

(To be continued.)

NOTES ON THE COMPETITION OF DAIRY-PRODUCTS

AT THE MONTREAL EXHIBITION.

The special competition of dairy-products, inaugurated this year, impressed a distinctive stamp on the dairy department of the Provincial Exhibition held at Montreal. I examined with great minuteness the specimens of butter and cheese, and convinced myself that the results of this competition will be of great value, in that it showed most clearly the need of an organisation to superintend the

manufacture with a view to render our goods more uniform from year to year, as well as to serve the specific demands of the trade in each of the divisions of our extensive province.

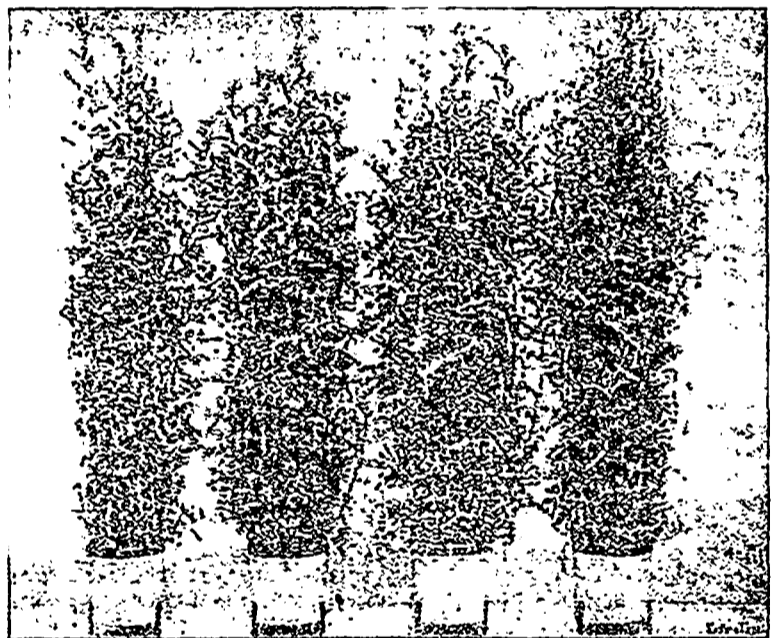
A competition of this kind is both calculated to indicate the defects of the organisation, and to suggest by that very fact the means to be adopted to remedy them. As superintendent of the Dairy-school, I unreservedly approve this innovation, but with some restriction. This competition of syndicates asked for exhibits of export butter and cheese. To guide them in their work, our makers, and even the inspectors, have only one ideal type; therefore, I think it would be necessary, for the inspectors at least, to be able from time to time, to examine samples of butter and cheese that are recognised, by the authorised representatives of the associations of dealers in dairy-goods, as possessing, in the highest possible degree, the qualities of flavour, texture, colour, and general appearance that are required by the trade. In support of this opinion, I will bring forward a well known fact: it is, that one becomes familiar with the objects that one has constantly before one's eyes, and, consequently, the ideal type, after which one is called upon to judge,

been the victim of the error I have been animadverting upon; so I will not attempt to invalidate the decision of the judges.

As to the butter, the Dairy-men's Association conceived the happy idea of asking Prof. Robertson to send for some samples of the butter that fetched the highest price on the English markets. It is always highly satisfactory to have one's competitors in the lists before the jousts begin. The discovery of a weak point in the dreaded opponent's armour may have results totally unforeseen, and utterly change the position. Of course it was not possible to institute a rigorous comparison between foreign butter and our own, for the conditions were not equal. Butter is an article of such perishable nature, that it should never be put into comparison except with samples of the same age, made and kept under conditions as nearly similar as possible. But making to these foreign butters every allowance as regards their age and their voyage, I do not think I am presumptuous in affirming that we generally exaggerate the difficulty we have to encounter when competing with them on the English market.

The competition of the syndicates would have looked much better had

ENG. 4—EFFECTS OF NITROGEN ON VETCHES.



I—Phosphate and potash no nitrogen. II—Phosphate and potash plus ½ gr. nitrogen. III—Phosphate and potash plus 1 gr. Nitrogen. IV—Phosphate and potash plus 1½ gr. Nitrogen.

changes without the change being observed, through the quasi obligation one feels to submit the goods to daily comparison, no longer with the ideal type itself, but with the goods immediately surrounding them. Whence comes this difficulty, that great and important firms are sometimes compelled to recall their buyers, who are making bad selections, in order to lay before them the style of goods required, and to show them over again the type of the products required by the firms that employ them.

As regards packing, would it not be possible to give our syndicates a model cheese-box of uniform shape, and a regular type of tubs, boxes, and casks for butter? A sample of colour, too, might, I think, be given to the inspectors. And we must not forget that uniformity is a most important point, one that, to attain, we must neglect no possible means.

After a rigorous examination of the prize butter, it struck me that the standard of flavour laid down at first, must have been slightly departed from; I may be deceived, and have

the place been suitable to the disposition of the butter in the same manner in which the cheese was set out.

Among the samples of butter that I examined carefully, some were certainly good enough to satisfy the tastes of the most delicate palates; but it must be confessed that a great number of tubs were far from meriting the same praise; and in this respect, I cannot but remind the makers that it is impossible for them to be too peremptory in refusing to accept any milk the flavour of which is not perfect, on account of its having been deteriorated, whether by the absorption of alien smells, by want of aeration, or by exposure to too low a temperature. The "light straw colour," which every maker ought to try for, varied very much in different creameries; in some cases, it even was as deep as "straw turned yellow by rain." This want of uniformity should be corrected, and might easily be cured by showing the makers a pattern of the proper colour. But it was still more painful to me to observe in some samples a want of

uniformity in their own proper colour, throughout. The Swedish and Danish butters were perfect in this respect. We think that churning at a low temperature would do a good deal towards banishing this defect.

With the exception of one, all the samples retained too much water. I do not think we shall succeed in getting the highest prices on the English market until we send them butter in a drier state. Here again, as in the case of the look of the butter, the Danish and Swedish butters may serve as examples.

Lastly, I must tell you that the parchment-paper generally used is much too thin, and is by no means suited to packing export-goods.

J. D. LEOLAIR.

(From the French).

COMPETITION OF AGRICULTURAL MERIT.

REPORT OF THE JUDGES

To the Hon. The Commissioner of Agriculture and Colonisation Quebec.

Sir,

The "Competition of Agricultural Merit," of 1895, covered, for the second time, the first of the five districts of the province of Quebec.

The improvements that have taken place, not only on the farms of the competitors, but in general throughout this part of the province, are most interesting.

Everywhere we met with a pleasant reception, that proved how pleased the people are with the liberal efforts made in various directions by your government to assist the farmers of the province.

This provincial competition, which was one of the objects of your care, has been, and we are convinced will continue to be, a striking example of what energy and capacity united can do for agriculture; and it consequently affords a useful and instructive lesson, profitable to all those who are willing and anxious to profit by the experience of men who, each in his own locality, may serve as models to their neighbours.

The short report, which we here submit to your notice, will therefore be an abstract of the practical instruction that flows naturally from the operations carried out by the successful competitors this past season.

SYSTEM OF CROPPING.

The first thing in the excellent scale of points that serves as a basis for our judgment is the system of cropping pursued by the competitors. In fact, the distinctive mark of the farmer who is improving his occupation, when compared with him who is merely vegetating, is the way in which crops of one kind are made to succeed crops of other kinds, always considering any peculiar circumstances under which locality may place him.

A good system of cropping should tend therefore:

1. To the proper working (amelioration) of the land, that is, its due preparation, according to the quality of the soil as well as to the plants about to be committed to its bosom.
2. To the increase, or at least the preservation, of the productiveness of the land.
3. To the destruction of weeds.

4. To the supplying of the most profitable markets.

The system pursued must indisputably vary on farms more or less remote from towns, or from any large market; and equally must the treatment of sandy soils differ from that followed on clays; hence, derive several courses of cropping, of which, seeing how greatly this has always interested those who know something of practical farming we shall later give some examples.

Mr. JAMES DRUMMOND'S SYSTEM.

First year. — Oats after pasture. Ploughs directly after the oats are carried, and cleans the stubble. (1)

Second year. — Roots and hood-crops, with 50 to 60 loads of dung to the arpent (acre?).

Third year. — Wheat or barley, with 2 gallons of timothy and 5 lbs. of alsike clover to the arpent. Mr. Drummond never lets cattle into the piece after harvest.

Fourth year. — If the grass taken well, he leaves it for hay. If not, oats are substituted and the next year the land is manured for barley with grass-seed. Fifth, sixth, and seventh years, cut for hay; eighth and ninth years pasture.

As the farm is close to Montreal, Mr. Drummond could sell all his products in the raw state, but he prefers consuming them on the land with his dairy-cattle; and in this way he improves his farm instead of exhausting it. If he does sell some of his crops it is only to exchange quantity for quality. Thus, in 1894, he sold:

7,500 bundles of hay at\$6.00
20 loads of straw at\$2.00
400 bags of potatoes at\$0.60

and bought

30 tons of bran at\$16.00
30 tons of moulée at\$24.00
5 tons of cotton-seed-cake...\$23.00
1,000 lbs. of linseed-cake.....\$ 3.25 per 100 lbs. (2)

So it is clear that Mr. Drummond only sells the produce of his farm to replace it by richer and more profitable feeding stuffs.

He sold in 1894, 15,200 gallons of milk at 26 cents a gallon, \$2,680.

On 290 arpents (214 acres), there are kept 86 head of cattle, i. e., 1 to every 3 1/4 arpents; and, in addition to their dung, he buys 800 loads, and 20 barrels of plaster.

The farm is free from weeds, and the proprietor does not mind paying an extra price for grass-seeds or grain so as to be sure of their being clean.

In 1895, the crops were: 46 arpents in hoed crops, 14 of which were in corn to fill two capital siloes.

95 arpents in meadow;
72 arpents in pasture;
64 arpents in grain-crops,
And a very fine orchard.

Although very close to the town of Montreal, the farm of Mr. James Drummond, whom every one knows, may serve as a model to farmers in general in this province.

We allot to Mr. James Drummond the Gold Medal for 1895.—From the French.

(1) He had better grub, or skim-plough, or bruaishare.—Ed.
(2) Some mistake! Linseed cake is never worth \$65.00 a ton! Must be \$32.50 per 2,000 lbs.—Ed.

Note by the Editor.—We have long known the Gold Medallist of 1895, and have always held the opinion that his farm is the best laid out, the best watered, and the best cultivated of any farm in the province of Quebec. We congratulate Mr. Drummond most heartily on his well earned distinction, and wish him many happy years to enjoy his merited reputation.

THE FARM OF Mr. JOHN BAPTIST,

AT LA RIVIÈRE-AUX-RATS, ON THE ST-AUBURGE.

Very few even of the educated people of this province are acquainted with the district through which flows the St-Maurice. This is owing to the want of communication, which, up to the last few years, has been the great obstacle to the progress of this district, and also to the absence of publicity, if we except the reports of some land-surveyors, and the fanciful statements, the entirely personal impressions, of some infrequent tourists.

Besides, the navigation of this river is only practicable for small boats, of very light draught, on account of the numerous falls and rapids that obstruct its course. Still, it is easily navigable for a distance of 196 miles, divided into three distinct parts: 1. from Grandes Piles to la Tuque, 70 miles: there, the la Tuque falls mark an interruption formed by rapids that extend over a distance of 44 miles, up to the Grand-Détour, from that spot to Weymontachingue the river is again passable for 46 miles, when another succession of rapids occurs for 30 miles; when this is overcome, there is deep, navigable water for 80 miles.

At his own risk, in spite of all the difficulties of the undertaking, Mr. John Ritchie, of Grandes-Piles, confident in the future of the St-Maurice country, resolved, three years ago, to open up this superb river by a regular service of boats, at least over its first practicable part, that from Grandes Piles to la Tuque; so he organised a bi-weekly service of small steamers, which work with perfect regularity, and are of great use to colonization and trade.

About 55 miles above Grandes-Piles the Rivière-aux-Rats is met with. It is an affluent of the St-Maurice, and, a few arpents only above the Rivière-aux-Rats, the Weissonneau flows into the St-Maurice. Both these affluents traverse a great extent of alluvial soil, in the midst of which is situated the fine farm of Mr. John Baptist, the subject of the annexed engraving.

This farm is one of the best and most renowned of the whole country. Its numerous buildings, most carefully kept in repair, give it the appearance of a small village. Mr. Alexander Adams, the manager, has under him 15 men for work of the farm, the product of which is an enormous quantity of oats, and some 35,000 bundles of hay, for the consumption of the great "shanties" belonging to the firm of Baptist & Co., on this part of the St-Maurice.

For many years, the lumbermen have been taking vast quantities of logs of pine and spruce from the banks of the Rivière-aux-Rats and the Weissonneau, and yet these two valleys are far from being exhausted.

On the opposite bank of the St-Maurice is seen the mission of the Rivière-aux-Rats, comprising upwards of twenty families. There we see, on a

small scale, the physiognomy of the old rural parts of Canada. The settlers hunt and fell timber during winter, and in summer about half of them work on the farm. The harvests on the banks of the Rivière-aux-Rats, are as abundant as the harvests on the banks of the St-Lawrence, and so are those on the Weissonneau. For many a mile along these two streams, there is room for a large agricultural population, without reckoning that industries of different kinds, apart from lumbering, might make very profitable use of the streams and water-power that are here ready for employment.

There ought to be here a large village, a populous parish; but, as we said before, the absence of communication kept back many things in the St-Maurice district. We were long in ignorance of the value of this important territory, which though it does not offer to colonisation so vast field as do other districts, yet is able to endow the spirit of enterprise and industrial exploitation in its numerous farms with an unlimited scope for the exercise of its beneficial exertions.

SPEECH OF THE HON. LOUIS BEAUBIEN

AT THE DINNER OF THE

Bankers' Association, at Quebec September, 1895.

IN REPLY TO THE TOAST OF "OUR RESOURCES."

Mr. President,

With what pleasure have we heard you speak of all that interests us so deeply! you bring back to us our traditions, our history, in such a pleasant way! you free yourself of all the severity of the financier, and speak as from the soul of the poet. You pay homage to all the glorious memories that this ancient city of Quebec, the cradle of our race, includes. You relish them as we do, and appreciate them like ourselves. You share our feelings both for the past and the present. Be welcome, then; we throw open to you all the great gates of the national patrimony, for you have the heart to understand as well as the tongue to express.

Lofty indeed has been the spirit of the discussion of to night, and with the representatives of the Dominion, of Great Britain, and of of United-States present here, how could it have been otherwise?

If I am called upon to address you, it is especially because I am the representative here of this province. You will doubtless, then, pardon me if I restrict my observations a little, and only speak of the affairs connected with the province of Quebec.

Our material resources, Messrs. Bankers, I find described in your speeches, in your reports to your shareholders, and I might rest satisfied with quotations from them to show how important these resources are, and how largely Providence has blessed us in the distribution of its gifts. Along the majestic course of our noble St-Lawrence lie the most prolific farms of the Dominion. Without disparagement to the fine province of Ontario, we shall, before long, extract from them all the profits possible.

The picturesque chain of the Laurentides furnishes us with superb pasturage, which ensures the success of our great dairy-industry for ever.

Do you remember, two years ago, the time when the neighbouring countries were being beaten down by financial

disasters, when we were dreading the same fate for ourselves? Diving with scrutinising eyes into the prospects of the future, reckoning up the forces of the country, you assured us that we were able to meet the storm. What a splendid eulogium did you then pronounce on our material resources! Abroad, everything was crumbling to ruin; at home, everything remained firm and intact. "The dairy business", said Sir Donald Smith, the president of our leading bank, "was distributing money throughout the country at a most timely epoch. The invigorating influence of ready money, originating in the humble abode of the farmer, spread gradually, forcibly, surely, through the whole system of trade, raising the spirits of all, and giving confidence in the affairs of the country to every one of us. And, then, in your speeches and reports, paying homage to the truth, you, one after another, declared that

As fast as his operations become more and more profitable, the farmer pushes on his improvements. Everywhere, the old bond of servitude to routine is rapidly cast to the winds (*livré de la routine est vite jeté aux orties*). The farmer calls meetings to discuss the last methods of cultivation, and to gather knowledge. Figures, again, Messrs. Bankers, for that is what you want. Let it be proved to you that, in this province, a real stride forward has been taken in the path of progress; that the motive power is at work; that all are exerting themselves. Public men, Bishops, curés, the inhabitants of the cities even, all are taking part in the movement. Four years ago, we had 73 agricultural societies and farmers' club: now, we have 600. The *Journals of Agriculture* had 7,000 subscribers: now, the number exceeds 50,000. There were at most 20 pupils in the agricultural schools: there are more

ment regarded as hopeless by more than one sceptic. Here is the result of the three last years, during which the legislature gave a premium to this article:

1893, butter made, 141,251 lbs = \$31,527.
1894, butter made, 255,868 lbs = \$60,094.
1895, butter made, 562,158 lbs = \$115,011.

Increase of value of the year 1895 over 1893 = \$83,474.

