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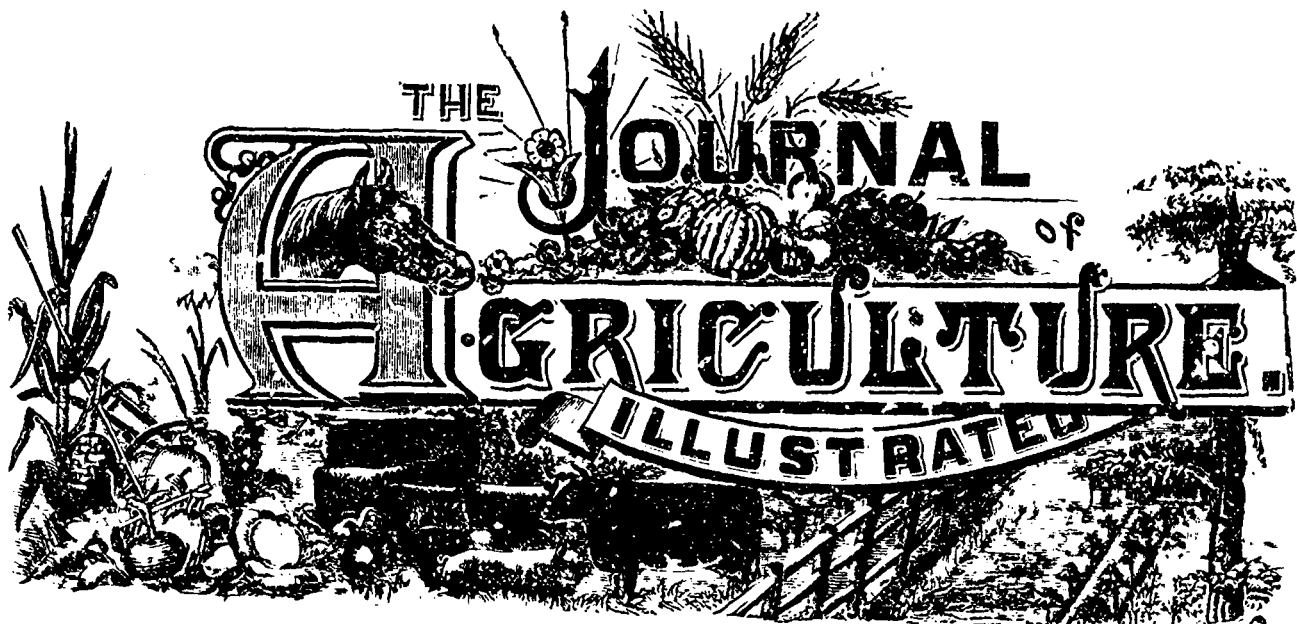
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NOTICE.—The subscription to the *Illustrated Journal of Agriculture*, for members of Agricultural and Horticultural Societies, as well as of Farmers Clubs, in the province of Quebec, is 30c annually, provided such subscription be forwarded through the secretaries of such societies.—**EDITORIAL MATTER.** All editorial matter should be addressed to A. R. Jenner Fust, Box 109, Lachine, Que.—or to Ed. A. Barnard, Director of the *Journals of Agriculture, &c.*, Quebec.

OFFICIAL PART.

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DE OMNIBUS REBUS.

Box 109, Upper Lachine—July 9th, 1889.

The State of the Crops.—I do not think much dependence can be placed on the reports furnished to the papers about the state of the crops. Nothing short of a personal inspection would satisfy me, I know; for, too frequently, interested people depreciate agricultural produce in accordance with their own selfish aims. In my own country, schedules are furnished to every farmer, land-owner, and land-agent; these are filled up and returned to the Statistical Office, and if the tenant is rather inclined to under-rate the yield of his crops, the sharp eye of the land-agent is not to be deceived; so that, upon the whole, a pretty fair estimate of the general produce of the land is arrived at.

I can speak most favourably of the prospects of the approaching harvest in this district—where the land is decently farmed, at all events. The soil, here, is of a peculiar nature, and the constant rains of the past spring and early summer have suited it to a nicety. A field devoted to root-crops, on

the Maplewood farm of the Messrs. Dawes, is a sight to be seen. The carrots and swedes are very promising, and the potatoes are really magnificent. Clover was cut on the 29th of June, and, though the weather has been catching since, Mr. Tuck, the foreman, has had the good sense to leave the mown grass alone when moving it would do no good: stirring hay about—particularly clover—when the weather is doubtful, is most unwise; the clover leaf falls off, and nothing but a stalk and a flower remains. Barley is very heavy, and in many places is down as flat as if it had been rolled; but there is time enough for it to rise and ripen before harvest. What we want now is sun.