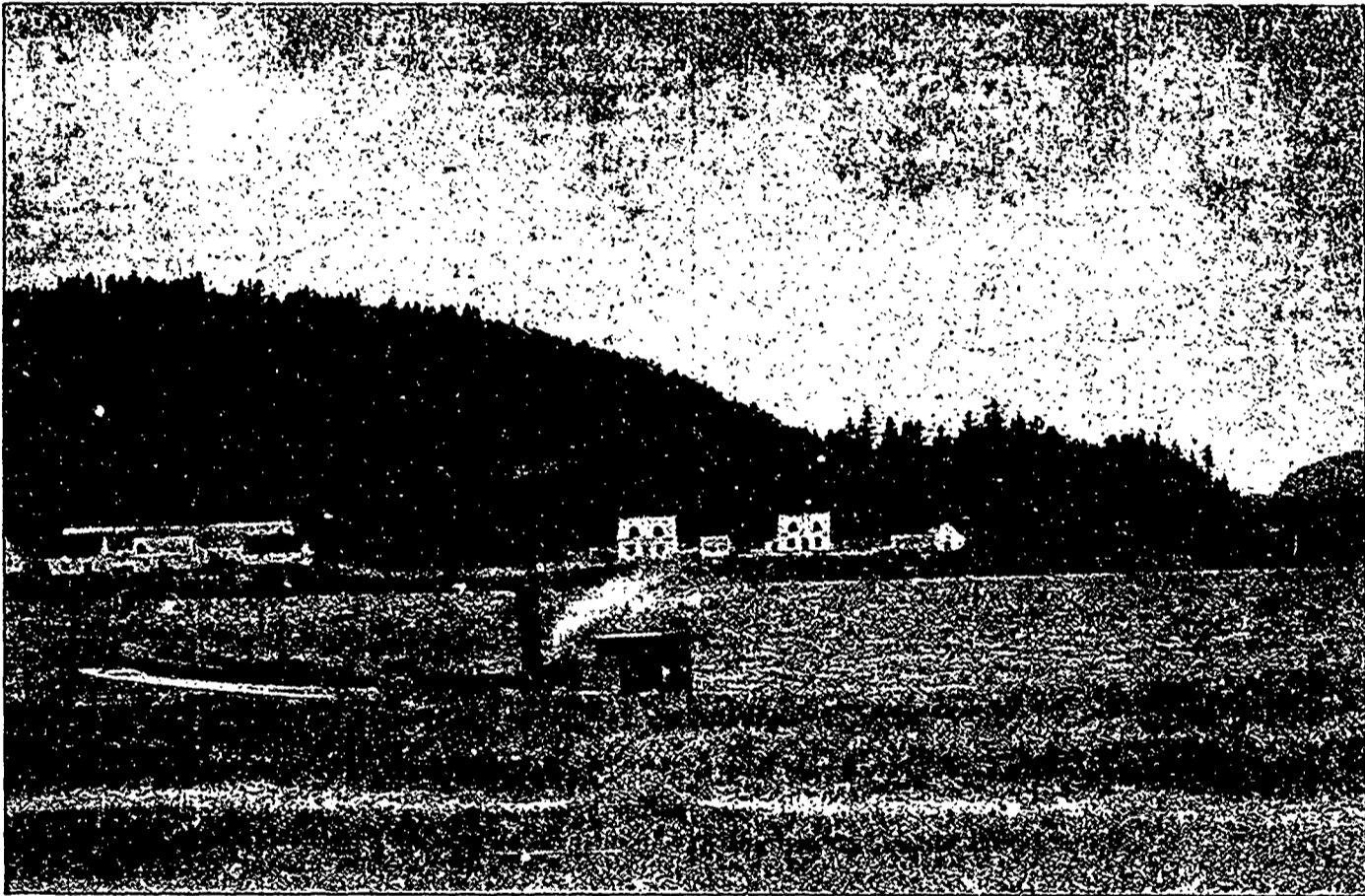
Amount of premium paid last winter, \$9,205.

At the pace things are going, I shall soon have to ask from our Treasurer, the Prime Minister of the province, at least \$30,000, for the premiums to be paid next winter.

And in this proceeding we are imitating the Danes, a great many of whom will not send their butter to London in the height of summer when

milk all through the cold weather to Baie du Febvre, a distance of 9 miles! The result was, as related by the M.M. Houle, to the club: The former system, as practised the previous year, brought them in \$250; the new plan, in spite of the 18 miles to be traversed daily, brought in just double, \$500! Another result followed: The parish of Nicolet will, this coming winter, imitate the parish of Baie du Febvre, and keep its creamery at work all the winter. And you may be sure that this will become general, to the great benefit of our agricultural exploitation.

Our resources as furnished by the land are illimitable. Let me describe to my Montreal friends, here present, the beautiful, fertile, extensive country that lies at their very door, at the terminus of that venturesome railroad of the Chute aux Iroquois, which revealed to astonished eyes a Canadian Switzerland in our own province. Enchanting Lakes! there is one



FARM OF Mr. JOHN BAPTIST, AT RIVIERE-AUX-RATS, ON THE ST-AURICE.

our fifteen hundred creameries and cheeseries had saved the situation: and it was true.

I should not express myself as I do, at this moment, were it not that I have the opinions of others to back me. We indeed have in our dairy-industry an immense fund of power, a marvellous material resource.

And how it increases, how it keeps on growing all the time! Four years ago, in 1891, we had 722 creameries and cheeseries; now we have 1453: the number doubled in four years!

This year, we shall sell a million dollars' worth of dairy-goods more than last year.

Production of butter and cheese in 1890 and 1894:

1890, cheese made, 23,626,950 lbs = \$2,362,595.
1890, butter made, 2,779,668 lbs = 855,932.
1894, cheese made, 55,180,696 lbs = \$5,518,069.
1894, butter made, 7,704,172 lbs = \$1,540,834.

Showing an increase in value of \$4,140,376 in the production of these goods in 1894.

than 100, now. The clergy have taken it upon themselves to find pupils; and they are at work for the purpose. Already, two large meetings, presided over by the Lt Governor and the Bishop of Three-River, have been held, to advise the farmers to send their sons to the farm-schools. Everywhere this appeal is listened to. Agricultural instruction is the fashion to-day, thank God! There is no overcrowding in the grand profession of the farmer; there is always the generous soil open to our youth; a future for ever and a day, an assured future, spent tranquilly and happily on the soil of our country. No more exile, no more emigration but the whole strength of the nation retained in her bosom,

The export of butter freshly churned is an other resource that we are about to inaugurate. The official returns will not reach me till the fall, but I can announce to you that already, thanks to this system, our exports this year are six times greater than they were at the same date last year.

Again, there is the novel expedient of making butter in winter, an experi-

the price is at its lowest. They get more milk in January than in July, and obtain the highest price for their butter made in winter

In order to fix this system in the habits of the province, I sent two officials of my department to Denmark, and never has the journey of two men promised to be more profitable to our farmers.

See how rapidly the system takes root and flourishes. We have now at least fifteen creameries that work bravely through the winter, and excellent are the results.

Allow me to relate to you a fact: last summer, at Nicolet, at a meeting of the club where I was present, I met two farmers who, by reading the *Journal d'Agriculture*, had become acquainted with the Danish practice. The names of these two farmers I will give, for they deserve credit for their spirit of initiative: the two M.M. Houle. These husbandmen agreed between themselves to try winter-butter making. They made some change in their herds.

Having no creamery at work in winter at Nicolet, they carried their

apiece for every Montrealer: let every one hasten to take his share of this lovely country. Our English friends do not want much pressing to do so, and they are already converting the pretty little village of Ste-Agathe into an English town; there, where we in our youthful wanderings: a long time ago, alas: found for our sole lodging the hospitable roof of the first settler.

And what a grand country is that watered by these lakes: the valley of Es Rouge, la Mocassa and Lac Chaud, of the Maskinongé, the Kiamicka, and the Lièvre where wheat does well, and where settlers are now arriving in crowds. In all these valleys we have a soil free from stones, level, and copiously watered.

While, in June and July, our Montreal pastures are burnt up by the sun, from each of these fine lakes: the jewels of this lovely district: rise nightly heavy mists which, in the morning, spread benevolently over the whole country. The dews are so copious, that one might think it had rained! And the slopes of the hills will be perennially green, however fierce

may be the rays of the sun A true kingdom, a real country for our dairy industry. I point it out hopefully to our entire agricultural population.

And to all of you, who are looking out for a place where you can peacefully pass your short, well deserved holidays, I suggest the district in question. A more beautiful a more agreeable *villegatura* (1) than that you may enjoy on the banks of these brilliant lakes I can never proffer your acceptance.

To farmers, to working men, I say: the soil is good, easy to cultivate, I saw it with pleasure, and it seemed to me as if I were picking up millions from it... for the province, for our worthy treasurer. Farmers, for your own sakes, for the sake of your children, go and see, with your own eyes, this beautiful land.

Such are the resources of Quebec, Gentlemen, and we must be proud of our inheritance.

We shall be successful there, Gentlemen, and I will give you a proof of it, drawn from a source which you will appreciate more than any other.

I am not jealous of the great province of Ontario; I heartily wish her every possible success; but if the figures I am about to submit to you are to be trusted, she must look to her laurels; for we are getting along faster than she, though we had a long distance at first to make up.

The savings-bank's deposits have always passed for a test of the greater or less prosperity of a country.

I lay before you, with great satisfaction, the following table, drawn from official sources.

DEPOSITS IN SAVING-BANKS, OTHER THAN THE INCORPORATED BANKS.

Ontario—30 June 1894.....	\$18,581,884
30 June 1890.....	16 883,777
Increase.....	\$1,698,071

Or 10.05 p. c.

Quebec.—30 June 1894...\$17,262,801	
30 June 1890... 14 656,060	
Increase.....	\$2,606,741

Or 17.78 p. c.

During this space of time, then, our progress has been at the rate of 17.78 % while Ontario's has only been 10.05 %!

Evviva, then, agriculture, with its dairy industry.

Seeing, therefore, that such are our welfare, our prosperity, our inexhaustible resources, I must say in conclusion that we have every reason to be contented with our lot. That we wish for no change; that we are living happily under that flag which you, Admiral, good servant that you are of our noble Queen, carry proudly over every sea.

We have known another flag, Mr. President: one that we loved, to which we were loyal, as we shall be to the flag beneath whose shadow we are now living free and happy. The majority here enjoys all its rights, governs as long as our Gracious Sovereign reigns. No one suffers, no one complains; the minority is happy and treated with liberality. So many it be with the whole of the Dominion, for, as long as it is, this great country will continue to enjoy prosperity.

(1) The word is borrowed from the Italian and means the time passed at one's country seat.—Ed.

IMPORTANT CHANGES RECOMMENDED TO DAIRYMEN.

Organization of the Dairymen's Board of Trade necessary for the promotion of their Industry.

The development of the Dairy Industry in the Province of Quebec, in the past five years, has been marked with a success that should certainly stimulate the patrons who have contributed to use every possible effort in the organisation of business principles upon which to conduct it, in order that its remuneration may encourage them to make greater improvement in this the one great resource of the Farmers of this Province. The business connections involved that must receive careful attention if our dairying is to be made a permanent success, are of a nature that require the co-operation of all classes having a financial interest in this Province and especially those concerned in real estate. As one of the first improvements absolutely necessary must be made upon the country roads in order to facilitate the hauling of milk one of the most important items connected with co-operative dairying: when our roads are in good condition, the hauling of milk can be done by contract, which will enable us to organise our cheese factories and creameries on a scale that will afford the employment of thoroughly competent men to run them, and make an opportunity for combination factories, which is most essential in order to take advantage of the best market: there is no farmer that can afford to keep a team to send his milk to the factory when, by joining with his neighbors, he can arrange to do it by contract at one dollar and twenty-five cents a ton. The greatest obstacle to successful dairying in this Province, is our small factories, which offer a premium for the furnishing of a poor quality of milk, as they are so anxious to get patrons, the quality of their milk is not considered and they are too small to pay competent men who are thoroughly expert and will use nothing but the best furnishings. It is unnecessary to argue upon this question of our small factories as it is without doubt a plain matter of business. If we have the milk of a thousand cows in each of our factories it can certainly be manufactured at a much lower rate than if it is distributed among three or four factories and it stands to reason that an improved product will result as they can afford the employment of first class experts as cheese makers, who will have sufficient interest in the quality of their goods to refuse all milk that is tainted and of doubtful quality: this would elevate the standard of Quebec cheese on one of the most important points, that of flavour, which our fine water and sweet pastures impart to a remarkable degree, not duplicated on this Continent. Then the advantages that would result from having a uniform standard of quality which it is impossible to get in our small factories, would raise the price of Quebec Cheese five eighths of a cent per pound which would make up the extra charge of hauling milk: that is, factories organised on this large scale could have the milk and make it into cheese at one and five eighths cents a pound, and this great tax of each patron hauling his own milk would be relieved and the hindrance to successful competition on the dairy markets done away with. This is the first business principle that should commend itself to the patrons of the cheese industry

of this Province: the second is the organisation of Boards of Trade for the sale of our butter and cheese. If there is one thing more than any other that has contributed to the success of this great industry in Ontario, it is the organisation of Dairymen's Boards of Trade, and it stands to reason, when we consider the principles upon which they are founded the first of which is the sale at public auction of their products the importance of this cannot be too highly estimated, as it brings the different factories into such direct competition as to the quality of their goods, that the result is a strife for improvement in which both makers and patrons take part, as the advantages to the section represented by the factories selling for the highest price at public sale are so great that the competition thus involved is bound to improve the dairy product and enhance its value. The fact that the dairy interests of this Province have improved and its butter and cheese entitled to rank in price as favourable at that from any part of the Dominion, has been fully demonstrated and it remains with the patrons to organize for its sale in a way that is calculated to attract public attention and advertise a work that entitles them to great credit: this can be done most effectively by the Board system which has been proved by its success in Bedford district the past season, as the quotations of the sales on the Cowansville Board have done more to give prominence to the development of the dairy interests of this Province than anything outside of Government assistance and factory inspection, which has placed it where it stands to day and which its patrons can in no way so gratefully acknowledge as by enlarging their factory system and organising Boards of Trade in every district in this Province. The question of organisation is most simple, the only thing necessary being a solid determination on the part of the factory salesmen to sell no cheese off the Board, this will at first appear to be a very serious matter, as the local buyers will do every thing possible to discourage their organisation and keep away from the meetings, but if the salesmen will combine and stand firm by the principle of selling their goods by auction to the highest bidder, the buyers, after the first two or three meetings, will make their purchases on the board, as their orders must be filled and the salesmen have it in their own hands. The large exporters in Montreal, with but one or two exceptions, are favourable to the Board System as they well know it is bound to stimulate improvement in the quality of Quebec cheese and inculcate principles that will greatly facilitate business relations: this is perhaps the reason that local buyers as a rule are not anxious to see the Trade Boards organised, but it is a mistake on their part, as they must be established if we expect to have our dairy interests advertised in a way they will gain in public favor and attract the attention of the English consumers, all of which will assist in developing a good market which the local buyer is interested in; a fact well illustrated by their attendance and interest in the Cowansville Board, when it was definitively established, as they would point out with pride and satisfaction when comparing its quotations with those from Ontario in the Montreal and New-York papers. The following is a summary of the first three meetings of this Board: on the 18th of May, the date of its first meeting, there were eight factories represented, but, as the highest bid was

only 6½ cents, there were no sales; on the 25th, there were twenty-four factories represented, twenty-two sold at 6½ cents, two unsold; on June 1st, twenty two were represented, six sold at 7½ four sold at 7½ cents, balance unsold. After this sale on June 1st there was a greater interest manifested and the highest prices paid, which induced over sixty factories to join before the close of the season. The articles and By-Laws governing this Board are here given as they are necessary to illustrate the business principles upon which to organise:

ARTICLES.

I. This organisation shall be known as the District of Bedford Dairymen's Board of Trade.

II. The officers shall consist of President, Vice President and Secretary-Treasurer.

III. The President shall preside at all meetings; may require any person present at the Board of Trade to show evidence of membership, and have power to eject non-members for breach of the rules of the Board. The Vice-President shall perform all the duties of the President in his absence. The Secretary-Treasurer shall keep all the records of the Board, procure telegrams and other information, furnish tickets of membership, and pay out monies on order of the President or otherwise, as the Board may direct.

IV. The officers shall be elected to hold office for one year and until their successors are elected.

V. Members only shall be entitled to vote.

VI. The payment of one dollar to the Secretary-Treasurer constitutes an individual membership for one year.

VII. The fees shall be one dollar for factories up to 200 cows: one dollar and fifty cents for factories over that number.

VIII. It is understood that when a factory has more than one salesman but one shall act at any meeting of the Board and that all buyers shall be honorary members, and not liable to any membership fee, and that said buyers shall have the privilege of voting on all questions and that a buyer or his agent shall be admitted on the one ticket whether owned by the principal or the agent.

IX. It shall be deemed proper for a member of the Board to be accompanied when admitted to the salesroom, by a neighbor or friend who is not interested in buying or selling, without additional charge. It is understood that this is a matter of courtesy, and violation of good faith will be deemed a breach of the rules of the Board.

BY-LAWS.

1. Members only are entitled to all the privileges of the salesroom.

2. There will be a register kept and a bulletin board arranged in a conspicuous place in the room upon which will be placed all telegrams and other information received, to which board and register all members are entitled to free access and shall have the privilege of posting upon said register a notice of all dairy or other produce they may have for sale.

3. Each meeting shall be called to order by the President or (Vice-President) at the hour of 1 o'clock p.m., or at such other hour as the majority of the Board may from time to time determine upon.

4. As soon as practicable, after the meeting is called to order, the President shall offer for sale to the highest bidder such lots of cheese or butter as said buyer shall select.

5. All buyers bidding for choice shall make their bids publicly and state the quantity that they are willing to take at the prices offered.

6. As soon as the President shall have declared a buyer entitled to make selections, said buyer shall proceed to publicly name the factories that he will take, all prices offered, and each salesman as the name of his factory is called shall accept or refuse the offer.

7. When two or more buyers make an offer at the same time the President shall at once decide whose offer shall have preference. Refusal to accept first offer shall not debar a salesman from accepting same price from another buyer.

8. Should any buyer or buyers who are not known to the salesman to be in good financial standing make offers for cheese on said Board, salesman will have the right to decline accepting even though it be the highest bid unless conditions of delivery and payment be satisfactory to the seller.

9. There shall be no private buying or public buying at private terms of registered cheese from time meeting is called to order until it is closed.

10. No cheese under conditional offer or sold shall be registered on Bulletin Board without condition so offer or price of sale being also registered.

11. Bargains between members made at the salesroom or elsewhere verbally or otherwise, shall be considered binding and to be lived up to and carried out by each of the parties thereto and a failure of either party to perform his or their part shall be considered sufficient cause for the expulsion from said Board of Trade and salesroom of the party so failing to perform.

12. There shall be a Board of Arbitration constituted for the purpose of hearing, adjusting and settling all differences which may arise from time to time between buyers and sellers, and it is an express understanding and agreement by and between such members hereof that such settlement by such Arbitration Committee shall be final and adhered to. The Board of Arbitration shall be chosen and constituted as follows: In case of difference between two parties or interests the said parties or interests shall choose one member of the Board, and the members thus chosen shall select a third, and these three shall constitute the Board of Arbitration, and have appropriate jurisdiction. In case either party or interest fail to choose a member of such Arbitration Committee, the President shall appoint a member in their stead, and the decision of such committee shall be final. Clause 11 in these by-laws does not in any way refer to quality.

13. Inspection to be at the factory, unless other wise agreed upon. Weights to be guaranteed in Montreal unless some other arrangement is made between buyer and seller.

14. It is essential for the interests of all that each of the foregoing rules be strictly observed by each member of the Board of Trade, and any case of violation of such rules shall be a sufficient reason for calling a committee to look into the facts concerning such violation and report in their opinion what action had better be taken by the Board of Trade to avoid a repetition of the same.

15. That the ruling price be the price at which the greatest number of factories sell, and the leading price be the highest average price at which any three factories sell.

16. Amendments to these articles, association, and rules may be made at

any meeting of the Board by a majority vote, providing notice of the proposed amendment has been duly given at a previous meeting.

A COUNTRY HOUSE.

CLASS B.—PLAN No. 1.—APPROXIMATE COST: \$1,200.

By A. Raza, Architect, Montreal.