New potatoes are plentiful, at 45 cents a peck. Mine—early-roses—were fit to dig on the 21st of June—planted, after germinating in the light, on the 4th of May. Pease are running terribly to haulm; my Stratagems, are 5 ft. 6 in. long, instead of 2 feet, and the pods will not be numerous. *En revanche*, the dwarf, Bliss' American Wonder, was most prolific, and, owing to the constant moisture, the pease were more like marrowfats than earlies.

Three Jersey cows and a calf died, the former from milk-fever, in one week on the Dawes' farm! The Herefords and Polled Angus are all right. These deaths are unaccountable, as the cows had been on grass for at least two months.

One fault to find: the distance between the drills of Belgian carrots 36 inches! 24 x 5 inches are quite enough: what is the good of wasting one third of the land? The horse-doe can work well between 24 inch rows. The only reason the Scotch—capital economists—used to make drills of 30 inches was, that the double-mould-board plough was not, as formerly constructed, suited to make drills at all, and Small's plough, the one in general use in Scotland 40 years ago, found it easier to make a wide drill than a narrow one.

My neighbour, M. Daigneault, plants his potatoes—early-roses—at the curious distances of $3\frac{1}{2} \times 6$ inches. Twenty-four by 12 would be better. They were hand-hoed after the horse-hoe, and of course the hoe could not work between the plants in the row—a very important point in cultivating this crop. His beans, at 18 inches apart, were too near together for the horse-hoe, which worked well between the rows of corn, adjacent, at 34 inches! In no case was the horse-hoe used more than once. The couch-grass was 6 inches high when ploughed in for oats. Altogether, this valuable farm is not pleasant to look upon.

But little wheat grown here. Oats are, as they naturally would be with such a dripping season, magnificent. Fruit poor, but all vegetables abundant.

Swedes.—Very sensible is the American Agriculturist, generally speaking, but why allow Mr. F. H. Wilcox to advise sowing swedes on “spring-ploughed sod-land.” “It is best,” says that gentleman, “not to manure the *ruta-baga* land unless with superphosphate. Mark the ground one way with rows $2\frac{1}{2}$ feet apart; ridge slightly, and sow the seed with the drill as nearly two inches apart as possible.” What can he mean? But then follows a sentence that makes one condone all previous errors: “It ought not to cost more to grow an acre of swedes than an acre of potatoes.” Well, a little more, but not much.

“The best time to sow pickling cucumbers is when the sun is in ‘the Twins,’ (Gemini), which this year comes on June 23. This is an old German’s secret, which insures *win* pickles”!!! *The Farm and Home*. Comment is needless.

Muck.—Apropos to the discussion at the L’Assomption meeting between MM. Chapais and Marsan, which appears in the Report of the Dairy-meeting, I offer an analysis of four samples of *black earth*, or *muck*, from the laboratory of the Maine Agricultural College, neglecting the unimportant constituents, carbon, alumina, &c.:

	1	2	3	4	Dung.
Nitrogen of organic matter in 100 lbs. water-free muck.....	1.29	1.98	1.15	1.51	1.75
Phosphoric acid.....	1.16	.27	.26	1.97	1.75
Potash.....	.07	.17	.04	.27	1.40

But we must not forget that muck is never to be had ‘water-free.’ Shovelled out of the bog and left to dry all the summer, it will even then contain about 50% of water. Dung, on the other hand, contains about 25% of water.

And the difference of contents in the various samples must not be passed over carelessly. How can you farmers tell whether you are using a muck containing only 2.20% of sand as No. 2, or one like No. 3, which holds 35.53% of sand. Again, No. 3 contains only .26% of phosphoric acid, while No. 4 has 1.97%, or nearly 8 times as much! Nobody denies the usefulness of muck, in the absence of straw, as an absorbent of urine, but in a high-waged country like Canada, to talk of drawing from 40 to 60 loads of muck a mile and spreading it over an arpent of land, when sulphate of ammonia is to be had for \$3.25 a cwt. and superphosphate for 60 cents a cwt., appears to me to be a most extravagant proceeding.

One sample of muck is mentioned in the report of the Maine College that contained as much as 2.77% of nitrogen in the water-free condition, i. e. 1.34% in its half-dried

state after a summer exposure to the air. But the rest of the valuable contents were trifling—potash 0.2%, phosphoric acid, .17%; and I should say from experience that the muck in question had been taken from a part of the deposit in which some animal had been engulfed. At all events, as the Director of the Station very sensibly puts it: “The whole matter of its use turns upon the cost of getting it to the barn, and from the barn to the field..... The value of the small amount of plant-food it contains would not average \$2.00 a ton in the case of the samples analysed, reckoning the nitrogen, &c., at such prices as these ingredients would cost in coarsé bone, Carolina rock, and muriate of potash, and it is doubtful if these are as valuable in muck as in the materials named.” This, at least, we are sure they are not.