The country house here represented, offers great accommodation. Close to the dining-room, is a pantry (1), distinct from the kitchen, and there is also an entrance-hall, as well as, in the first story, a bath-room, &c. It will accommodate comfortably a family of 8 or 9 persons.

BUILDING-MATERIALS.

From the ground-floor to the first story, the outside is paneled with boards laid aslope. The upper story is paneled with cut-shingles, and the roof is shingled.

The frame of the house is of 3 inch boards, and rests on foundations of stones from the land. Under the front of the building is a collar 7 feet high, and a stair-case connecting it with the principal stairs.

The outside may be painted in three different colours.

FALL PLOUGHING.

The season has been very favorable for fall work, almost too dry in many sections for ploughing. Many have finished long ago, while others if the weather were favorable up to Christmas, would still be unfinished. Many farmers, last spring, were unable to plough and sow the ground on account of the drought, and when asked why they had not done their ploughing, the year before, the answer was: "too dry"; if too dry in 1894, I am very sure those people will have less done this year, as this has certainly been a much drier season than usual.

Clay ground should be turned up in the fall to get pulverised by the action of frost, it will thus be in better shape to withstand the drought than when spring ploughed and generally speaking there will be a better crop, although it is very hard to convince some of this fact. Sandy and light soils in many instances are better with spring ploughing, as the soil runs together so that it is hardly possible to get the seed well covered with fall ploughing, (1) and then light soil can be ploughed early in the spring, before it is time to sow very much.

There have been a good many ploughing matches this year, again, and a novel one held on the island of Montreal; that of ploughing up potato ground instead of the ordinary lot. A great many people think that contests of this kind are useless, as a crooked furrow will grow as good a crop as a straight one, a very lame argument to my mind. When a man knows how to plough well, he takes pride in making a nice round ridge, the water gets off nicely, the furrows are straight and well made, allowing opportunities for the water to escape. Wherever a good ploughman is, you do not see the usual rainbow furrows that are to be seen from the roadside, or car windows, in passing through the country.

(1) Not if the drill is used?—Ed.

DITCHING.

This has been an excellent year for ditching and draining. I hardly think there is enough of the latter done, to my mind drains are much better than open ditches. Take an open ditch for instance, and you have considerable loss of ground. (1) You have the width of the ditch say 2 to 3 feet and the same on other side that you cannot crop; in all, from 8 to 10 feet and often more, while if it were sown to fodder corn it would feed your cows for a quite a length of time, this means sufficient to pay the interest on the investment, then, when a drain is well made it becomes permanent, while an open ditch you have to clean out occasionally to have it of any service. I fancy a great many farmers are like the hero of the story of the Arkansas traveller, who in driving up to the hotel, asked the proprietor why he did not put a roof on his house. The reply was, "when it is dry I do not need it, and when it is wet I can not do the work." The farmers are very much like him with regard to ditching and draining.

Well Mr. Editor, let us give them line upon line and precept upon precept until they see the error of their ways and do better.

SELLING GRAIN.

As I have already reported for you, an abundant harvest has been vouchsafed to this Province, but a great many are downcast at the very low prices for grain that are now paid. True, grain is very low in price, but why not turn your attention, brother farmers, and see if you cannot market your surplus grain by other channels than the grain dealers.

With fresh calved cows, grind your oats and barley, or pease if you have them, and sell to your cows, instead of 28 to 30 cents a bushel for oats. You should get, if properly fed, with bran at least 2 lbs. of butter for every bushel of oats; that means at present prices about 45 cents per bushel; then you need have no fear; your cow will not turn bankrupt, as many grain dealers have done: feed to day, cash to-morrow is the cow's motto.

After you have marketed your grain in this way, your cow will be better the manure better; and in this way you will be able to feed more straw and thereby save some of your hay, which is selling at a good price for prime quality. Try it for yourself.

In the best districts, creameries will run all the winter, so, if you will only furnish the milk, there is no need for you to board your cows all the winter for nothing. Make them pay for their grub.

Now is the time to fix up your stables warm for the winter. A few nails, boards, and paper, are much cheaper to keep cows warm than hay or grain. Treat your cows gently, keep them warm, do not allow them to travel half a mile to the brook or river to drink when the thermometer is at, or below zero, and expect them to give lots of milk: they cannot, do it you know. Butter is likely to bring a fair price the coming winter. Most of the summer goods have gone forward to England, the market is in a position to take all we can make for the winter, so turn to and sell your grain through the cow, try it for once, brace up your courage and do not look down-hearted and discouraged, do not repeat the old, old story: "farming don't pay."

PETER MACFARLANE.

Chateauguay, Nov. 11 1895.

(1) Besides, ditches do not draw the water: unscientific, but true.—Ed.

Household-Matters.

I have had the pleasure of spending the greater part of the autumn in the White Mountains of New Hampshire, where it was my good fortune to meet a most delightful set of people from all parts of the United States. I took the opportunity of enquiring into the workings of the domestic help question, and got just what I wanted, from various sources. Some were workers in the numerous societies carried on during the winter, and were well able to tell me all I wanted to know; also they were interested in finding out and solving the same difficulty that I was. I found that nearly all the servants came from the farms I certainly never met a nicer set of intelligent quick workers than those I came in contact with, not a bit ashamed of what they were doing, but nothing would induce this kind of girl to work in a factory.

The system of paying so much a week is in vogue. There, a really good general servant can get 3 to 4 dollars a week, but for these wages she must well understand her work, which means cooking, house work, washing and ironing and no slipshod work either. On expressing surprise at the work required, I was told girls must do the work as long as they demand such high wages.

So let Canadian girls think twice before they fly over the Border simply for high wages, which only means harder work and very little spare time.

Then, again, dressmaking is very expensive, as are many other things. There is one thing to be admired and copied, that is the way everything is arranged to save labour. The kitchen requisites seem always close at hand, and the girls are well trained to save themselves by keeping order in every department.

Wood and everything is under shelter, and they need be, for the girls have plenty to do to keep up with the work.

Apologies are required sometimes, but they are often overdone. For instance, it is foolish to be always apologising to your rich friends when they visit you for the simplicity of your house, your table, and the small number of your servants. Your visitor comes to see you, and not to take stock of your possessions, or to enjoy being waited on. Therefore, instead of fussing, and trying to keep up the appearance you might were your means as large as hers, try for the time being to forget that she is better off than you are, and let her fall into the comfortable position of a member of the home circle.

Housework as an exercise.—To keep girls' complexions and spirits good, to preserve grace, strength and agility of motion, there is no gymnasium so valuable, no exercise more beneficent in result than sweeping, dusting, making beds, washing dishes and the polishing of brass and silver. One year of such muscular effort within doors, together with regular exercise in the open air, will do more for a girl's complexion than all the lotions and pomades that were ever invented. Perhaps the reason why housework does so much more for women than games do, is the fact that exercise which is immediately productive cheers the spirit. It gives women courage to go on living, and makes things seem really worth undertaking.

WHAT do our friends think about the assertion that women do not make as good cooks as men? How about the fried chicken and roast turkey, duck and goose, the savory sparerib, the ham and eggs, not to mention the flakey biscuits, bread and cakes, and the toothsome mince, pumpkin, apple and other pies, all these and the hundred and one other dishes concocted from the farm larder by our mothers and grandmothers? Perhaps they didn't know so much about science and chemistry, and the thousand other things that the men-cooks are supposed to know; but did

not more time servers. It is the testimony of business men that women fail in these respects oftener than men. The reasons waeroof, we do not propose to discuss. One point we wish to make now, because it is brought to our attention by an article received in competition for prizes recently offered. One of the conditions of that competition was that the "name of the writer must be placed at the head of the first page." The first article received was from a writer whose name is familiar, and has been for years, to the readers of several household publications. Yet this plainly

3 pounds suet, chopped fine.
Three eggs.
Half pound citron and lemon peel, half a nutmeg grated.
One very small teaspoon ground ginger.
Two teaspoon Cook's Friend baking powder.
Sweet milk enough just to wet all; mix well, tie in a cloth and boil hard for 4 hours.

often, say every fifteen minutes; at first with butter and water, afterward with the gravy in the dripping-pan. Roast always upon a grating placed in the pan. Roast to a fine brown, and if it threatens to darken too rapidly, lay a sheet of white paper over it until the lower part is also done. Stew the chopped giblets in just enough water to cover them, and when the turkey is lifted from the pan add these with the water in which they were boiled to the dripping. Thicken with a spoonful of browned flour, wet first with cold water to prevent lumping; boil up once and pour into the gravy boat. If the

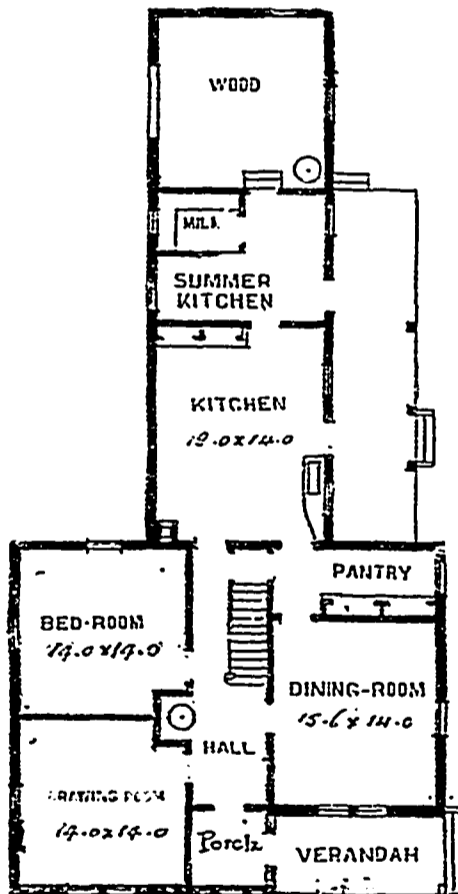
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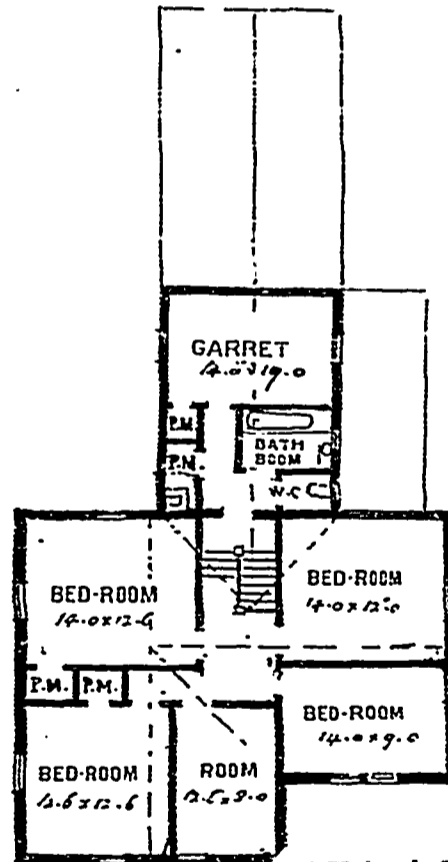
EAST SIDE.



SOUTH SIDE.



GROUND FLOOR.



FIRST STOREY.

any other cookery ever tasted so good? Are we changing, or are the men really better fitted for the business than women? From the very nature of things, under present conditions, the cooking on the farm must be done by women. But perhaps we shall discover some branch of outdoor work that can better be done by women, and then the men will be at liberty to try their hands at the cooking.

stated condition is not complied with, and nowhere on the article does the name appear. To be sure it is in the accompanying letter, but that doesn't fulfil the conditions. If this is what we get from one supposed to be a trained writer, what may we not expect from others. But so long as women are so careless, they have no right to complain. Business is business, and there is precious little sentiment mixed with it. R. N. R.

The crying need of the times among employers is for employes who are accurate, exact, and can be depended upon, those who make their employers' business their own, and are

Plum pudding.—One pound raisins, stoned and cut in two.
One pound currants.
Half pound bread crumbs.
Half pound flour.

ROAST TURKEY.

How to Prepare the Bird for the Oven
—Toothsome Stuffing.

Draw the turkey and rinse in several waters. Prepare a dressing of bread crumbs, mixed with butter, pepper, salt, thyme. Add the beaten yolks of two eggs. Mince a dozen oysters and stir into the dressing, and, if you are partial to the taste, wet the bread crumbs with the oyster liquor. Fill the body of the turkey, and sew it up with strong thread. Dredge it with flour before roasting, and baste

turkey is very fat, skim the drippings well before putting in the giblets. Serve with cranberry sauce. (1) Some always lay fried oysters in the dish round the turkey. In roasting, if your fire is brisk, allow about ten minutes to a pound; but it will depend largely upon the turkey's age whether or not this rule holds good.—Home.

Cherry Pyramid.—Put one teacupful of rice, two of boiling water and a teaspoonful of salt in a double boiler or tin pail. Cover and cook in boiling water 35 minutes; remove the cover,

(1) Bread sauce.—Bo.

stir carefully with a fork, and leave uncovered until the moisture evaporates. Place a layer of rice in the bottom of a deep soup plate, then a layer of stoned cherries and sprinkle sugar over. Continue in this way, making each tier of rice smaller to form the pyramid. Garnish the edge of the plate with cherries on the stem, and serve with any sauce preferred. It may be eaten either hot or cold.

Raspberry Sponge-Cake. — Make a plain sponge-cake of three eggs, one teacupful of sugar, one of flour, one heaping teaspoonful of baking powder, two tablespoonfuls of boiling water and any flavoring preferred. Beat the yolk of the eggs until very light, add the sugar and stir until the latter is dissolved. Sift the flour three times; beat the whites of the eggs until dry

pint of huckleberries, dust them with two tablespoonfuls of flour, stir them into the pudding, add a heaping teaspoonful of dry baking powder, turn into a greased mold and steam one hour. Serve hot.

KATHERINE B. JOHNSON.

Useful Hints.—*Worms in woodwork*—Make a solution of $\frac{1}{2}$ oz. of bitter apples in a pint of water, and paint this over the worm-eaten furniture at intervals for a week or two. Bitter apples, otherwise called colocynth is a yellowish powder sold by chemist.

To fill up nail holes in woodwork get some fine sawdust, which mix into a paste with glue, and fill up the holes with it.

cents worth of butter of antimony. Shake well together, and apply with a piece of flannel. Half or quarter the above quantities can be made up at one time if liked, observe the butter of antimony is a poison. This preparation is an excellent cleanser as well as polish.

Games for the holiday time.—A laughable game for Hallowe'en is to hang a stick by a string so that it can be spun round very fast. An apple is on one end of the stick, while at the other is a lighted candle. The guests try to snatch at the apple with their teeth and generally succeed in seizing lighted tallow instead. The hands must be tied behind the back and a bag of sand may be substituted for the candle. A simple nut game is the naming of two nuts, which are roasted on the fire and as they burn together

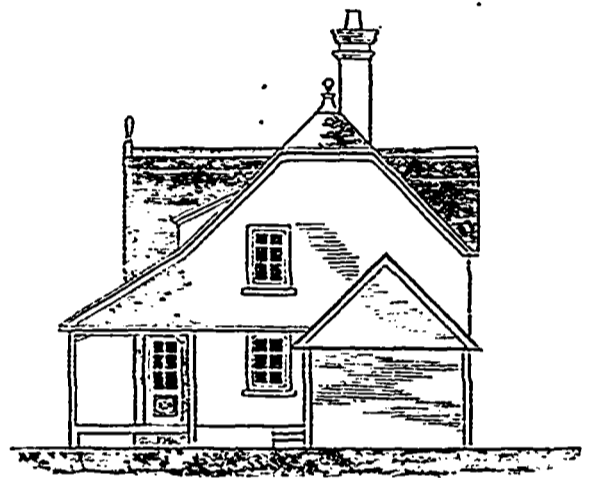
workshop of the fates, a dimly lighted room emptied of all furniture; skeletons and skulls made of paper glare at jack o' lanterns in opposite corners, and the "three sisters" draped in white sheets sit beside a low wheel. One is spinning, one holds the thread and a third stands ready to cut the strands with a pair of huge shears. The guests file in two by two and are presented with mysterious little square cards on which may be written such sentiments as indicate the fortunes that fate is preparing for you, and it is well to make the fortunes all good ones:

"Be good, sweet maid,
And let who will be clever."
Whatever with the past has been,
The best is yet to be."
Future is merry,
And in this mood
Will give you anything."

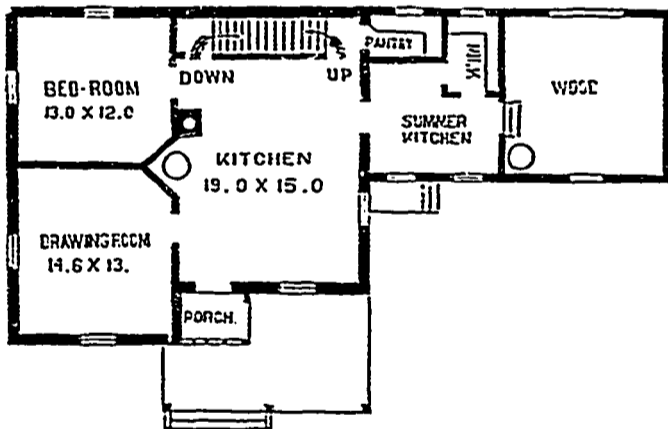
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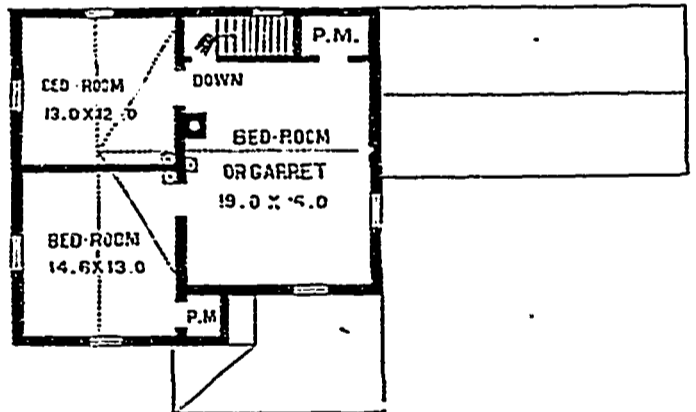
SOUTH SIDE.



EAST SIDE.



GROUND FLOOR.



FIRST STOREY.

and stiff, and add the two, alternately, to the mixture. Sift the baking powder to be sure there are no lumps. Stir the boiling water and flavoring in the batter, and lastly add the dry baking-powder. Bake in a long baking pan; when done, cut in halves, cross-wise; spread one-half with a thick meringue made of the whites of two eggs and two tablespoonfuls of sugar; beat the eggs until light; then add the sugar and beat again. Stand large red raspberries thickly over the meringue, sprinkle with sugar, put on the other half, cover with berries neatly arranged, dust with powder sugar and serve with plain or whipped cream.

Huckleberry Pudding.—Beat two eggs without separating, add one teacupful of sweet milk, one and one-half cupfuls of flour, one tablespoonful of melted butter and beat vigorously. Stem, wash and dry on a towel one

Cane seats and chairs that have become limp or loose should be well scalded and washed in hot water, which will tighten the cane as when new.

To clean windows.—First thoroughly remove all dust, then dust the glass thickly with whiting from a muslin bag. Rub it off thoroughly with a damp leather and finish by polishing with a clean dry one. This method gives the glass a capital polish.

To clean baskets.—Wash well with soap and hot water, using a brush. If very dirty add a little salts of lemon to the water.

Discoloured baskets may be made to look like new by enamelling.

A good furniture Polish.—One pint of vinegar, half-pint of linseed oil, half-pint of methylated spirits, and 8

or start from each other so will the course of their courting be. There are other experiments such as the magic ring, dumb cake, throwing the yarn. One of the most popular is the three saucers. The first is filled with pure water, the second with soapy water and the third is empty. Some one is blindfolded, led up to the table and told to dip the left hand. If by chance it is a girl and she touches the first she is going to marry a bachelor; if the second, her future husband will be a widower, and if the third, she is doomed to die an old maid. This last must be repeated three times and the dishes changed each time.

After the games, at a Hallowe'en party, come the refreshments, which may be something after the order of nut cake, pop corn, molasses candy, and as many more goodies as one cares to provide. At the close of the evening the guests are invited to visit the

The little cards make pretty and appropriate souvenirs of a jolly evening.

Acting Out Fairy Tales.—A simple and pretty kind of entertainment which boys and girls have already tried and enjoyed very much is illustrated fairy stories. The Three Bears was given successfully not long ago by three boys of 7, 10 and 13 years of age. The boys personated the bears that were hungry and fed on soup, and who were turned out of their beds and cheated of their dinner by the pretty little maiden, Carly Locks. The bears were clothed in skins of brown canton flannel, made like children's night drawers, with the arms and legs lengthened so as to cover hands and feet, and with the faces covered by masks representing bears' faces. The bears are father, mother and cub, and the baby bear

wears a cap. The first scene shows the family just before dinner, the mother knitting, the father reading a newspaper, and the child looking at an immense picture-book. When the family sit down to their supper of porridge, they all complain that it is too hot, and start out for a walk. Then, Carly Looks arrives, and she is found by the bears when they return from their walk. There are many other simple fairy stories that children could do nicely without elaborate stage setting. These make very charming little home plays.

THE CHRYSANTHEMUM SHOW.

The "Golden Flower" of Japan has branched out this year, with great splendour, into various colours. Never since we first knew this superb plant have we seen anything to be compared to the exhibition held in Montreal on the three middle days of the third week in November. This year, the Wilshire Brothers, were not alone in their glory, as many gardeners and florists had a fair share of the awards; especially may we congratulate Mr. C. A. Smith, gardener to Mr. Thos. Dawes at Lachine, who carried off four first, and six second prizes. Mr. J. Dunlop, of Toronto, and Mr. Jos. Bennett, Montreal, pretty well divided the prizes for roses (cut-flowers) between them. The groups of chrysanthemums and foliage plants exhibited by the Messrs. Wilshire, McKenna and Bennett were worth a long journey to see. We append a list of the prizes, for which we are indebted to the *Montreal Witness*

THE PRIZE LIST.

The following is a complete list of the prize-winners, the judging being concluded last evening:—

Class A—Groups.

Group of chrysanthemums and foliage plants, on 50 feet of space, arranged for effect—1, Wm. Wilshire, gardener to R. B. Angus; 2, Walter Wilshire, florist, 654 Sherbrooke street.

Group of chrysanthemums and foliage plants, on 25 feet space, arranged for effect—1, Walter Wilshire.

Group of chrysanthemums only, on 50 feet of space, arranged for effect—1, P. McKenna & Co, Cote des Neiges; 2, Joseph Bennett, florist.

Class B—Chrysanthemum plants.

Twelve specimen plants, distinct varieties—1, Geo. Robinson, gardener to Mr. A. Joyce, Outremont, silver can and \$10; 2, J. Kirkwood, florist; 3, Thos. McHugh, gardener Forest and Stream Club.

Six specimen plants, distinct varieties—1, C. A. Smith, gardener to T. A. Dawes, Lachine; 2, William, Wilshire; 3, Walter Wilshire.

Three specimen plants, distinct varieties—1, C. A. Smith, 2, Walter Wilshire.

One specimen plant, distinct variety—1, Geo. Robinson; 2, C. A. Smith; 3, Walter Wilshire.

Twelve plants in 6-inch pots, distinct varieties—1, Thos. McHugh, 2, C. A. Smith.

Six plants in 6-inch pots, distinct varieties—1, Thos. McHugh, 2, C. A. Smith.

Six plants in 5-inch pots, one bloom to each plant, distinct varieties—1, Geo. Robinson; 2, C. A. Smith.

Special extra prize for best plant in the show—John Kirkwood.

Class C—Miscellaneous plants.

One fern, specimen—1, Wilshire Bros.; 2, F. Bonnett, gardener, to R. Mackay; 3, W. Horebin, gardener to R. Reid.

Six ferns, in 5-inch pots—C. A. Smith

One fern tree—1, Geo. Pascoe, gardener to Mr. R. Reford; 2, W. Horebin; 3, C. Campbell, florist.

Six palms, in not larger than 7 inch pots—1, Walter Wilshire, florist; 2, C. A. Smith.

One palm, specimen—1, Fred. Bonnett; 2, C. Campbell.

Six orchids—1, William Wilshire.

One orchid—1, William Wilshire; 2, Jas. Bray, gardener to Mr. William Yuile.

Six Primula Sinensis in pots—1, Geo. Robinson; 2, W. Alcock, gardener to Mr. H. McLennan; 3, C. A. Smith.

Six Solanum Capsicastrum—1, Jas. Bray; 2, Wilshire Bros.

Six dwarf Salvias—1, C. A. Smith; 2, Walter Wilshire.

Two specimen geraniums—1, Jas. Bray.

Class D—Cut flowers, chrysanthemums

Twenty-four blooms, open to all—1, Geo. Robinson, gardener to Mr. A. Joyce, silver cup and \$5; 2, T. McHugh, gardener to Forest Stream Club, Dorval; 3, Walter Wilshire.

Twelve blooms, distinct varieties—1, Wm. Horebin; 2, T. McHugh; 3, Wm. Wilshire.

Six blooms, distinct varieties—1, Wm. Horebin; 2, T. McHugh; 3, Geo. Robinson.

Three blooms, white—1, Thos. McHugh.

Three blooms yellow—1, Walter Wilshire; 2, T. McHugh; 3, Geo. Robinson.

Three blooms, pink—1, Thos. McHugh; 2, Wm. Horebin; 3, Walter Wilshire.

Three blooms, red or crimson—1, Wm. Horebin; 2, Walter Wilshire.

Three blooms, new varieties, introduction of 1895. One bloom of each—1, T. McHugh.

Class E—Cut flowers: roses.

Six bloom, Mermets—1, J. Dunlop, florist, Toronto; 2, W. Wilshire; 3, Jos. Bennett.

Six blooms, Bride—1, J. Dunlop; 2, W. Wilshire; 3, Jos. Bennett.

Six blooms, Bridesmaid—1, J. Dunlop; 2, Walter Wilshire; 3, Joseph Bennett.

Six blooms, Peales—1, J. Dunlop; 2, Walter Wilshire.

Six blooms, Sunset—1, J. Dunlop; 2, Walter Wilshire.

Six blooms, Hostess—1, J. Dunlop; 2, Jos. Bennett.

Six blooms, Wootens—1, J. Dunlop, 2, Jos. Bennett.

Six blooms, Meteor—1, Jos. Bennett; 2, J. Dunlop.

Mr. Kirkwood's single-plant, 1st prize, a superb dwarf white chrysanthemum, with abundant foliage is a marvel of cultivation. There were, as nearly as we could count, 50 blooms upon it. Mr. McHugh's new white specimen, "Mrs. Henry Robinson," was, to our mind, one of the great features of the show: quilled up to the very centre, like a perfect dahlia. We admired the solanums of Mr. Jas. Bray, with their bright red berries, 1st prize. We must not omit Sir Donald Smith's group; the taste shown in its arrangement was very great. *legant*, is the only epithet applicable to it. The decorations of the two dinner tables struck us as being too crowded, and the middle *espergne* of the one at

the East side of the Hall would infallibly hide the face of one's opposite *convive*, a fault that we thought had been corrected years ago.

Altogether, the exhibition was a credit to the gardeners of Montreal.

Correspondence.

"SWEET AND SOUR MILK FOR PIGS."

Mr. Editor,

In your issue of November 1st I find an article on that subject, and I would be other than human if I did not experience a certain amount of satisfaction in seeing the views I have always expressed upheld by such authorities.

I am quite aware that the general opinion is, that sweet food is better than sour, some say it is just as good, while I am certain that my pigs and calves that were fed on clotted milk, always made the best growth. I once at a Farmers' Club aroused a fervid opposition by stating that, as my experience. An Agricultural College ex-principal sneeringly retorted that all the scientists stated emphatically that sweet food was much preferable. Such an authority was sufficient to gag those of a different opinion. And although I have frequently seen sour feed advocated in other Journals, this is the first time I have noticed it in yours. But I have never seen any attempt to explain why sour feed is as good or better than sweet. Forty five years ago, in the U. S., where I got a good many principles on practical farming, old Judge Bingham said: "Yas, I allus feed sour swill tu my haugs. I make this birril tu day an feed it tomorrer, an I make nuther birril tomorrer far nexday." I asked why do you do so?—Cos its better. Why is it better?—Cos 'tis.—Later on in life I learned to have more faith in views held by the old Judge, that had been handed down from father to son. "Sence the Mayflower kem in," than I did at that time, even though no reasons were given.—I venture to suggest a reason.

It is a fact that a pig's stomach is sour, the cheese makers of the old style using pig's rennet where calf rennet was not to be had. Then why is the soured food not an aid to nature? It is a fact that pigs fatten faster on sour feed than sweet. Why? Because it is agglutinated, prepared for immediate digestion and appropriation by the system.

But I must here remark that there is room for a mistake as to the amount of sourness. After a certain limit, the food becomes acrid, and I think more difficult of digestion. And as it costs about ten cents per bushel to thrash and grind the feed, it is worth some consideration to learn how much it is worth to prepare the food, and how to prepare it. If farmers could depend on experiments made by others, here is an opportunity for experimental farms to be of some service.

When I kept cows and pigs, we had three and four barrels to make feed in. I give you my plan. The meal was scalded with potatoes, turnip, whey or water, sufficient to heat and ferment the mass, cover it up. In 24 hours thin it with milk, (this arrests fermentation and souring) and the third day feed it. Some farmers use their feed too dry, and it is false economy to use no meal when feeding milk.

FARMER.

Trenholmville.

Editor, *Journal of Agriculture*.

SIR,—I see by the September Journal several selected articles on roads. No doubt the road question is a very important one, and one that all classes in a community and especially farmers should give particular attention to. I must acknowledge that there is a great lack of uniformity in the condition of the roads in this Province.

In some townships, where there is an energetic council, who have the welfare of the people at heart the roads are in a fair state of repair, but to my knowledge those parishes are the exception.

There certainly is a difficulty under our municipal road act to get all roads kept up to a uniform standard. According to our Road Act, every person is supposed to make and keep in repair the road across his property, and how many are really capable of properly doing the work in a satisfactory manner the general poor state of the roads is sufficient evidence. Really it is not every land owner that is a good road maker. In many cases however it is not so much the lack of knowledge of how a road ought to be repaired, but the lack of a true public spirit among most of our people who act as if all the labour spent on roads is worse than wasted. As farming operations have to begin almost as soon as the snow disappears in the spring, there is no time to attend to road work before the crop is put in, and of course it is very important that the crop should be attended to. Then, one thing after another comes, so that there seems no time to attend to road work. After several complaints by the mail courier and others, the council will notify the Road Inspector to have the roads put in good repair, and at last the Road Inspector puts up a notice: All roads are to be put in good repair on or before a certain date or the owners will be dealt with as the law directs."

What is the result? some land owners who are public spirited and whose roads are generally in good repair will add a few more loads of gravel and also see that the culverts are in good condition. Some again will shovel soft muck from the ditches on to the road thereby making it worse than before, and others, the greater number, do nothing at all. This is the usual way in most townships from year to year, and yet the inspectors or council make no active measures to put the roads in a proper state of repair.

I write this merely to call the attention of farmers to the great importance of having good roads. And if you Mr. Editor or some of your contributors would give the readers of your widely circulated journal an article occasionally on road making I know it would be appreciated. I should like to hear particularly from those parts of the Province where there are good roads, and learn the means taken to obtain the same. For anything tending to give us better roads adds to the material prosperity of the people, and is a lasting benefit to the Province.

N. JOHNSTON,
Black Cape, P. Que.

Richmond 11th Nov. '95.

DEAR MR. JENNIE FOST.

Enclosed I send you a letter I received from Mr. Franka. It appears that I made a mistake in substituting Mr. Allen's name for Mr. Franks' a prize winner at the Exhibitions. If you can rectify the mistake I made in your Journal, I shall be pleased.

I had no intention of advertising any man's stock nor had I any conver-

sation with Mr. Allen or any other of the exhibitors. I gave the names of these successful prize winners, so that any farmer wishing to improve his stock, could go to head quarters, and ascertain for himself the system they have adopted so successfully.

Remaining yours truly,
AYLMER.

King-bury, Nov. 6th 1895.

To THE LORD AYLMER,

My Lord,

I notice in the *Journal of Agriculture* of Nov. the 16th a few items of the exhibits at Richmond and Sherbrooke. You state Mr. Robert Allen took most if not all the 1st prizes in Leicester ewes rams, and lambs. I cannot see how you make that out, as I took 1st at Richmond in four sections, while Mr. Allen only took 1st in two, in Sherbrooke, he had only two sheep on exhibition; a shearing ram and a ram lamb. In shearing ram class, Mr. Allen's was the only entry, so of course he took 1st. He also took 1st on ram lamb, while I took 1st on aged ram, 1st on aged ewes, 1st on shearing ewes, 1st on ewe lambs and 'diploma' for best pen, Mr. Parnell, of Lennoxville, coming in 2nd in each class of ewes. Now Mr. Parnell and myself are advertisers of sheep in the *Journal of Agriculture*. I add that my flock was the 1st prize winner at Sherbrooke, which I can back up. So I want you to please correct your error in next number of *Journal* as the prize list of Sherbrooke was not inserted in the *Journal*, and it will give the public an idea that I am sailing under false colors; and I know you do not mean to hurt my business intentionally. I did not see you at either place; and I think it must have been through a conversation with Mr. Allen, that you wrote the same, as I know this gentleman's memory is a little defective when he talks exhibition notes.

P. S.—I quite agree with you in saying it is not necessary to be a specialist, or to be at any great expense to be a prize winner at the fairs. Will enclose P. S., as I should like to know how the mistakes happened. I am quite willing for Mr. Allen to have all the praises that he deserves; but as I have to work hard for mine; and which I find is the best advertisement for selling.

Yours respectfully,
R. W. FRANK.

FARMERS' SYNDICATE

OF THE

PROVINCE OF QUEBEC,

Office: 23 St. Louis Street,
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Mark lane: Prices current; Nov: 11th

WHEAT, per 504 lbs.; British	s. s.
White.....	26 30
Red.....	25 28
Household flour per 280 lbs...	25 —
Barley per 8 bushels.....	15 27
Malting.....	30 38
Grinding.....	16 21
Oats, English per 8 bushels...	15 27
White pease.....	32 36

FOREIGN.

Wheat—Manitoba.....	27 23
Canadian white pease.....	27 28

London Cattle market, Oct. 14th:
Milch-cows, per head. £15 to £23

BEASTS.

Scotch.....	s. d.
Herefords per stone of 8 lbs..	4 8
Welsh (runts) " "	4 6
Shorthorns " "	4 2
Fat cows " "	3 8

SHEEP.

Small Downs " "	5 10
Half breeds " "	5 6
Canadians " "	4 0
Calves " "	5 2
Pigs " "	3 4

BUTTER.

Fresh, (Finest factory) per	s. s.
coz. lbs.....	14 15
English Dairy-butter, fresh...	10 14
Irish (creamery).....	13 8
Danish	13 8

CHEESE.

Cheshire per 112 lbs.....	74 76
Cheddar, finest	56 62

BACON.

Irish.....	50
Canadian	44
Hams, Danish.....	54
American.....	54
Irish, small.....	100

HAY, per load of 2016 lbs.....	
Prime meadow.....	90
" clover.....	105
STRAW, per load 1296 lbs.....	
Best	38
Hops from 40s. to 105s. per	
112 lbs.....	40 105

MANURE.

The accumulation and preservation of barn yard manure, although a matter of the most vital importance is deplorably neglected.

The manure heap is the farmer's bank, and every shovelfull added is a deposit to capital account, while every particle wasted is ultimately a financial loss. A quaint old farm axiom says: "manure is money."

It is nevertheless an undoubted fact that many thousands of dollars are annually wasted in this Province by want of care and attention in the management of this, the very key stone in the arch of successful agriculture.

It is common to see the manure cast out of the stable where the eaves are dropping upon it after every shower, leaching out the liquid, which runs away into some drain and is lost, or still worse, finds its way into the pond from which the cattle drink, or settles into some low spot where it forms a puddle which sends out its poisonous exhalations, vitiating the atmosphere far around, causing disease and death, and forming an admirable nursery for all the numerous broods of noxious insects which torment man and animal.

The heap, if left in a conical shape too long, will become overheated in its centre by unequal fermentation, and if burning, or what is known as fire-fanging, takes place, its value is utterly destroyed, and the ammonia the very essence of fertility will have been lost.

Manure thus neglected loses, at a moderate computation, two-thirds of its value. The loss of the liquid alone would be of the most serious consequence as it contains a large proportion of the fertilising elements; for instance, it has been computed that a full grown, healthy cow voids, on an average 9 quarts of urine daily, or about 8000 lbs per annum, the manurial value of which is calculated at \$14—no inconsiderable item in the returns to be reckoned to the credit of said cow.

Before proceeding to discuss the best means to increase and preserve the manure, we may do well to notice a few interesting facts that will guide us in our conclusions.

In the first place the component parts of manure are potash, phosphoric acid, and nitrogen, nitrogen being the most important and beneficial to crops. None however are so effective alone as when in combination with each other. Where potash is deficient it is usually the result of mismanagement in allowing the urine to drain off, for it contains four fifths of the potash contained in the whole animal excrements.