Cotton-seed meal.—Mr Barnard writes me word that cotton-seed meal is now to be bought, delivered, at Quebec for \$24 a ton by the car-load. At this price it is a very cheap food; cheaper, even, than linseed and pease mixed, but as I am sure of the two last not being adulterated, I still prefer them. I have used linseed for cows whose milk was turned into butter, and I never found it cause illness, as some people complain, but I never exceeded a pound a day for milch-cows, with 4 lbs of pease. However, more on this subject when the weather is more agreeable.

German feeding standards.—“In fact,” says the Director of the Maine Agricultural College, “the practical tests of the German feeding standards which have been made during the last few years, show that a ration may be very efficient when it differs from them considerably. The proposed ration for the college to decide upon, compared with the German ration is as follows:

	Proposed ration.	German ration.
Organic matter (total nutrients).....	14.45	15.40
Protein (albuminoids).....	1.32	2.50
Other (Carbohydrates).....	12.59	12.50
Fat.....	.52	.40
Nutritive ratio.....	1:10.4	1:54

This proposed ration is, of course, deficient in albuminoids, but, it seems to me that that the German ration, with nearly double the amount of nitrogenous matter contained in the other, must be too expensive for this country, where good bullocks only fetch $4\frac{1}{2}$ cents per lb. live-weight.

Shorthorns.—The whole of the Sittyton herd of shorthorns has been sold by private contract (£10,000) to go to South America!

The Royal at Windsor.—The engravings for this month’s journal consist of representations of parts of the Queen’s farms, the Jubilee meeting of the English Royal Agricultural Society being held this year at Windsor. My readers will be interested to know that the space occupied by the exhibition exceeds 130 acres, and the *shedding is more than ten miles in length*. The amount of money distributed in the United Kingdom as prizes for agricultural stock, implements, &c., exceeds one million, six hundred thousand dollars! None of this immense sum comes from government grants.

Hayricks.—Hay is never put into close barns in England. The stacks are generally made 14 ft. high to the eaves, and the height to the ridge is about 20 ft. After heating, the subsidence will be from 4 ft. to 5 ft. In building, the hay is well trampled and pulled by hand, all the length and height of the sides, as long as any loose stuff can be extracted, after

the rick has settled. The patent fans for extracting the heat arc, after four or five years trial, completely abandoned.

Butter.—At the Bath and West of England dairy-trials, “the five dairy-maids all churned at a very low temperature, 42° to 55°; and we never saw at any of the competitions butter turned out in such very fine condition.” Surely, this must mean at such very slow speed, 42 to 55 revolutions per minute! I never heard of less than 56° of heat for churning.

Butter extractor.—The following is a description of the new Swedish butter-extractor, which, if it works well, will probably become a most popular machine.

“In carrying out our invention, we employ a modified form of centrifugal apparatus, somewhat like that usually employed in creameries. The fresh milk is introduced at the top of the drum through radial inlets, and is at once thrown outward toward the periphery of the drum, the heavier particles of the blue milk displacing, or crowding aside, the butter globules, and causing the latter to become crowded together, and to hold the particles of blue milk which are thus incarcerated and prevented from escaping. These butter globules, and the blue milk particles retained between them form an inner cream wall. In order to separate the butter from the cream in this cream wall or stratum of the annular mass, the apparatus is provided with a trundle, which is mounted on a shaft arranged parallel with the shaft of the centrifugal apparatus. This trundle-wheel stands inside the drum, and its periphery enters the cream wall. It is free to rotate, and the rapidly revolving cream in the drum carries it round at nearly the same speed as that imparted to the cream. The entry of the blades of the trundle wheel into the cream wall and their withdrawal therefrom effect a sufficient agitation of the cream to cause the butter globules to separate and allow the particles of blue milk to escape from between them; and afterwards, as these globules sink down toward the outlet, they are enabled to coalesce and form a mass of pure butter, wholly freed from blue milk.

“As the butter sinks down, the particles of milk are gradually removed therefrom; and by the time it reaches the delivery point at the bottom, it will be a mass of pure butter. This mass of butter is removed as fast as it forms by a stationary pipe, the end of which is arranged to cast out and lead off the butter. As in any other form of centrifugal machine, the butter mass, as it sinks down, flows out of itself over the lower margin or lip of the drum.