The old adage, "the liberal soul shall be made fat," holds good in the feeding of cattle. He who feeds his stock generously will gain not only in their improved and thriving condition and their yield of meat, milk or wool products, but also in the greater fertilising quality of their dung. Bran for example, after its feeding qualities have done their work is worth 80 per cent of its cost for manure. (1)

If the forage is rich, the manure will be rich, and the crops consequently large.

While by no means deprecating the use of artificially compounded fertilisers, the conviction is forced upon us that nothing can take the place of farm yard manure. It is as natural a

(1) All these calculations depend upon the entire preservation of the component parts of the droppings of the cattle, and never arrived at by the most careful man, even when box-fencing and the immediate ploughing in of the manure is practised.—Ed.

product of the farm as the crops we raise from it, and can be made available as plant-food by our own judgment; labour and attention to the processes to which it must be subjected to make it as perfect as possible.

In the manufacture of manure some minerals will be of service, but the basis of good farming is the good old fashioned barn yard manure bountifully provided by nature.

Nothing should be left undone to add to the quantity of fertilising material, and it is astonishing what may easily be accomplished by forethought and economy in this respect.

Phosphates, so useful as manures, are found in all refuse.

No more economical use can be made of straw than using it for bedding, it adds to the comfort of the cattle, is an excellent absorbent, and when, after being saturated with the manure water, it becomes rotten, it is itself a valuable fertiliser.

There are on every farm other materials, which if collected and taken care of will make good manure; the cleanings of drains and fences, weeds by the road-side, (if cut before they seed,) road scrapings and the like, drawn together into a pile, treated with a sprinkling of lime, and turned over several times, will soon become a useful dressing for grass-lands, improving their physical and, especially, their mechanical condition.

Dead animals, too, need not be all loss but can be rendered of great service as fertilisers. A friend of the writer who never loses sight of the importance of accumulating manure has established, in a remote corner of his farm, a cemetery for all the animals that die on his place or on the places of his less strenuous neighbours. There they are deposited with any other animal matter, as for instance, the offal after slaughtering a sheep, pig, or ox. The earth being a black swamp muck they quickly decay and he obtains a valuable manurial compost from what others cast away as worthless.

In the household are a great many scraps and slops which should never be allowed to go to waste, but faithfully deposited on the compost heap.

Again, where wood is used for fuel, no grain of its ashes should be lost, and the tops of trees which are left in the woods, might be hauled out and burnt for their ashes with profit.

The use of wood ashes in connection with manure is well illustrated by the following experiment: 1 acre of hay dressed with only 1½ ton of manure and 40 bushels of wood ashes produced 2 tons 958 lbs. and the adjoining acre with no manure, only 1 ton. 674. An acre of potatoes with a heavy dressing of manure yield 304 bushels and a corresponding acre dressed with a small quantity of manure and 40 bushels of wood ashes gave 456 bushels.

PRESERVATION AND MANAGEMENT.

There is no question but that the whole of the animal manures, in combination, will give, generally speaking, better results than any one of them separately, for while one may be deficient in one fertilising property, it may have another abundantly.

Now if these are applied to the land in combination they act chemically upon each other, nitrification and liberation of the ammonia, (the volatile, gaseous alkali, readily given off, and as readily absorbed) take place in the soil at the very time when the spongioles at the points of the roots are in a condition to receive and conduct it to the plant, to assimilate with its tissues and cause its growth and development.

	P. cent.	Ammonia.	Potash.	Phosphoric acid.	Lime.
Cow manure (fresh) contains nitrogen.....	0.34	0.41	0.40	0.16	0.31
Horse " " " "	0.58	0.70	0.53	0.28	0.21
Sheep " " " "	0.83	1.00	0.67	0.23	0.33
Hog " " " "	0.45	0.54	0.60	0.19	0.08
Hen dung " " " "	1.63	1.98	0.85	1.54	0.24
Choiiced stable manure	0.50	0.60	0.63	0.26	0.70

Ammonia is formed by a combination of nitrogen and hydrogen during the process of decay of all organic matter.

The sulphuric acid contained in gypsum or land plaster combined with ammonia and prevents its escape. (1) Chloride of lime also has the same effect, producing deodorisation of putrid matter, and may, like the former, be sprinkled with advantage in stables and on dung heaps both as a sanitary precaution, and to keep the fertilizer intact—and these should be the object of the farmer who would carefully husband the manure.

But before reverting more particularly to this, we notice the practice of some who have different ideas. Some advocate that the cattle should run loose, and the manure not be cleaned out all winter, claiming that by this means no part of the manure is lost, that the cows urinating upon it, cause it to rot (2) as it is made, and it is in the best condition to apply to the land the following spring. This plan seems to have many disadvantages, as to cleanliness, although it is claimed that a free use of land plaster alluded to will obviate any difficulty in that respect. Then, it must be very uncomfortable for the cattle to get in and out of their stable towards the end of the winter, beside the discomfort of always treading in their own dung. The opportunity to have all the animal manures in combination would be lost, if the advantage of that hypothesis be true, because it would only be the cow manure which would be made, and that as we have seen is deficient in nitrogen and potash.

Another school of practitioners resort to the very opposite course, that is to say, clean the manure out of the cow barn every day during the winter and deposit it on the land quite fresh. Their claim is that by this means they can keep their stable perfectly clean, that the manure loses none of its fertilising elements during cold weather, because they are not set free until exposed to a temperature of at least 80° Fahrenheit—that the snow and rain wash the manure into the soil, and when the spring, with its warm days, arrives, it is there, ready to be assimilated by the growing crop, no extra time as to carting, turning, and mixing having been spent upon it.

Where the land is flat and there is no danger of the manure being washed away by storms or sudden thawing of the snow, this plan, especially in the economising of labour, has its advantages, but here again we lose the chance of combination with the dung of other animals.

To be in a position to conserve the manure to the best advantage it is necessary to have the farm buildings so arranged that the manure can be taken away and put in a proper place to receive it. Many good farmers have their horse stable so arranged as that the

(1) Always provided the manure is in a moist condition.—Ed.

(2) After a beast has been 3 months in a box, at liberty to move about, the dung, owing to constant pressure, comes out utterly unchanged. We speak from long practical experience.—Ed.

old bedding can be placed behind the cows and used as an absorbent, this is an economical way of using the straw where it can be done without too much labour and inconvenience; some barns are constructed for the horses to stand over the cows, and in that case the old bedding from the horses can be put down to them without any trouble, again underneath this is a manure cellar.

A barn floor, to enable us to keep the cattle clean and at the same time to save all the manure, liquid and solid, should be constructed with those ends in view, such a floor is well known. The part on which the cattle stand is 54 inches wide, behind the cattle is a slat flooring and behind this a water tight gutter into which the manure drops and is with the urine and bedding placed on it as an absorbent.

Supposing that there is no manure cellar below, and traps are placed at convenient distances to put down the manure; a passage 6 feet wide on which a hand cart can be run for the removal of the manure will be necessary.

Many now object to manure cellars because they are not perfectly healthful and complete sanitation is unquestionably of the highest importance to the well being of the cattle—(We hate them.—Ed.)

The latest improvements in farm buildings present a shed at the end of the barn, and are so constructed that the manure from all the various animals and poultry can be deposited therein conveniently.

The bottom of this shed is in concrete, and made to slope to one corner, where a tank is made to catch the soakage to be pumped back upon the heap occasionally.

The heap must be kept level on the top, and over-heating prevented by redistributing the liquid upon the solid matter equally by means of a hose attached to the pump.

There will probably be more liquid than is necessary to keep the manure in a properly moist condition; this will make an excellent top dressing for grass lands.

Chemical compounds having been already dissolved, the effect is immediate. Meadows, dressed with liquid manure just after mowing, produce at once a rich and abundant aftermath which acts as a protection from frost in the absence of snow during winter, and is a good fertilizer for the succeeding crop of hay.

Liquid manure cisterns are common in Europe, the Danes, perhaps the most economically progressive farmers of the day, make great use of them.

Some farmers dispense with the shed and pile their manure in the open yard, taking care that no drip from the eaves can fall upon it, or streams of water wash it. That there will not be enough moisture fall from the clouds to do any harm, in this, they may be correct, but one of the objects of storing manure in a covered shed is that store pigs may be run on it.

In the manufacture of manure we can have no better assistant than the hog. In the first place he will add his

quota of the richest, or nearly so, of manure, he will root it over in his search for undigested grain &c. he will burrow in it and gradually tread it into a solid mass, thus aiding fermentation and decay of the absorbent used, and preventing the escape of ammonia.

If highly nutritious food is given to hogs, the nature of their manure will be proportionately increased; for instance, according to Dr. Goessmann.

1 Ton of linseed meal costing \$27.00, its manurial value is	\$21.75
1 Ton of (1) wheat bran costing \$20.00, its manurial value is	14.50
1 Ton of wheat middlings costing \$20.00 its manurial value,	10.75
1 Ton of corn meal costing \$20.00 its manurial value,	7.50
1 Ton of Timothy costing \$12.00 its manurial value,	5.00
1 Ton of skim-milk costing \$4.10 its manurial value,	1.85
1 Ton of sugar beets costing \$5.00 its manurial value,	1.15
1 Ton of mangels costing \$3.00 its manurial value,	1.10

It will thus be apparent that we not only make profit in the rapid production of good pork, but also in the improvement of manure, by good feeding.

When the manure is taken from the place in which it has been made it may be carted on to the field where it is to be used and piled conveniently in large square heaps; in a few days these should be turned over and well broken up so that there shall be no large lumps and it may be spread evenly. By this process no appreciable loss of ammonia will be caused because the temperature will not be sufficiently high to cause its liberation and until placed on the land a little dry earth (2) sprinkled on the heap will prevent its escape.

The manure spreader is an excellent labor saving machine when the farm is sufficiently large to warrant its purchase.

Soiling.—By keeping cattle confined and feeding them on green cut food their manure can be kept together and used as required instead of being dropped promiscuously upon the pastures or probably along the fences on under trees where cattle browses and where manure is useless.

When pastures fail by reason of dry weather, soiling is a useful practice but to carry it on successfully a succession of green crops, such as peas, vetches, clover, cabbage and fodder corn must be grown. Soiling is most valuable on account of the chance it gives the farmer to economize on the manure.

Small farmers, especially the non-progressive ones, will say: "Oh this is all theoretical nonsense which is too expensive for us, we cannot afford all the fine buildings spoken of". But these will do well to consider how far they can adopt a better system in the accumulation and preservation of manure, remembering that to keep up the fertility of their land is their only chance for success and this cannot be done without liberal manuring.

They will find it to their advantage in the end to expend a little money and labour in taking better care of this valuable material.

If they do not want to go to the expense of building a shed, they can arrange a part of the barn yard, concreting the bottom and sloping it as in the shed; make a tank lined with clay, to receive the liquid: this tank should be covered with a grating. But

(1) Mr. James Drummond of Petite Côte, Montreal, agrees with us that bran is too costly if the price exceeds \$14.00 a ton.—Ed.

(2) A foot or so, and clay rather than lighter soil.—Ed.

a shed, which will also answer as a hog pen, can be built with rough boards at a trifling cost, and will prove more economical.

A good farmer can be told by the care he takes to accumulate and preserve manure. If this is allowed to go to waste there will doubtless be leakages in other directions caused by neglect or ignorance, most frequently by the former; and this will be the man to grumble and say that "farming does not pay." It is strange, that a man who would not be so foolish as to scatter a bushel of oats along the gravel road, would think nothing of allowing that to run to waste which would produce hundreds of bushels in due time.

He who uses all diligence to increase production, by care and attention to the means of doing so, will be the prosperous, happy and contented farmer.

GOM. MOORE.

The Poultry-Yard.

An explanation—New laid eggs for Christmas—Increased production and greater prices—Some interesting letters—A Merry Christmas.

(A. G. GILBERT.)

Your editorial foot note re the number of hens I recommended in my last letter, viz.: 11 or 13, as the proper number to be mated up in early Spring, was well taken. You stated "that the most successful poultrymen in England allow one cock to, at most, 5 hens." That is no doubt the better course when only a limited number of chickens are wanted. While I agree with you in the main let me explain the reason I had for recommending the greater number. I was advocating the use of an incubator in order to have early pullets. In such a case the farmer would be more likely to get a sufficient number of eggs to fill a one hundred egg machine in less time,—which is an object—from 11 or 13 hens than he would from 5. And in my experience when a small number of hens are mated with a vigorous male, the majority of chicks are apt to be cockerels. Of course, if you have male birds and room enough to permit of several breeding pens, the lesser number of females is more likely to result in fertile eggs at that early period. Especially is the lesser number to be recommended when the breeding stock are closely confined to limited quarters. Where a run outside is possible, the larger number is admissible. But as a rule farmers can afford but one mating and they will have to be governed by circumstances in choosing the number of females. They will be none the worse, at any rate, from the little discussion your editorial foot note has brought out. Indeed the subjects of "mating up," the "proper number to mate up" and "the proper time to mate," are very important ones and will bear discussion at the right season.

NEW LAID EGGS FOR CHRISTMAS.

Meanwhile the month of December is rapidly approaching and may I ask how many of the farmers of the Province of Quebec will have new laid eggs from their laying stock where with to reap the high prices of the Christmas season? I remember when I first began to gain my poultry experience, that it was taken as matter of

course in our household, that the eggs used in making the Christmas pudding were to be now laid ones. And I can assure you that there is a very great difference in the flavour of the now laid article and the "preserved" or "packed" egg. A lady, with whom I was discussing the winter egg supply subject, not long ago, after hearing what I had to say, remarked, "that a friend had told her some time before that now laid eggs should be in such supply during winter, that there really should be no necessity to pack away eggs for use in winter." And although the inference to be drawn from the conversation is that she preferred what her friend had told her to what I was then telling her, it was perhaps, after all, only a woman's peculiar way of expressing acquiescence with your statements. Any way, the information conveyed by her friend was correct, there should certainly be no occasion for packing eggs in summer for eating or culinary purposes in the ordinary household, if eggs were brought by the farmers to the market in such numbers, as to make the price within the reach of all. "Ah! there is a contradiction in his statement," says some one "for he tells us to get eggs in winter because high prices prevail and then he tells us they should be in such supply as to be within the reach of all for eating or cooking purposes." Yes, there is an apparent inconsistency, but there is no time on the present occasion to enter into the question, interesting as it would be. Suffice it to say that the time does not yet appear near when winter prices will be made lower by the quantity of the new laid article brought into the Montreal or Ottawa markets.

GREATER PRODUCTION BUT STILL GOOD PRICES.

I have knowledge that every winter, for some years past, new laid eggs have been in greater supply than ever before, and yet prices were never higher in Montreal and Ottawa than they were last winter. What does that prove? It shows that if there has been a greater supply than ever before that there must have been also a greater demand, or, prices would not have been higher. There can be no doubt that in the past two or three years, as the results of greater attention being given to the subject by the farmers and by following the instructions given from our farm, agricultural journals, &c., that more new laid eggs have been produced in this neighborhood and sold in this city.

SOME INTERESTING LETTERS

Here are some letters to prove my statements:

Marchhurst 9th Nov. 1895.

Dear Sir,

In answer to your note I beg to say that we generally have from 15 to 20 dozen eggs a week from our hens, in winter. We expect to get 30 to 35 cents per dozen for them. We have forty-five turkeys and twenty-five pair of chickens for sale.

Your &c.,
Mrs. W. J. IRVINE.

Marchhurst 6th Nov, 1895.

Dear Sir,

In reply to yours of 31st Oct. I have to say that last winter our hens laid from twelve to fifteen dozen eggs a week and I got from 30 to 35 cents a doz. If I took the eggs to market

every week I got 35 cents. If I did not go to town for two weeks, I got 30 cents for the eggs of the first week and 35 cents for those of the second week. I cannot tell at present how our hens will do this winter, but I intend to make them do all they can with care and feeding.

Your &c.

Mrs. S. L. GILCHRIST.

Marchhurst 3 Nov. 1895.

Dear Sir,

Your letter to hand, I can supply you with 5 dozen of eggs a week during the coming winter.

Mrs. THOMAS McCORD.

Kemptville 31st Oct. '95.

Dear Sir,

In reply to your letter, I beg to say that Mr. I. H. Pollock of North Gower told me that a number of farmers in his neighborhood have henneries of fair size. Mr. Duncan Cummings of South Gower, gets 4 and 5 dozen eggs a day and Mr. P. C. Frazer of this town gets also a number.

Yours &c.

ANSON J. COCHRANE.
Acting P. M.

Metcalf 1 Nov. 1895.

Sir,

Your letter to hand, I have five pairs of nice chickens. They weigh 11 lbs. per pair (live weight). My hens are beginning to lay. I shall be in Ottawa the week after next with 10 or 12 dozens of new laid eggs.

Yours, &c.

Mrs. B. HOWES.

The above are only a few letters, three of them from Marchhurst, a village about 15 or 20 miles from this city. They show that three farmers wives in that locality, make money from their eggs in winter and poultry in the shape of turkeys and chickens. Mrs. Barlow Howes, who has the chickens at the creditable weight of 11 lbs per pair (live weight) and whose hens are beginning to lay for the winter, sold eggs last winter as high as 45 cents and as low as 25 cents a dozen. Had she known in time she could have sold the whole of her winter yield at 40, 35 and 30 cents a dozen. All the writers of the letters live in a part of the country where the winters are about the same as with you and what they have done and are doing may also be accomplished by the farmers wives of the Province of Quebec, particularly those near the high priced markets of Montreal and Quebec.

A MERRY CHRISTMAS.

As this is the last opportunity I will have of wishing your numerous readers the compliments of the season, before it has become a thing of the past, I do so now. With the hope that all the farmers of your Province will have new laid eggs wherewith to mix their Christmas puddings as well as turkeys, geese ducks, and chickens to grace the festive boards of the city and towns folk, at a handsome margin of profit, I wish both buyer and seller, customer and farmer, producer and consumer a Happy Christmas and a Merry New-Year.

PRIZE LIST (SHERBROOKE).

HORSES.

Thoroughbred stallions, four years and up—F. S. Wetherall, 1; W. J. Hunt, 2; Beaconsfield Stables, 3. Standard and registered stallions, 4 years, shown in harness—Dussault & French, 1; G. K. Foster, 2; R. G. Berry & Co., 3. Stallion, 3 years—J. H. Lano, 1; H. C. Jenkins, 2; J. H. Lano 3. Stallion, 2 years—H. L. Bort, 1; G. F. Torrill, 2. Stallion, one year, Dussault & French, 1; John Learned, 2. Stallion, any age—Dussault & French, diploma. Filly or gelding, 3 years—H. D. Smith, 1; H. T. Ball, 2; Dussault & French, 3. Filly or gelding, 2 years—Dussault & French, 1. Brood mare, with foal by side—Dussault & French, 1; John Learned, 2.

CARRIAGE AND COACH.

Stallion, four years and up—Robt. Ness, 1. R. R. Ness, 2. Filly or gelding, 3 years—Wildor Pierce, 1. Filly or gelding, 2 years—Wildor Pierce, 1. Filly or gelding 1 year—R. A. Lamont, 1. Brood mare, with foal by side—W. Pierce, 1. Female, any age—S. L. Clough, 1. Pair matched carriage horses—M. H. Cochrane, 1; E. T. Corset Co., 2. Single carriage horse in harness—M. H. Cochrane, 1; S. L. Clough, 2; A. N. Worthington, 3.

HACKNEYS.

Stallions, 4 years and up—M. H. Cochrane, 1; A. Lebeau, 2. Stallion, 3 years—Vento Farm Co., (Klein), 1. M. H. Cochrane, 2. Stallion, 2 years—M. H. Cochrane, 1; Stallion, 1 year—M. H. Cochrane, 2. Stallion, any age—M. H. Cochrane, diploma. Filly or gelding, 3 years—A. M. Tyleo, 1. Dr. A. N. Worthington, 2. Filly or gelding, 2 years—M. H. Cochrane, 1; H. D. Smith, 2; A. N. Worthington, 3. Filly or gelding, 1 year—Vento Farm Co., 1. Female, any age—M. H. Cochrane, diploma.

ROADSTERS.

Filly or gelding, 3 years—S. L. Clough, 1; A. Lebeau, 2; J. McLeod, 3. Filly or gelding, 2 years—W. B. Murray, 1; R. Cillas, 2; M. Delaney, 3. Filly or gelding, 1 year—W. B. Murray, 1; C. Armstrong, 2. Brood mare, 15 hands, with foal at side—Dussault & French, 1; M. Delaney, 2. Female, any age—R. A. Smith, diploma. Single drivers, in harness—G. F. Terrill, 1; H. T. Ball, 2; R. A. Smith, 3; 13 entries. Pair drivers, shown in harness—E. C. Squires, 1; Gibson Bros., 2; J. R. Woodward, 3; 18 entries.

GENERAL PURPOSE HORSES.

Stallions, 4 years and up—R. H. Pope, 1; E. C. Squires, 2; J. Biron, 3. Filly or gelding, 3 years—D. McCurdy 1; Alton Hodge, 2; H. W. Burton, 3. Filly or gelding, 2 years—William Gage, 1; I. J. Parnell, 2; Cillas, 3. Filly or gelding, 1 year—R. Cillas, 1; I. J. Parnell, 2; A. T. Winton, 3. Foal of '95 by registered sire—Vento Farm Co., 1; J. G. Mallory, 2. Brood mare, with foal, 1100 to 1300 lbs—Vento Farm Co., 1; J. G. Mallory.

CLYDES AND SHIRES.

Stallions, 4 years and up—Robt. Ness, 1; H. D. Smith, 2. Stallion, any age—R. Ness, diploma. Filly, 2 years—H. D. Smith, 1. Filly, 1 year—R. Ness, 1. Brood mare, with foal at side—R. Ness, 1. Female, any age—R. Ness, diploma.

PERCHERONS BOULOGNAIS AND NORMANS

Stallions, 4 years and up—R. Ness, 1; H. W. Doak, 2; J. Lapointe, 3. Stallion, any age—R. Ness diploma.

DRAUGHT HORSES.

Filly or gelding, 3 years—R. Cillas, 1. H. D. D. Smith, 2. Brood mare, 1300 lbs. foal by side—Thos. Drysdale, 1. Ed. Cillas, 2. R. Cillas, 3. Female, any age—R. Ness, diploma. Pair mares or geldings, over 1400 lb. to waggon—S. L. Clough, 1; R. Ness, 2; Macfarlane, 3. Pair mares or gelding over 1200 and under 1400 lbs.—Compton Model Farm, 1.

HUNTER AND SADDLE HORSES.

Saddle horse, mare, or gelding—H. D. Smith, 1; J. P. Davos, 2; A. N. Worthington 3.

SHEEP.

Loicester, ram 2 shears and up—R. W. Frank, 1; W. Frank, 2. Shearing ram—Robt. Allen, 1. Ram lamb—Robt. Allen, 1; R. W. Frank, 2. Two ewes, 2 shears up—R. W. Frank, 1; I. J. Parnell, 2. Two shearing ewes—R. W. Frank, 1; I. J. Parnell, 2. Two ewe lambs—R. W. Frank, 1; I. J. Parnell, 2. Pen: 1 ram, 2 ewes, 2 shears and up—R. W. Frank, diploma. Shropshires; Ram, 2 shears and up—Isleigh Grange Farm; M. H. Cochrane, 2.

Shearling ram—M. H. Cochrane, 1; Isleigh Grange Farm, 2. Ram, lamb—Isleigh Grange Farm, 1; S. A. McKay, 2. Two ewes; two shires and up—Isleigh Grange Farm, 1; S. A. McKay, 2. Two shearling ewes—M. H. Cochrane, 1; Isleigh Grange Farm, 2. Two ewe lambs—M. H. Cochrane, 1; Isleigh Grange Farm, 2. Best pen Shropshires—Isleigh Grange Farm, diploma. South Downs—Ram, two shires—G. Carr, 1; H. J. Elliott, 2. Shearing ram—G. Carr, 1. F. S. Wetherall, 2. Ram, lamb—G. Carr, 1; H. J. Elliott, 2. Two ewes, two shears—G. Carr, 1; H. J. Elliott, 2. Two shearling ewes—G. Carr, 1; H. S. Wetherall, 2. Two ewe lambs—G. Carr, 1; H. J. Elliott, 2. Best pen—G. Carr, diploma. Grades and crosses—two ewes and two shears and up—G. Carr, 1; A. Hodge, 2; I. Parnell, 3. Two shearling ewes—A. Hodge, 1; L. A. McKay, 2. Two ewe lambs—R. W. Frank, 1; A. Hodge, 2; I. Parnell, 3. Special prizes were awarded to M. H. Cochrane for five excellent exhibits of Dorsets.

DAIRY PRODUCTS AT SHERBROOKE.

M. Robt. Wherry, whose name is so prominent in the annexed list, must come, he or his ancestors—from the county of Kent. At least we hope so.

Best white cheese, 50 lbs., June make—M. E. Ray; 2, Robt. Wherry; 3, C. A. Beattie.

Best white cheese, 50 lb., July—1, E. L. Grimes; 2, Mrs. A. J. Newton; 3, M. E. Ray.

Best white cheese, 50 lbs., July—1, Robt. Wherry; 2, Mrs. A. T. Newton; 3, M. E. Ray.

Best three white cheese, one each of June, July and August—Robt. Wherry, silver medal.

Best colored cheese, June—1, M. E. Ray; 2, Mrs. A. T. Newton; 3, Robt. Wherry.

Best colored cheese, July—1, Robt. Wherry; 2, Mrs. A. T. Newton.

Best colored cheese, August—1, Mrs A T Newton; 2, Robt Wherry; 3, A. T. Newton.

Best three colored cheese one of each June, July and August—Robt Wherry, silver medal.

Best lot of three cheese on exhibition—1, Robt. Wherry, gold medal

Best white home made cheese, not less than 15 lbs—2, G. A. Hodge; 3, B Robert

Best 3 tubs or firkins of butter, made in creamery of Quebec—1, Compton Model Farm; 2, J. de L. Taché; 3, A. McCallum; 4, Lennoxville.

Butter, not less than 10 lbs, rolls, prints or packages, made in creamery—1, J. de L. Taché; 2, Compton Model Farm; 3, Mrs. H. Ross; 4, A. McCallum.

Butter, two tubs, firkins or crocks, dairy or creamery—1, C. C. Hanson; 2, Sydney Fisher; 3, G. A. Hodge.

Butter, not less than 10 lbs., rolls, prints or packages, made in dairy—1, M. H. Cochrane; 2, C. C. Hanson; 3, Sydney Fisher; 4, L W Taylor

FALL FAIRS

Toronto Industrial Exhibition Formally Opened

SPLENDID WEATHER DRAWS LARGE
CROWDS AT BEDFORD AND
SHERBROOKE

Toronto, Sept. 4—Toronto Industrial Fair was formally opened yesterday afternoon. At one o'clock the directors entertained at a banquet Lieut-Governor Kirkpatrick, the Hon. Dr. Montague, the Hon. John Haggart, the Hon. Edward Blake, the Hon. N. C. Wallace, the Hon. Richard Harcourt, Sir James Grant, of Ottawa, Mr. G. F. Marter, M.P.P.; Lieut. Col. F. C. Denison, M. P.; Mr. Wm Mulock, Q.C.; Mr. O. A. Howland, M. P. P.; and members of the City Council. President Withrow made a brief speech, extending a welcome to the guests. He was followed by Sir James Grant, who, on behalf of the city of Ottawa, expressed his appreciation of the invitation, and congratulated the directors on the position the industrial fair had attained. The Hon. Dr. Montague, on behalf of the Dominion Government, pointed to the magnificent showing of the products of the manufacturing industry and agriculture as evidences of the prosperity which Canada was enjoying. The Hon. E. Blake made a congratulatory speech, in which he paid a tribute to the enterprise of the management, and spoke of the reputation achieved by the fair abroad as something of which Canadians might well be proud. Shortly after two o'clock the official opening of the exhibition took place in the presence of about five thousand persons on the grand stand. President Withrow delivered an address of welcome to Lieutenant-Governor Kirkpatrick, in which he stated that the exhibition was the greatest annual exhibition not only on the continent of America but in the world. The character of the display afforded congratulations to every well wisher of Canada as showing unmistakable signs of returning prosperity. Lieutenant-Governor Kirkpatrick, in reply, expressed his great pleasure in officiating on such an occasion, and referred on complimentary terms to the leading features of the fair. He concluded by formally declaring the exhibition opened.

AT SHERBROOKE

Sherbrooke, Que., Sept. 4—The third day of the great fair at Sherbrooke has been blessed with Queen's weather and it is expected that this will be one of the largest days of the exhibition. At 11 o'clock thirteen thousand persons had passed through the turnstiles and trains are arriving hourly loaded with sight-seers so that it is estimated fully twenty thousand will visit the grounds to-day. Great credit is due to Chief Davidson and his staff of assistants for the foresight in providing ample protection from sharpers and swindlers of all kinds, they being very conspicuous by their absence. To-day having been proclaimed a holiday by the Mayor the citizens are taking advantage of it and attending in large numbers. The main building is thronged with an intelligent crowd, who are attracted there by the very excellent display of furniture by Messrs. H. A. Wilder & Co. of Montreal, Jas. Steel, also of Montreal and this city. The farmers are also well represented by a fine display of farm and dairy produce, the cheese being exceptionally fine as may be expected when it is said that it comes from Brome County, which has a worldwide reputation for cheesemaking. The fruit exhibited by Mr. H. W. Elder, of Bebe Plain, is worthy of special mention. The flower display, which occupies the central rotunda, is very artistically and tastefully arranged and send forth sweet odors over the entire building. A couple of quilts in the children's department, made by two little girls by the name of Seiveright, aged respectively three and five years, are attracting a good deal of attention. The ladies of the different Protestant churches are receiving a large share of patronage at their lunch counter, the profits of which are in aid of the Protestant Hospital.

The following distinguished visitors are on the grounds to-day, the guests of the directors:—The Hon. L. O. Taillon, Premier; Mr. J. P. Pelletier, Provincial Secretary; Mr. M. F. Hackett, President of the Council; Mr. G. A. Nantel, Minister of Public Works, and Mr. P. E. Leblanc, Speaker of the Assembly. They were entertained at luncheon on the grounds at one p.m. and will be tendered a banquet at the Magog House this evening.

The judging in the different classes is being continued this morning.

PRIZE LIST

Cattle—Darham Bulls, three years and upwards, Hillhurst Farm (the Hon. M. H. Cochrane), 1; H. J. Elliott, 2. Bulls, two years and over—C. C. Cleveland, 1.

Bulls, one year old—R. R. McLeay, 1.

Bull calf—Hillhurst Farm, 1; C. C. Cleveland, 2.

Bull, any age—Hillhurst Farm, diploma.

Cow, four years old and upwards, in milk or calf—C. C. Cleveland, 1; Hillhurst Farm, 2; H. J. Elliott, 3.

Heifer, three years, in milk, or calf—C. C. Cleveland, 1.

Heifer, two years—Hillhurst Farm, 1, C. C. Cleveland, 2.

Heifer, one year—Hillhurst Farm, 1; H. J. Elliott, 2; C. C. Cleveland, 3.

Heifer calf—Hillhurst Farm, 1; R. R. McLeay, 2.

Best female, any age—Hillhurst Farm, diploma.

Best herd, consisting of one bull and four females, any age—Hillhurst Farm, diploma.

Herefords—Bull, three years and upwards—H. D. Smith, Ingleside Farm, 1; D. M. Wilson, 2.

Bull, two years—D. M. Wilson.

Bull, one year—H. D. Smith.

Bull calf—H. D. Smith.

Bull, any age—H. D. Smith, diploma.

Cow, four years and up, in milk or calf—H. D. Smith, 1, Hackott, 2, D. M. Wilson, 3.

Heifer, three years, in milk or calf—H. D. Smith, 1; Hackott, 2; D. M. Wilson, 3.

Heifer, two years—H. D. Smith, 1; Hackott, 2, D. M. Wilson, 3.

Heifer, one year—H. D. Smith, 1; D. M. Wilson, 2; C. H. Hackott, 3.

Heifer calf—H. D. Smith, 1; D. M. Wilson, 2; C. H. Hackott, 3.

Best female, any age—H. D. Smith, diploma.

Best herd of one bull and four females—H. D. Smith, diploma and \$10.

Aberdeen Angus—Bulls, three years and up—R. H. Pope.

Bull, two years—R. H. Pope.

Bull, any age—R. H. Pope, diploma.

Aberdeen Angus—Cow, four years and up, in milk or calf—R. H. Pope 1; D. M. Wilson, 2.

Heifer, three years, in milk or calf—R. H. Pope.

Heifer, two years—R. H. Pope.

Heifer, one year—R. H. Pope.

Heifer calf—D. M. Wilson; R. H. Pope, 2.

Best female, any age—R. H. Pope, diploma.

Best herd of one bull and four females—R. H. Pope, diploma and \$10.

Ayrshires—Bulls, three years and up—Robertson & Ness, 1; J. N. Greenshields, 2; R. Robertson, 3.

Bull, two years and up—A. McCallum.

Bulls, one year—Thomas Drysdale, 1; R. Robertson & Ness, 2; A. McCallum & Son, 3.

Bull calf—A. McCallum & Son, 1; Robertson & Ness, 2; J. N. Greenshields, 3.

Bull, any age—T. Drysdale, diploma.

Cow, four years and up—T. Drysdale, 1; Robertson & Ness, 2; A. McCallum & Son, 3.

Heifer three years—Robertson & Ness, 1; T. Drysdale, 2; T. Davidson, 3.

Heifer, two years—Robertson & Ness, 1; T. Drysdale, 2; A. McCallum & Son, 3.

Heifer, one year—Robertson & Ness, 1; A. McCallum & Son, 2; J. N. Greenshields, 3.

Heifer calf, Robertson & Ness, 1; T. Drysdale, 2; T. Davidson, 3.

Best female, any age—Robertson & Ness, diploma.

Best herd of one bull and four females—Robertson & Ness.

Jerseys—Bull, three years and up—E. P. Ball, 1; F. S. Wetherdale, 2; C. C. Hanson, 3.

Bull, two years—Coleman, 1; F. S. Wetherall, 2; E. P. Ball, 3.

Bull, one year—E. P. Ball.

Bull calf—E. P. Ball, 1; Mrs. Ball, 2; C. C. Hanson, 3.

Bull, any age—E. P. Ball, diploma.

Cow, four years and up—E. P. Ball, 1; C. C. Hanson, 2; Mrs. Ball, 3.

Heifer, three years—E. P. Ball, 1; C. C. Hanson, 2.

Heifer, two years—F. S. Wetherall, 1; E. P. Ball, 2; Mr. Frank, 3.

Heifer, one year—Mr. Frank, 1; E. P. Ball, 2; Mrs. Ball, 3.

Heifer calf—E. P. Ball, 1; Mrs. Ball, 2; C. C. Hanson, 3.

Best female, any age—E. P. Ball, diploma.

Best herd of one bull and four females—E. P. Ball, diploma and \$10.

Guernseys—Bull, three years and up—J. N. Greenshields, 1; S. A. Fisher, 2.

Bull, two years—Mr. Lawrence.

Bull, one year—J. N. Greenshields.

Bull, any age—J. N. Greenshields, diploma.

Cow, four years and up—J. N. Greenshields, 1; S. A. Fisher, 2; Mr. Lawrence, 3.

Heifer, three years—J. N. Greenshields, 1.

Heifer, two years—Mr. Lawrence, 1; J. N. Greenshields, 2; S. A. Fisher, 3.

Heifer, one year—J. N. Greenshields, 1; S. A. Fisher, 2.

Heifer calf—S. A. Fisher, 1; J. N. Greenshields, 2.

Best female, any age—J. N. Greenshields, diploma.

Best herd of bull and four females—J. N. Greenshields, diploma and \$10.

Holsteins—Bulls, four years and up—McDuffee & Butters.

Bull, one year—McDuffee & Butters, 1; B. Robert, 2.

Bull calf—McDuffee & Butters.

Bull, any age—McDuffee & Butters, diploma.

Cow, four years and up—McDuffee & Butters.

Heifer, three years—McDuffee & Butters.

Heifer, two years—McDuffee & Butters.

Heifer, one year—McDuffee & Butters.

Heifer, calf—McDuffee & Butters.

Best female, any age—McDuffee & Butters, diploma.

Best herd—McDuffee & Butters, diploma.

MIDLAND CENTRAL FAIR

Kingston, Ont., Sept. 4.—The Midland Central Fair opened on Labor Day with an attendance of five thousand, chiefly to see the baseball contest, Guelph vs. the Granites. On Tuesday the exhibits were in place and a very successful show was presented. The palace had a very extensive display of fancy and general goods, manufactured here and elsewhere. The ladies' work was up to the standard in richness and newness. The art department was not well filled, but the pictures shown were good. The public school scholars exhibited neat specimens of vertical writing and also drawing. The flowers, fruits, vegetables and grains were good, notwithstanding the many adverse declarations that the drought was damaging and disastrous. The poultry is very fine. Kingston has for some years held a foremost place in this department. Machinery was light and confined to local exhibitors. The new industry—the carriage works, was largely in evidence. The display was fascinating. The horses, cattle, sheep and pigs were good but not extensive. The butter and cheese was excellent, while the products—bread, buns, jams, pickles and preserved fruits—of the housewives were decidedly pleasing. The week's attractions are very numerous and include balloon ascensions, baseball matches and horse races. This afternoon the attendance was very large.