“The blue milk, which is simply sweet skim milk, containing only a trace of butter, may be led off from the machine in the same way that it is led away from the ‘creamers’ in common use. In carrying out our process the fresh milk may be fed into the apparatus continuously, and the extraction of the butter therefrom kept up as long as the supply of milk is maintained. The advantages of the process are these: the butter may be extracted in as short a time, and with as little expenditure of power as cream is now separated from the blue milk. The butter product is absolutely free from the germs of fermentation. The milk product is fresh skim-milk, also pure and free from lactic fermentation, and not butter-milk. The process is continuous, and may be carried on as long as the supply of fresh milk is maintained; and the milk may be treated while perfectly fresh and new, and no delay or heating is needed.”

“The apparatus has been going for several weeks, and works very satisfactorily, and we shall let you have copies of the Commission’s opinion of it.

“Stockholm.”

AKTIEBOLAGET EXTRACTOR.

Harvest in England.—During the past week, ending June

24th the weather has been of a very uniform character over the whole of the United Kingdom, the nights having been cool, mornings dull, the days brilliantly fine and hot, and the wind dry from east-north-east. Under these circumstances the wheats have eared very fast, blossoming almost immediately under very favourable conditions. The crop thus fairly in sight by Midsummer-day, stands remarkably well and looks big; with a continuation of seasonable weather, harvest should commence during the third week in July and become general by the end of the month. The drying easterly winds and hot sunshine have been most propitious for securing the exceptionally heavy hay crop, and it has also been very favourable to the hop crop, which is making good progress with a decrease of vermin.

Eng. Agricultural Gazette.

Cauliflowers, in these hot summers, are difficult to grow. A plan I have seen recommended is to sow the seed, early, in trenches, prepared with plenty of rotten dung, as for celery. Montreal cauliflowers at the annual exhibition of the Horticultural are about as fine as they make them. Did any one ever eat pease in finer condition than they have been lately? I never did, even *chez nous*.

Haricot- or French-beans.—A hint to lovers of this, the most delicate-flavoured of all vegetables: keep the plants closely picked.

The Royal Farms.—The Shaw farm was completed in 1885, and a nobler range of buildings of this class has never been erected. “The principal features,” says Mr. Morton, “are a magnificent cowhouse for the accommodation of the cows and a large manure house, to which, for the preservation of its fertilising ingredients, the soiled litter from this cowhouse is daily moved. For other stock there is ample provision in calves’ houses, yards with sheds, and pigsties.” The cattle of this farm are pure Jersey and Shorthorns of the common, or dairy-breed.

The Royal Dairy standing near this homestead was planned under the general instructions that while an ornamental dairy was desired, no beauty of ornament would compensate for want of every-day usefulness. Coolness in summer and moderate warmth in winter have been provided by a sun-tight roof and by shelter outside, as well as by double windows; ample ventilation and a plentiful supply of water were also secured. The walls were built hollow, the floor is covered with glazed tiles, having the appearance of a Turkey carpet. The tables and shelves are of marble. The roof is supported by six handsome glazed pillars. The ornaments, fountains, heraldic bearings, and inscriptions of this delightful dairy are all in good taste, and 240 gallons of milk are set daily here in pans of white ware.

The homestead at the Flemish Farm, erected in 1858, is admirable, consisting of a covered yard and all necessary sheds, buildings, and machinery for the shelter of cattle and the preparation of their food. As the site of the homestead happens to be elevated, Mr. Turbull, the architect of the buildings, formed the ingenious idea of making his bricks and ballast of the clay on the very spot where the homestead stands, so as to make a desirable reduction in the elevation, and at the same time to provide ballast sufficient to cover the site a foot deep, and by that means to correct the dampness of the stiff clay. The Devon and Hereford herds are kept here.

Succession garden-crops.—My garden is not an extensive one, but, although it was only broken up out of the primitive state this season, I have managed to get a good deal of pro-

duce out of it. For instance: Bliss' American Wonder pease were sown, April 18th, in rows 15 inches apart, and between half the rows small onions were planted, and between the other rows radishes were sown. The onions were not what are called "top-onions," but the common white kind, sown early the previous year, very thick in the rows—about 20 or 25 seeds to the inch—and, when ripe, dried and kept over the winter. They, and the radishes were fit to pull long before the pease 'shook hands' across the rows. The pease were not fit for the table, owing to the rainy weather increasing abnormally the growth of the haulm, till the 27th of June. When the pease had yielded the last pod, the land was dug or forked over twice, manured, and rows of carefully nursed celery-plants set out in rows 3 feet apart by 9 inches from plant to plant, and *cos lettuce* will occupy the space between the rows: this will be fit for the table—after ten days tying up—before the celery requires earthing up. The celery-plants were grown in pots in my window; cut down with scissors when about 4 inches high, and, when they had shot up again, pricked out into fine mould about 3 inches apart. I had no hotbed, as I did not know what my movements were likely to be until too late to make one. The tomatoes are now *topped*, about 3½ feet high, and loaded with fruit from top to bottom (July 10th). They are only 18 inches apart, and are of course grown on the single stem tied to a stake. They, too, were grown in pots. I regret to say that my friends here who bought their plants of the market-gardeners have had cause to regret it. The early spring brought the tomato beds too forward, so that when the time arrived for setting them out, they were from 10 to 18 inches high, and too weak to support the heavy gales that followed.

I never believed in growing plants in-doors before; but I now see that it can be done successfully if thin-sowing and frequent transplanting be observed.

Guernsey cow's milk test.—"The Guernsey cow *Pretty milkmaid* was submitted to a test of three days on June 17, 18, 19, with the following results. The yield of milk was not due to any preparation, extra food, or peculiar treatment; on the contrary, as she had to be exhibited at the Windsor show of the Royal Agricultural Society, the greatest possible care had to be taken not to force her. It will be observed that the third day's milk-yield is 10 lbs. less than that of the previous two days, a falling off accounted for by the Treasurer's note." From the *Guernsey Baillage*; the pleasantest mixture of English and French.

Cow Pretty Dairy Maid, No. 1,469, 1st prize (Ozanne prize), 1889. Property of Mr. D. O. Le Patourel, Les Quartiers.

		lbs.	oz.
Sunday, June 16,	10 p. m., milked dry.	18	1
Monday, June 17,	5 a. m.....	15	10½
" "	11 a. m.....	12	14
" "	4 p. m.....	14	8½
		61	2
Tuesday, June 18,	5 a. m.....	19	4
" "	11 a. m.....	15	½
" "	4 p. m.....	12	2
" "	10 p. m.....	15	12½
		62	12
Wednesday, June 19,	5 a. m.....	15	11
" "	11 a. m.....	12	7
" "	4 p. m.....	10	1
" "	10 p. m.....	14	6
		52	9

Monday.—Weather favourable.

Tuesday.—Weather unfavourable. Strong east wind.

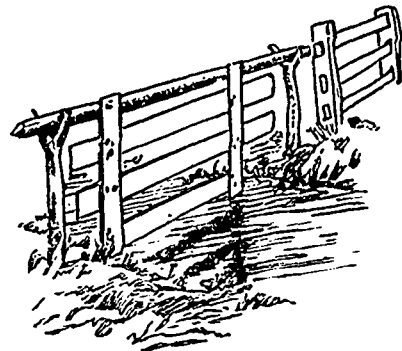
Wednesday.—Thunder storms and heavy rains. Cow, with the exception of a very short interval, kept in stable all day. This, coupled with extreme laxity of the bowels, will account for the considerably less quantity of milk yielded.

I hereby certify that the above statement is correct, and that the test has been carried out entirely in my presence.

R. H. PAYNE, Treasurer R. G. A. & H. S.

A STREAM FENCE.

L. L. C.: To fence a small stream is an easy matter. Set a strong post on each side of it and let each post have a forked top. Lay a heavy pole in the crotches of the posts and suspended from the poles have a length of fence short enough to



swing down stream in time of freshets without interfering with the posts. When the water subsides the weight of this swinging fence will carry it back between the posts so that no stock can pass. (1)

ARTHUR R. JENNER FUST.

LINCOLN LONG-WOOLED SHEEP.

The largest of the English breeds of long-wooled sheep is the Lincoln, of which a typical group is shown in the accompanying spirited illustration by John Payne. The Lincoln sheep of to-day are, in common with many other English breeds, highly improved animals, and much of this improvement is due indirectly to the genius of Bakewell. A century and more ago the sheep which were kept upon the heath land of Lincolnshire were long-legged, flat-sided and bony, with a light, uneven fleece, and so slow of growth that it was not until after the third shearing that they attained full maturity. But they were hardy, vigorous and prolific, with large frames and abundant muscle. When Bakewell created the improved Leicesters by skillful breeding, it was the signal for a general improvement among the English breeds of middle and long-wooled sheep. The New Leicesters were crossed upon the Lincolns, which were greatly improved by the cross. The general introduction of turnip culture had an important influence in advancing the Lincolns to a still higher standard of excellence. The turnips are now supplemented by liberal rations of linseed meal and other rich food, and the Lincolns have responded readily to this generous system of feeding and care. As now bred it is not uncommon for them to weigh two hundred pounds at a year old, and double that weight at

(1) A very old West of England plan.