THE BEDFORD FAIR

Bedford, Que., Sept. 4.—The Missisquoi County fair opened the second day under the same favorable circumstances as on the first day, viz. fine warm weather and a cloudless sky. Crowds came in from all parts of the country and it was estimated that over eight

thousand people were on the grounds to day. Among the principal items of the second day's programme were the trotting races, and a bicycle race, one mile, best two in three, first prize given by Messrs. J. J. Mullin & Co., of the People's Favorite Store, second, by Messrs. Hill & Morse, merchants. Some of the finest displays of ladies' work to be seen in floral hall consists of fine hand knit laces of all patterns and descriptions, also a fine display of stuffed birds, animals, etc., by C. H. Corey and crayon pictures, paintings, etc., by Mrs. F. C. Borden. There was a balloon ascension given by the Kickapoo Indian Medicine Company last night in front of their concert hall, which delighted the crowds remaining over night in town.

Swine.

SWINE BREEDING IN EUROPE.

Pig-breeding is conducted on an extensive scale on the Continent. Bulgaria and Servia are great pig-breeding and pig fattening countries. It is to Great Britain that the breeders of pigs in these countries come for their best sires. Hanover had a pig population of 1,037,104 in 1892, as against 762,881 in 1883. The most popular animal of the race there is the cross between the Yorkshire White boar and the native German sow. The latter have the reputation of being hardy and fertile, but, although known, the Tamworth, Berkshire, and Poland China are not at all in the same favor for crossing as the Yorkshire White. There is a large breeding establishment at Eggersen, where Large White Yorkshire pigs are raised, and, in order to prevent inbreeding, with its attendant evils, sires are, from time to time, introduced from pedigreed herds in England. The breeding stock, as a rule, numbers between ninety and one hundred sows and four breeding boars. From these about nine hundred young swine are annually produced, and out of these two hundred and fifty or three hundred are selected for breeding. The others are castrated when eight weeks old and taken off the dam. Young swine intended for breeding are nursed for about ten weeks, and sows are not bred from until they are from ten to twelve months old. They have litters twice a year, and both boars and sows are kept for breeding until four or five years old. The food is not garbage, but good wholesome bran husks, middlings, maize, whole wheat, turnips, and potatoes. The nursing sows are fed thrice daily and sows in pig twice a day. Young pigs are fed from three weeks old, chiefly on middlings and whole wheat, and the utmost attention is paid to cleanliness, exercise, and fresh air. These methods differ widely from those followed by breeders in other countries; yet they are only rational, and it is unwise to expect the sow to breed successfully before she has reached maturity, or wholesome pork to be grown in the midst of dirt, and from pigs fed on every kind of offal.—*Farming.*

YOUNG PIGS UNTIL WEANING TIME.

If the place for farrowing is warm, the sow should be but little disturbed while she is farrowing. But it is better when the owner can be on hand. His presence may oftentimes save the life

of a young pig. When the weather is so cold that there is danger of the young pigs becoming chilled so as to perish, they may be put into a basket lined with warm cloths almost as soon as they are born, and conveyed to a warm place by the kitchen fire. They may then be brought out at intervals to take nourishment from the dam. But it is better, in every way, if the farrowing pen is warm enough to obviate the necessity of taking the young pigs away from the dam.

As soon as they are a day or two old, they will get along nicely without any very special attention if the sow is fed properly, and the bedding is sufficient and also dry. But if the sow is overfed during the first week, or if the food is not what it ought to be, disaster in one form or another will come upon the young pigs.

If the sow is overfed just at the first, her udder will become inflamed, and she will not allow the pigs to nurse. If she is fed improper food, the digestion of the pigs will become deranged. They will probably be visited with an attack of diarrhoea. Such a visitation is, in a sense, calamitous where many litters are kept, as, unless great care is taken, the disease will go through the whole herd. To prevent this, lime should be spread upon the floors several times a day, and the pigs of the other litters kept entirely away from them.

Diarrhoea may arise from a sudden change of food in the sow; as from ordinary swill to clover, from feeding sour food to the sow, from overfeeding the sow so as to produce indigestion, and from a filthy condition of the pen. The remedy is to modify the food given to the sow, changing from the kinds more difficult of digestion to those that are less so. A tablespoonful of sulphur given to the sow once a day for two or three days will help to prove a correction in the milk. Exposure of either sow or young pigs to a cold rain may induce diarrhoea.

Where but one litter is to be reared a year, the young pigs may be encouraged to eat with the dam. When between one and two weeks old, a few oats may be thrown on the floor of the pen. They will soon learn to eat the oats without swallowing the shell. The trough for the sow should be quite low, so that the young pigs may soon learn to eat with her. The food that is best suited to her wants will be best suited to theirs. They will soon learn to take their food regularly with the dam, and as time advances they will become less of a drain upon her, inasmuch that when weaning time comes, at the age of ten to twelve weeks, they do not feel the deprivation when they milk of the sow is taken away from them. In fact, they will sometimes voluntarily wean themselves when they get to be about three months old.

But where two litters a year are raised, a somewhat different system will have to be adopted. The aid of skim milk from the dairy will have to be called in. A place may be made in which the young pigs can take food apart from the sow. They should be given a low trough, and a little skim-milk may be put in this trough when the pigs have got past two weeks old. They will soon learn to take this milk freely. It should be fed warm, and should not be allowed to stand long in the trough. As soon as they learn to drink it, some shorts may be added, and then the same kinds of meal as are being given to the sow. A little oil meal may also be added with much advantage. In this way the young pigs soon learn to take what will

prove a substitute for their mother's milk.

When sows have farrowed, the young pigs should not be allowed to go to pasture with them, and more especially in the spring, until they have reached the age of three or four weeks. In the autumn when they come early, they may go with the dams at a somewhat earlier age. When the sows only are allowed to go to pasture, they do not stay long away from their young; hence they get accustomed gradually to the change of diet which the pasture brings to them.

Any food given to the young pigs directly should be highly nitrogenous in character. It should be calculated to promote the development of muscle and bone rather than to the laying on of fat. If a highly carbonaceous ration were given the pigs, such as corn, or even peas, and in large quantity, the young pigs, if kept confined, would soon lose the use of their limbs, more or less, and they would cease to develop properly. No food ration is better for them than skim-milk, and a meal adjunct added, consisting of equal parts of shorts, ground oats, and ground corn, or, in the place of the corn, ground peas.—*Farming.*

The Flock.

SELECTING A PUREBRED FLOCK.

In the choice of which breed of sheep he should select, the beginner must be governed by circumstances. Although on the rich pasture lands of Canada any of the heavy breeds may be handled with success.

Generally speaking, the new beginner has already fixed in his mind which is his favorite variety, and success is more likely to follow when a decided preference has been decided upon, for the breeder must be an enthusiast in his work, or he is not likely to succeed.

THE CHOICE OF A RAM.

If judgment has been required in selecting the ewes, still more care should be exercised in purchasing a suitable ram. Cattle men tell us that the bull is half of the herd. The same rule may be applied to the flock. Hence it will be a great mistake to buy a ram that will not bring improvement into the flock. For this is the true method of progress. Upon the quality of the sire depends the improvement of the flock, and here comes the profit, in producing offspring of a higher value than the ewes from which they spring.

EWES FOR THE SHAMBLES.

All ewes culled out for sale should be made ready for the market, and sold for what they will bring. Old ewes do not give a return for winter finishing as young lambs do. They will not bring a price sufficient to pay for a costly ration of grain food. They should, therefore, be fattened, as far as possible, in the pastures, and sold before the winter closes in, or, if a sale cannot be made of them then, they should not be allowed to go beyond the Christmas season. Such stocks fatten most cheaply on good grass, or on rape. Some grain added may, in

many instances, be turned to good account. Of course, there are different kinds of cull ewes. Some may be culled because of age, and some because of an unshapely form, or injury to the udder. The latter may be young, and will, of course, feed much better than the former. But, as a rule, the aim should be to feed lambs in winter, rather than matured sheep.

FEEDING PUREBRED RAM LAMBS.

Purebred ram lambs should be well fed. If they are not, they will be undersized, and this means that they cannot be sold during the present season. It is well that they should be sold, for as shearlings they will not bring very much more. When weaned, the lambs held for sale should, where practicable, be separated from the others, and put upon a liberal allowance. The amount of the grain food required will be largely dependent on the character of the other food. If the lambs can be put upon a nice clover pasture, or upon rape, or some such green food, they will not want much meal. And it is better that they should have succulent food rather than much grain. Such food keeps them in better breeding condition. And they are also kept in better health. But where the pastures are dry, they should get ample supplies of grain, such as oats and bran, for instance, with some oil cake added.—*Farming.*

SHEEP AS FERTILISERS OF THE SOIL.

Sheep may be made to render great service in restoring fertility to worn soils, and also in preventing lands from being depleted of their fertility. In fact, the assumption is safe that no quadruped kept upon the farm will equal them for this use. It has been noticed that where sheep are kept, better crops can be reared upon the arable portion of the lands than where they are not kept, and this increase in fertility is a factor that should not be overlooked when we are estimating the profits which accompany sheep husbandry.

Some of the reasons which give sheep the pre-eminence claimed for them in this paper are not far to seek. In the first place, they are out on the pasture during a large portion of the year. While thus pasturing, they are distributing droppings over the surface of the land. The droppings are more evenly distributed than those of cattle and horses. They fall amid the herbage that is being pastured, and lie close upon the surface; hence, when rain falls, the fertility in the manure is washed into the earth, and comes at once into contact with the roots of the growing plants, and much of the droppings is actually incorporated with the surface soil by the treading of the sheep.

In the second place, the distribution thus spoken of is a great saving in labor. When manure is made on what is termed the soiling system of feeding in its strictest sense, that is to say, by the system of feeding in sheds or stables, the manure has to be carted and distributed. This means labor, and labor means outlay or its equivalent. The distribution of fertility by sheep upon the pastures is a factor that must be considered when we are estimating their relative economical value. And owing to their natural

instincts they leave a large share of their droppings where it is most wanted, that is to say, upon the high land. They instinctively take to the higher ground when seeking a resting place, hence the result just mentioned.

In the third place, they enrich ground by pasturing off crops sown for the purposes of pasture. Suppose sheep eat off a crop of rape; they leave the cultivable portion of the ground, that is, the upper section, richer than before it grew the rape. The reason is clear. The roots of rape go down into the subsoil and bring up plant food, much of which is transformed into leaves and stems. These furnish the sheep with food, and, when digested, the chief portion of the plant food which they contain falls back upon the land in the droppings or in the urine. Some of the plant food down in the subsoil, where the roots of some useful plants could not get at it, are thus brought up to the surface, and deposited there in a very available form. Now, suppose a crop of rye had preceded the rape, and that it had also been pastured; the same benefit in kind would have followed the pasturing of the rye. And when clover can be pastured, the benefit is still greater, for the clover brings additional fertility from the air. Thus it is that benefit in fertility follows the pasturing of crops that are grown for sheep. And the benefit is always greater when these crops are deep rather than shallow rooted.

And, in the fourth place, sheep bring fertility to soils by the richness of the manure obtained from them through winter feeding. Sheep manure is very rich in all the essential elements of plant growth, but it is especially rich in potash. And it is made in a form in which it may be easily saved without waste. The solids and the liquids are intermixed, hence, there is practically no loss of the liquids if the sheds and yards are kept well bedded. The tramping of the manure also tends to prevent the escape of ammonia. But one evil has to be guarded against, viz., loss from fire-fang. The proportion of the liquids to the solids in sheep manure is not large, hence it is much prone to become too dry. To prevent this, it should be drawn at intervals not too far apart, and distributed over the fields.

When we take into account the money value of sheep as compared with other industries; when we take into account the relatively small amount of labor which they take, and when we add to this their great value in bringing fertility to the soil, we cannot but conclude that when the conditions are favorable much attention should be given to sheep husbandry.

AGE OF THE BREEDING FLOCK.

Editor Sheep Department, FARMING:

"B.," Chesterfield: At what age should grade ewes be sold, or beyond what age is it unprofitable to keep them?

ANS.—There is a great difference in the length of time that ewes will retain their usefulness. It is the same with them as with persons. Some retain their vigor much longer than others, owing to their constitution. A few weeks ago we had to dispose of the old ewes of our flock that had been purchased as yearlings and two year-olds in the fall of 1890. These ewes were exceptionally good milkers and breeders in comparison with other

grades, and we kept them just as long as we could, so as to have better and younger ones to take their places. As a rule, it is advisable to keep the flock young. That is, they should be as near three and four years old as it is possible to have them. It is at these ages—three, four and five—that that they will be the most vigorous and milk best, and have their highest value for selling if it is desirable to cull them out. Shearings require much more attention at lambing time, as they are not as attentive to their lambs as the older sheep. By keeping the good ewes that remain hearty, and breeding the same ram to them each year, it is easy to establish a uniformity in the type of the flock, and that is worth dollars and cents, whether the product goes to the butcher or the breeder. Sometimes a ewe of strong vitality will continue to breed past the years mentioned; but, as a rule, it will be noticed that the fleeces of her lambs of each succeeding year are coarser than those of the preceding, and the lambs do not appear as thrifty as those of earlier generations. The reason is that the milk supply is failing, and on that score alone the ewe should be sold. Each year the best of the ewe lambs should be selected, and, when these become shearings, the worst of the old ewes should be sold to make the necessary room.

The Dairy.

A LARGE CATTLE BOAT.—There was launched at Glasgow lately what is said to be the largest cattle steamer afloat. She is called the *Georgie*, and has been built for the White Star Steamship Co. Her tonnage under deck is 9,603 tons gross, and she has accommodation for 900 head of cattle.

At the dispersion sale of the late Mr. Robert Thompson's celebrated Inglewood herd of Shorthorn's very successful prices were realized. The highest price, 260 guineas, was paid by Mr. Ross for the bull Royal Spice, and the same buyer also secured Marie Millicent at 155 guineas. Several of the lots were bought for South America. The average for bulls was £45 1s. 8d.

ALTIMO THE COWS is sometimes neglected in the pressure of busy harvest days. It is on some farms a Sunday job, and not always every Sunday either. All animals need a regular supply of salt. Dairy cows especially cannot do well without access to salt at all times. Recently an American experiment station has been making trials along this line, and found, after repeated tests, that cows regularly salted gave 24 per cent. more milk than did the same cows when salt was removed from their reach.

RAISING CALVES.—The rearing of young calves is quite an industry in some parts of Britain, and it is found to be a profitable branch of the stock business. Some farmers supply dairymen with a bull, and contract for the calves at so much per head when dropped. During the calving season they may call once a week or oftener, as may be arranged. For the first few weeks the calves are fed on new milk largely, but are gradually accustomed to other foods, such as skim-milk, boiled linseed, oatmeal, hay tea, etc. At four or five months old they are

weaned, and allowed only oil cake on pasture. The first winter they are fed on straw, turnips, and oil cake, and are fit for the butcher when from twenty-four to thirty months old.

THE Red Polled cows of the Suffolk breed have a good reputation for giving large quantities of milk and butter. Many of them give over 6,000 lbs. of milk year after year, and not a few go considerably over that quantity.

DRESSED BEEF.—The first shipment of dressed beef from the port of Montreal since five years ago was forwarded on the *Anglo-man*, of the Dominion line of steamships, on August 30th. This steamer is fitted up with a fine cold storage system. The cargo of dressed beef consisted of 600 tons of American beef, shipped by Swift & Co., Chicago.

PURE WATER.—In every gallon of milk there are at least seven pints of water, a fact sufficient to convince any one that good water, and plenty of it, is needed by the dairy cow. It is a fact that in many dairy sections there are low places, swamps, and frog ponds, where the cows are allowed to drink. This is especially the case in the dry days of harvest. No prudent dairymen will permit his cows to drink at such places. They should be fenced off, and an abundant supply of fresh, pure water supplied.

THE BUTTER COW.—The modern dairy cow in her best form is a highly artificial animal. The more artificial she is the better. The dairy cow has been trained and made over by the hand and brain of man for a perfectly natural purpose, for giving milk, yielding butter, and making money, and even if her artificial training does end sometimes in milk fever or other disease unknown to wild cattle, yet she will make an amount of butter in a week that would have killed her unpampered ancestors to attempt. The difference has been made by artificial treatment and by judicious selection. The good cow has been carefully encouraged to do better, and her produce kept to improve upon the past, and the end is not yet. More can be done, and is being done, by wise dairymen to make still greater records.—*Farming.*

The Horse.

LOOSE TIRES.

To the Editor of FARMING:

E. D., London: Can you suggest a plan whereby I can fix the loose tires of my wagon without having to send them to the blacksmith shop?

ANS.—The only method that you can employ is to soak the felloes of the wheels in hot oil. For this purpose a cast-iron basin has to be made, which stands on blocks, to raise it a little from the ground, so that a fire can be built right under it. These basins are manufactured in Cleveland, O., but we do not know if they can be obtained in Canada. As much of the felloes as possible is placed in the basin of hot oil, and left till it is well soaked with it. Keep turning the wheel afterwards till the whole of the felloes is soaked. The hotter the oil, the better and quicker the job.

SORE SHOULDERS.—An excellent and cheap remedy for sore shoulders in work horses and a quick healer for any part galled by harness-rubbing is half an ounce of indigo put into half a pint of alcohol. Sop this on the spot with a sponge or soft cloth three times a day, and it will cover and harden.

ELECTRIC CARS have certainly put on the market a large number of horses, and have tended to the present low prices all over the continent of America. But when figures are carefully gone into, it is found that the whole number displaced in the United States is less than three per cent. of the total number of horses in the country.

REGISTRATION.—The first volume of the General Stud Book containing the pedigrees of racehorses was issued by Messrs. Weatherby in 1793. There were many carefully kept private records long before this. Indeed, some of the animals in this first volume go back to the stud located in the 1643 at Taubury, in Staffordshire, by King Charles I.

GOOD PRICES FOR HACKNEYS.—The prices of good Hackneys in England are still very high; but even moderate ones, of good breeding, bring good prices. Recently the Ferry Hill stud, the property of R. G. Heaton, Chatteris, were put up to auction. Fifty-seven heads were sold at an average of \$600 each. The highest price of the sale \$1,900 was given for a daughter of Danegelt. One by Rafas was bought for South Africa for \$1,850. The lowest price was \$135 for a young foal.

FOALS.—These should receive careful attention during the fall months, when the pastures are bare, and the flow of milk from the dam is lessened. They will soon learn to eat with the mare a few crushed oats, a feed of which will help to keep the mare in good milk. Be careful of them during the cold wet days of the late fall, and see that they are housed in a dry place when the cold, rain storms come. Weaning time is a most trying one for the young animals, and they need extra care at that period.