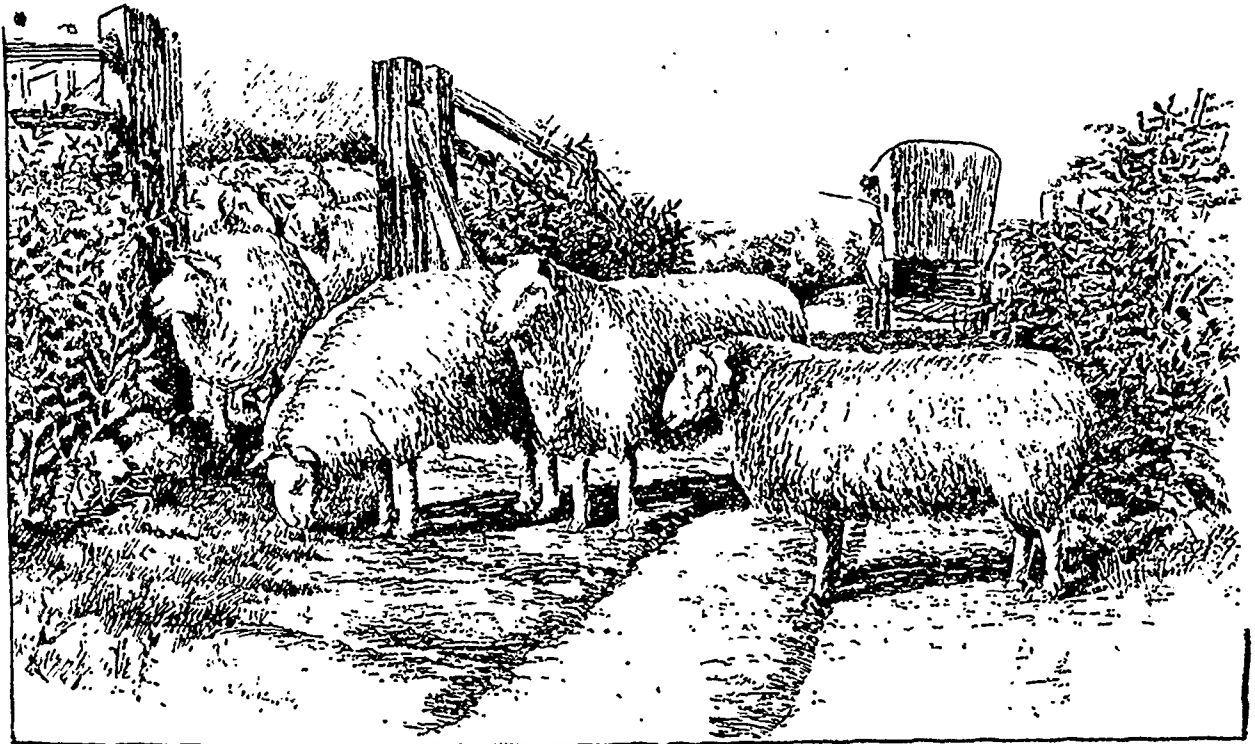
two years, while there are authentic records of shearings which attained a weight of three hundred pounds at thirteen months. The wool is long, silky and lustrous, in an even, compact fleece. The average weight of the fleece of full-grown ewes and wethers is from ten to fourteen pounds, but instances are known of exceptionally heavy clips weighing from twenty-two pounds to thirty pounds of unwashed wool. The mutton resembles that of the Leicesters and Cotswolds, rather than of the Downs. The fat lies in masses, instead of being finely "marbled" through the lean. (1) The ewes are very prolific, twins being very common and triplets not unknown. The Lincolns are hearty feeders and require an abundance of rich succulent food. They would run down very rapidly upon short, dry pasturage, where a flock of American Merinoes would live and thrive.

Lincoln sheep were brought to the United States in 1835, and numerous subsequent importations have been made. A

facture of keeping-butter. I do not intend to detain you for any great length of time.

The report of the judges, who examined the samples that I brought here, shows that I have carried my experiments farther than I did last year; for I kept cream up to the fourth day, and this I treated as in the other examples, only that it was warmed up to 56 degrees. In one case, I followed the Danish plan, that is, I cooled the cream as low as possible, as it came from the separator, and warmed it up again in the evening, in order to acclimatize it a little, churning it the next morning. As to this last essay, I could not get it below 42°; but, with a good refrigerator, like McPherson's, we can cool the milk down to 35°, almost instantaneously. Unfortunately, this refrigerator arrived too late to assist me in preparing my samples.

While I was making these samples, I was too busy to exa-



GROUP OF TYPICAL LINCOLN SHEEP.

fine flock was imported by Richard Gibson, of Canada, and several drafts from his flock were bought and carried to Kansas and Minnesota. They thrive well, with good care, on rich river bottoms and similar situations. But they have never attained great popularity in this country. They require more care and generous feeding than is compatible with the haphazard ways of too many American farmers. They have been largely carried to Australia, and many of the flocks there are unsurpassed in quality. *American Agriculturist.*

TO THE PRESIDENT OF THE DAIRYMEN ASSOCIATION
OF THE PROVINCE OF QUEBEC.

Mr. President and Gentlemen,

Once more I come before you to address you on the manu-

(1) The legs are eatable, but the saddle is a mass of fat.

mine my notes as I went along; but when I found time to examine them attentively, I saw that those churned at the rate of 50 turns a minute yielded more butter than those churned at 36 turns, the pace my churns are calculated to move at. Not having taken notes to ascertain the pace at which certain other samples were churned, I cannot report with any certitude on the subject to-day, but this will show you, Gentlemen, that there is still a good deal to be learned about the yield given by different modes of conducting the manufacture of butter.

The samples were made from the milk of two separate days. The cream of day was churned on three distinct days; the numbers from 1 to 6 were made from the milk of July 2nd; 5070 lbs. of milk gave 190½ lbs. of butter—26.61 lbs. of milk to the pound of butter—. From 7 to 12 were made from the milk of July 3rd; 5069 lbs. of milk gave 192½ lbs.

of butter; 2 lbs. more than the former day—26.33 lbs. of milk to the pound of butter.

Let us take each of these churrings; numbers 1 and 2 are cream 24 hours old, churned at 56° and at 50 turns to the minute; the butter came, in 30 minutes, and it took 23½ lbs. of milk to make a pound. Next, for the first churning of the second day, Nos. 7 and 8 are of cream 5 hours old, churned at 55° and 50 turns to the minute—butter came in 40 minutes. It took 25½ lbs of milk to the pound of butter, a difference of nearly 2 lbs. of milk to the pound of butter.

Numbers 3 and 4 are of cream 48 hours old, churned at 55°; 26 lbs. of milk were required for a pound of butter; but, as to the pace of churning and the time it took, there is nothing, in this case, very certain. My churns move generally at the rate of 36 turns a minute, and the butter is usually 45 to 60 minutes in coming.

Numbers 9 and 10 are of 24 hours cream, and made nearly in the same way as the preceding ones. It took 27½ lbs. of milk to make a pound of butter, a difference of 1½ pound. Numbers 5 and 6 are of cream 96 hours old, churned at 56°, and in the same manner as the preceding: they took 30½ lbs. to the pound of butter. Numbers 11 and 12 are of 72 hours cream, churned at 57°; the rest of the work done in the way as in the former numbers. It took 28½ lbs. of milk to give a pound of butter, a difference of more than 2 lbs. to the pound of butter.

Before going any further I may state that the figures in these statements are only approximate; for as the cream of every day was kept in the same vessel, it may have been either thicker, or more fluid, than the rest, and this may have led to erroneous conclusions.

And now, Gentlemen, what is the cause, or rather what are the causes that have led to these results? My opinion is that the pace of the churning has a great deal to do with them; but there is something more which, if we try with attention and perseverance, we shall discover.

What would greatly aid the advancement of our industry is a school, or rather two schools of instruction in butter-making, assisted with government funds, where the maker might experiment in the art of making as much butter as possible suitable in quality to the market for which it is intended. It is certain that several thousand dollars worth of butter are lost every year because the butter does not fulfil the above condition. If you make export-butter and sell it in the local market you will not get so high a price as if you made it for the local market and sent it in every week.

I believe, Gentlemen, that it is time our association took steps to, if possible, agree with some dealers in Montreal and Liverpool and with a Transatlantic Steam-boat Company to afford proper opportunities to all the creameries and factories who wish to send off their goods every week. In this way we shall be able in a few years to compete on equal terms with all the foreign butter that is sent to the English market. Our butter arriving on the market within a fortnight after being made would not lose its aroma, and could vie advantageously with those butters which remain in the creamery sometimes for a month and afterwards another month in Montreal; when this is put on the market it is very sure it cannot compete with butter which almost invariably gets there within a week of its manufacture. I do not mean to say that we can make butter of equal quality with the Danish goods; but, with pains, we, too, shall arrive at perfection. What we want, as I said just now is schools. Let the government endow two or three butter- and cheese-schools, choosing practical and earnest men to be at their head, and you will soon see us competing successfully with other countries.