LIGHT HORSES.—The London *Live Stock Journal* has the following: "It is not easy at first to see how Canada can force us out of the street market with light cart horses and van horses but the fact remains that at £25 (\$125) per head they are fast doing so." Freights have been very low, merely nominal. The lines to Liverpool have been racing with those to Southampton as to which will give lowest freights for this class of stock.

GERMANY has been buying a lot of horses the past summer, some from this side of the water, but many more near at home. Recently, at a horse fair at Liège, Belgium, the Germans bought of all classes; heavy horses at \$180 to \$220; medium, \$120 to \$160; good carriage horses, \$200 to \$240. In one month one thousand fillies have gone from Belgium to Germany.

FEEDING.—Horses should be frequently fed, and when doing hard work the food should be rich and nourishing. The horse has a very small stomach for his size, and, on the other hand, his intestines are very large. Cabmen in large cities find that it pays to carry a nose bag and give

the animal a small feed at every opportunity. In driving long journeys frequent stops and feeds will greatly help the horses to do easily an extra amount of work.

ACQUIRED HABITS

It is well known to horse breeders that acquired habits are often transmitted to offspring. This is seen in tricks and peculiarities, both good and bad. It is very specially seen in gait. The walk and gallop are the only original methods of travel. Many wild horses now have only these two gaits. The trot was early added, and then came the pace, and by crossing pacer with pacer, this gait can be bred as the trot. This is, in a measure, also true of the rack, or single foot, and of the running walk. This last has been developed during the last fifty years, and is much prized in a saddle horse. The running walk may be taught to any young, handy saddle colt.

In crossing selected sires and dams, the gaited saddle horse is now bred with natural gaits, and colts fairly beat their parents at facility of movement in these adjuncts of the modern horse. These things plainly teach that acquired habits are transmitted to offspring, though some scientists deny that such is the case. Too little thought is given to this matter by many breeders. If a horse has bad wind or bad legs they may hesitate to breed from him, but few think of refusing to breed from a fine animal because he has a bad temper or an ugly habit. A good tempered, tractable horse is a treasure and a pleasure to the owner, and these things can be bred in an animal as well as a graceful figure and good bone and muscle.—*Farming.*

FALL FOALS.

With many farmers the fall is the best time for breeding the mares. In raising horses, it is quite an item to manage the breeding and feeding to secure the best results. Nearly all farmers work their breeding mares, and, in order to lessen the cost of keep, the time of breeding should be determined by the work of the farm. Have the mare suckle her foal in the idle season. The fall foal comes at a time when the mare can best be spared from work. Then, during the winter season, when the foal is suckling, more of the mare's food can go to the production of milk than when the mare is at hard work. The colt is ready to be weaned in the spring before the mare is needed for the spring work, and it gets, then, a bite of good grass, and has the summer pasture before it. It requires more than ordinary care to have a mare suckle her colt during the summer, and also to take her share of the farm work. Foaling in the spring, the colt has to be shut up while the mare is at work, at least part of the time, for it is not safe at all classes of work to have the foal running with the dam. There is, at all times, a risk while with the team that the colt may become entangled in the harness or machinery, or be injured by using the milk while the mare is heated with her work. The mare bred in the fall will do more and better work, with less injury to herself and the foal, than if she is bred in the spring.

Another matter of no little importance is that the popular stallions have

in the spring more than they can easily do. When the stallion has fewer fall services, as at present, the colt has a better chance to come strong and good.

Ordinary farm work is a benefit, rather than a detriment, to the brood mare while carrying her foal. It is best to manage so as to get the best foal, as well as the most work, and this at the least cost. If a good colt cannot be raised, do not breed at all. There is an overstock of common horses, and they are difficult to sell at any price. There is a fair price for a first class animal. If you are breeding, see that you use the best mare you can get, and mate her suitably to the best sire you can find. Manage the breeding so as to give you the use of the mare when most needed, and at the same time so as not to impair the growth and value of her foal.—*Farming.*

REPORT OF MM. G. A. GIGAUT AND J. D. LECLAIR.

If the temperature of the cream is raised too high, or the cooling be done too slowly, the butter may acquire a taste of burnt milk. If bad ferment be used, or cleanliness be neglected, it is very natural that the pasteurisation may turn out to have been useless or even prejudicial.

The degree of ripening depends on the quantity of the ferment added, on the temperature, and the length of time it is allowed to take. Practically, the time is always settled beforehand, so the per centage of ferment and the temperature should be regulated to suit it.

Should the time be long or short? in other words, should the ripening be hastened or delayed? On this point opinions are divided, and dairymen contend vehemently on either side. Many of them prefer a rapid ripening, from noon to evening, for instance, but it is doubtful if this is always the best plan, for in some cases it might turn out quite inefficient.

What per centage of starter should be added to cream when the duration of the ripening is fixed beforehand? Experience teaches that this depends on the temperature of the cream, which, in practice, may vary greatly, according to circumstances, which are sometimes very unfavourable. To make firm butter, churned at a rather high temperature, many creameries, for want of space, employ for ripening $\frac{2}{3}$ or $\frac{3}{4}$ of sweet cream with $\frac{1}{3}$ or $\frac{1}{4}$ of cream of the previous day; the latter, as a starter, is warmed to such a degree, that it becomes uniform in 24 hours, and, added in such a large proportion, it is able to complete the ripening at a relatively low temperature i. e., from 54° to 57° F. This plan has answered in many places but its practice is not free from risk, and it should not be adopted except where there is no cold water or ice.

The vessels for holding cream should be such as can be easily cleaned. The air in the rooms where they are kept should be pure and as dry as possible. When the air is close and moist, the bacteria develop with ease, especially if the temperature is rather high, and the quality of the butter is not to be depended on because the detrimental bacteria predominate. Moreover, to produce good and long-keeping butter, it is absolutely necessary to get perfect ripening, which should not be checked too soon. When the cream has reached its proper state of ripeness and possesses the desired aroma, it should

be churned at once; if the temperature is too high, it must first be lowered the proper point.

The vessels for the cream should be made of wood or tin. Some years ago, cream used to be ripened in large oaken casks with wooden lids. If the staves are thick and the wood hard and solid, these casks are useful, for wood being a bad conductor of heat, it maintains the contents at an equable temperature. But the great inconvenience of wooden casks is that it is very difficult, if not impossible, to keep them clean and tidy; so a great step in advance was made when the use of tin vessels was begun. As regards cleanliness, tin should always be preferred to wood, but tin vessels have the disadvantage of not being able to preserve the heat.

In small creameries, the cream jar is placed in a cask and surrounded by hay as an isolating body. In larger establishments it is better to have a special room for ripening cream in which the air may remain pure and the temperature regular.

For the fittings of these rooms, Mr. Burke, some years ago, advised the use of thick woollen wrappers round the tin cream vessels, and this is an excellent plan if these double vessels are solidly built and can be easily cleaned, but, lately, many such have been put on the market that are badly made, difficult to clean, and in which the cream can easily penetrate between the wood and the tin, whence arise bad smells, etc., none like these ought on any account to be used.

In some parts of this country, among others in Schleswig Holstein, cream jars are kept in vats full of water, in which case it is easy enough both to warm the cream to the ripening temperature, by introducing steam into the water bath and to regulate the temperature by means of cold water.

But this method is not always to be recommended, for these reasons:

1. It can only be followed in places where there is plenty of water.
2. The air of the room will become damp through the steam of the lukewarm water, and in a very short time the air, as well as the cream, will acquire a bad smell.
3. The cooling of the cream after its ripening (skimming), and after its ripening, does not perfect itself in very large vessels, and if small vessels are used it is not easy to get the ripening of the cream to be uniform.

In some creameries, larger tubs or vats, like the American cheese-vats, have been introduced; in these the whole of the cream is ripened in a body. With this system, one is liable to do the first churning with rather unripe cream, and the last churning with cream rather too ripe. Still, in certain conditions, this method may be very useful, and it at any rate economises labour; it may turn out, though, that the quality of the butter is not so good: anyhow opinions differ on this point.

When the tin cream-jar is too large to be put into a cask, or when there is no special room for the ripening, the frequent practice is to surround the cream-jar with an envelope of hay. Care must be taken that the hay is quite dry. The ripening-room should have a north aspect, if it can be warmed in winter. The best plan is to have a room large enough to be used for working the butter in as well as ripening the cream, both these operations require a well ventilated room, cool in summer and warm in winter.

To give special rules for the ripening of the cream is a hard task; still,

we here append the method employed by Mdo. Hanne Nielsen, of Havarthgaard (1).

We will first remark that Madame Nielsen practices the ice method, and that the churning temperature varies from 50° to 66°, according to the season, the food of the cows, &c. Here is her method:

At 8 a. m. all the cream is warmed in an enamelled tin cream-pot to a temperature of 84° F., 5 per cent of buttermilk is at once added. The cream is then allowed to rest in the ripening-room, the temperature of which is from 50° to 54° F. and by noon the cream will have fallen to 66° F. The jar is then placed in a cask with hay in it, and the whole is covered with a butter-cloth. At 6 p. m. it will be about 61° F., and at 7 o'clock the cream begins to become uniform; it is allowed to go on ripening till 9. During the whole day, especially at first, when the temperature is high, it is frequently stirred to make it homogeneous.

At 9 o'clock the cream is taken out of the cask and well mixed; the jar is then placed (in a tub of water in summer) on the floor, so that in the morning the cream is about 50° F. In winter the ripened cream is warmed in a tub of water.

Madame Nielsen attaches great importance to the following points:

1. Churning at the proper temperature.
2. Adding the ferment at a high temperature.
3. Allowing the temperature to fall regularly.
4. Allowing the ripened cream to rest a certain time (the whole night) at a temperature of about 50° F.

Madame Nielsen states that by following this method she gets a butter firm, solid, uniform in quality, and with a delicate aroma, always provided that the churning and working of the butter be properly conducted.

CHURNING.

In Denmark, the Holstein churn is the one chiefly in use. A good churn ought to bring the butter in from 25 to 45 minutes, at a moderate temperature, so that the quality of the butter is not deteriorated. During the whole operation the churner must constantly watch and control the temperature, the pace of the churn, etc. When the butter is come, care must be taken not to keep the churn in motion longer than necessary. The churn must be easy to fill and to empty, to clean and to air, the materials of which it is made should be such as to impart no taste or smell to the butter, and be at the same time bad conductors of heat. The best woods for churns are oak and beech. Never paint the inside of the churn.

Before pouring in the cream, the churn is to be washed with lukewarm water, and in hot weather it must be rinsed with cold water, and the cream put in immediately, the temperature having been suitably arranged beforehand. The quantity of milk whence the cream has been taken must be ascertained, in order to know how much colouring is to be added, that the butter may have always the same tint. The cover is then put on and the churning begun.

Length of time for churning.— This depends on the make of the churn, on the pace it is worked, and on the temperature; the last may vary with the food of the cows and the lapse of time since

(1) *Gaard* a Norse word, is the same as our yard or enclosure. cf. Fishguard, Apple-garth.—A. R. J. F.

calving. With normal milk, the temperature varies from 50° to 68° F., but for abnormal milk, the variation may be much greater, consequently, it is difficult to lay down fixed rules on this point. However, we may say that it is better for the temperature to be a little too low than too high, because in the latter case a risk is run of having a butter too soft and not enough of it.

In autumn, when the cows are housed, great care should be taken not to begin churning at too low a temperature, since the cream may then be in danger of frothing. Should this happen, it may be remedied by adding a little boiling water, but in general it is better to let the cream rest till the next day, to allow the froth to disappear. Then, by the warming it up 2° or 3° above the temperature of the previous day, the butter will come quickly, but as long as the cream froths, it will be very difficult to churn.

During the churning the temperature will always rise of its own accord, unless, indeed, the weather be too cold, or the churn be driven too slowly. The rise is generally about 2½° F., and arrives in half an hour, if the cream was at the right heat at the start.

If the temperature does not rise, under ordinary circumstances, it is because the churning has been done at too high a temperature, and, in this case, the butter will not all come, and what does come will be soft.

The cessation of churning at the proper time is of great importance as regards the consistence and texture of the butter. The coming of the butter is ascertained by the thermometer indicating a rise of temperature, and, when that instrument is withdrawn, by the appearance of the drops of liquid clinging to it, which, at the beginning, resemble sour cream with little bubbles of air, but gradually change their look, and at last show the butter itself in small grains. In order to follow up the changes that take place in the churn, a small pane of glass has been placed in the side, an improvement that is highly praised.

When the butter begins to come, and the grains are of equal size, many makers pour cold water into the churn to make the buttermilk thinner. At the same time, the motion of the churn is slackened, lest the butter should mass itself, or be over-churned, accidents that often occur at this moment. As soon as all the grains of butter attain the same size, the churning is stopped.

The size of the grains depends greatly upon the resources of the cream. Usually, they should be about as large as a cabbage seed; this is the best size and shows that the churning has been well done. If the cream is very rich in fat, the grains may sometimes be as large as peas, but, then, care must be taken not to prolong the churning, for the butter would be greasy. When the churning has been carried too far and the grains have become flat in shape, there is no means of making the butter of a brilliant, bright appearance; in spite of all the pains taken in working, it will have a tendency to become dull in look and the texture will be faulty.

After stopping churning, the first thing is to rinse the sides of the churn, the cover, and the spindle, with water that has been boiled and subsequently cooled to the churning temperature, this water must be always clear and pure. In some places, skim milk is used for this purpose, but only where the water is bad and has not been

boiled, boiling destroys the microbes.

The butter is removed from the churn with a sieve, holding the churn in a sloping position. In Denmark, the washing of butter, as it is done in France is not practised. The buttermilk runs off almost entirely through the sieve, and the butter is put into a tub placed at the side of the churn.

In some factories, this is the way in which the washing is done: a sieve full of butter is plunged into clear, pure water, previously boiled, and at the same temperature as the cream when being churned; this takes away most of the buttermilk. All the utensils employed are first scalded and then soaked in clear cold water previously boiled. This butter washing must be done very carefully, otherwise the aroma of the butter might be destroyed. The butter is then freed of the buttermilk by pressure, either by hand or power. (1)

The butter is now weighed, and the quantity of salt calculated according to the taste of the market. The salt is measured in a graduated glass, and sprinkled over the butter as it lies spread on the working table. The butter is then passed under the roller for a few minutes, and laid aside a little to allow it to grow firm, and for the salt to dissolve. When worked again the buttermilk runs off with the brine, but at each fresh working the butter becomes softer, and it would not be easy to determine how often the operation should be repeated. We must take into consideration the state of the cow, the food she is receiving, the season of the year, and the conditions of the churning; but, as regards a uniform quality of butter, temperature influences it greatly. The higher the temperature of the butter and its room, the greater care is needed not to overwork it; the butter, before reworking, must become firm again; consequently the time employed will be longer in summer, because then the butter will remain soft for a longer time, and shorter in winter, since we must not wait until the butter be brittle or too hard to work. Butter at 50° to 54° F. is about right.

Refrigerators for butter.—Take care that butter is cooled equally on all sides, and throughout the entire mass; otherwise a crust, so to speak, will form, the middle will remain soft, and the butter will run the risk of looking greasy. The moment when it is ready to be reworked is when it can be broken, showing grains with sharp edged attachments (*à arêtes vives*). Generally, in autumn or winter, 30 minutes or an hour will do; but in summer, when the butter is very soft, no fixed rule can be laid down. The man or woman, must judge by the consistence and temperature of the butter, when and how often it should be worked. In some places, the butter is worked only once, 2 to 4 hours after salting; but in general, it is better to let it have two or more workings after salting, to give it consistence and beauty. In cold weather, and at any time if the butter seems inclined to become hard, it is better to work it before the salt is completely dissolved, i. e., 45 minutes to an hour after mixing; and an hour, or an hour and a half later, to give it the last working. If, in summer, it is necessary to leave the butter till the next day before working it for the last time, it

(1) The "Dairy Messenger" No. 9, gives a description of one of these instruments. Formerly, the working was done by hand, and great care had to be taken to keep the hands clean and to cool them in ice-water.

should be passed four or five times under the rollers after salting, care being taken to mix the salt more than usual, and expelling as little of the brine as possible.

If it is worked once or oftener and if the butter has a tendency to become either too soft or too hard, it ought always to be kept long enough to become firm, and to receive such a thorough working that the buttermilk be entirely expelled and the brine remain alone and in sufficient quantity. Without observing these rules good butter or superior butter cannot be made; and so as regards both the churning and the working, if we want to avoid breaking the texture of the butter and making it greasy.

HOW TO JUDGE BUTTER AND TO RECOGNIZE ITS FAULTS

Every maker should have a butter tester in order to detect the defects in the working and colour. These defects are not discernible until a couple of days after packing. The butter must have time to settle (*déposer*) first.

First rate butter appears, when drawn out by the tester (*sonde*), to be firm, clean, the texture resembling wax and of a uniform colour. If it has been overworked, its appearance will be dull greasy, or, as the exporters say, "not translucent." Butter worked for the last time before salt is completely dissolved is not uniform in colour throughout, but streaky, etc. Thus, the faults of the butter may be discovered in the factory, and so it would be as well to work it again before marketing it. The defects of colour are visible in a few days; if the right proportion of colouring has not been added, the butter will, of course, be too light or too dark. If the colouring is not of good quality a deposit will form on the bottom of the bottle or jar containing it and the butter will suffer.

Oily butter will be discoverable in a few days, and this characteristic will increase during eight or ten days. By using the tester, the maker will be able to find out the defects and in many cases be able to cure them, or, at any rate, take note of them as a guide in his future conduct.

(To be continued.)

NOTES AND NOTICES.

Mr. James H. Lloyd has gone in for breeding Bull Terriers in addition to the Yorkshires and Berkshires which he has been so successful with. His herds this year, secured 13 prizes with 14 entries at Montreal Exhibition, he has recently purchased two new boars which are well calculated to still further enhance the value of his stock. As will be seen in his advertisement he has some fine young sows ready for shipment at prices to suit the times.

CONSUMPTION CURED.

An old physician, retired from practice, had placed in his hands by an East India missionary the formula of a simple vegetable remedy for the speedy and permanent cure of Consumption, Bronchitis, Catarrh, Asthma and all Throat and Lung Affections, also a positive and radical cure for Nervous Debility and all Nervous Complaints. Having tested its wonderful curative powers in thousands of cases, and desiring to relieve human suffering, I will send free of charge to all who wish it, this recipe, in German, French or English, with full directions for preparing and using. Sent by mail, by addressing, with stamp, naming this paper.

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Windsor Salt

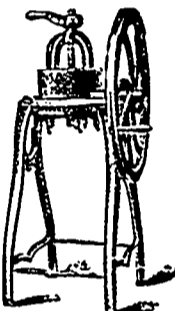
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