Nobody can say that our association has not, small as are

its means, caused the agriculture of the country to make great progress. If our means had been larger, there is no doubt we should have done twice as much good; for, if we had two cheese- and two butter-schools, with one or two inspectors to each school, we could advance much faster along the path of progress; for, in spite of the three inspectors doing all in their power, they cannot be in every place where there is need of them: a creamery or a factory has to wait weeks, and even months, before the inspector is able to visit it, and during that time butter and cheese of inferior quality is being made, and the yield is often as bad as the quality. To remedy these evils, government must help us; it is our part to ask for what is necessary to enable us to continue our forward march, and I trust we shall not ask in vain.

And so, Gentlemen, I will not detain you any longer, as other lecturers are about to address you, in whose words you will be far more deeply interested, I am sure, than you have been in anything I have said.

Thanks, Gentlemen, for your kind attention.

ALEXIS CHICOINE.

(From the French.)

Experiments in Butter-making.

Mr Alexis Chicoine, of St-Marc, Verchères, submitted, at the l'Assomption meeting twelve samples of butter, consisting of twelve tubs of butter, of 25 lbs. each, made under conditions differing, in part, from those of his specimens of 1887.

DETAILS OF THE MANUFACTURE.—CLASSIFICATION.

1st Series.	2nd Series.	July 3rd.	July 2nd.	July 1st.
1	7	10	11	12
2	8	9	10	11
3	9	8	9	10
4	10	7	8	9
5	11	6	7	8
6	12	5	6	7
7	1	4	5	6
8	2	3	4	5
9	3	2	3	4
10	4	1	2	3
11	5	0	1	2
12	6	0	0	1
Pounds of cream used.	214	229	228	228
Age of the cream, when churned, in hours.	5	24	72	72
Pounds of cream to the pound of butter.	3—5½	3—6½	3—6½	3—11½
Pounds of milk per pound of butter (calculated from the cream).	25½	27½	28½	28½
Treatment of the cream.	Kept at 56°	Kept at 56°	Kept at 56°	Kept at 56°
Revolutions of the churn per minute	36	36 to 40	36 to 40	36 to 40
Temperature of churning	55	55	55	57
Time of churning in minutes.	40	45 to 60	45 to 60	45 to 60
Worked once or twice.	1	1	1	1
The experts classified the same samples by numbers which show the range of quality between them.	Class. 1	Class. 1	Class. 1	Class. 1

Messrs. Vaillancourt, Chs. Langevin, and W. W. Pickett, were named as experts to decide upon the relative quality of these samples.

We give the following table, showing the details of the method of manufacture pursued, with the judgment of the experts in the margin. The remarks of M. Chicoine follow, together with the opinions expressed on the subject by the members of the meeting.

The samples are divided into 6 lots of 2 samples each. In each lot, the two samples only differ from each other in one point: one sample has been worked only once, the other a second time 24 hours after the first working, which was done in the same way for both samples.

DISCUSSION. (1)

M. J. DE L. TACHE.—The factory of M. Chicoine was formerly worked with pans or basins. In 1884, M. Chicoine bought cream-separators, and soon found out, as all butter-makers do find out, that another style of treatment is required for cream derived from separators, than that pursued when pans or basins are used. After two years of practical experience, M. Chicoine, in 1886, arrived at these conclusions: Under the ordinary conditions in which milk is delivered at our factories,—both morning and evening meals are delivered in the morning—the skimming being done and finished in the course of the forenoon, and the cream being put into the basins where it cools itself down to 50° or 55°, at which temperatures it remains until churning time arrives; M. Chicoine found, I say, that *this cream was not fit to churn on the morning of the next day*. M. Chicoine did not churn cream treated in this way until 48 hours after skimming, experience having taught him that by so doing, the yield of butter was increased, and the qualities of keeping and body were more surely secured.

In support of his practice, M. Chicoine, presented before our association, in 1887, eight samples of butter made as follows: all from the same vessel of cream; divided into four lots, of two samples each, churned, respectively, 4, 24, 48, and 66 hours after being skimmed by means of the separator; the cream kept all the time at about 55°; in each lot, a sample worked only once and packed immediately, the other worked once, at the same time and in the same manner as the former, and worked over again lightly the next day; glass-jars were used to contain the butter, which was kept in an ordinary cellar, at 60°, up to January, 1888, when it was submitted to the judgment of experts at the Association-meeting at St. Hyacinthe. The following is the result of the experts' investigation:

Made.	Age of the cream.	Classification by the experts.
1st lot.	1 15th June 4	Worked once 5
	2 15th " 4	Re-worked " 4
2nd lot.	3 16th " 24	Worked once 4
	4 16th " 24	Re-worked 5
3rd lot.	5 17th " 48	Worked once 2
	6 17th " 48	Re-worked 3
4th lot.	7 18th " 66	Worked once 1
	8 18th " 66	Re-worked 6

The figures of the experts show the relative quality of the samples considered by themselves; all were of good quality except number 8, which was flat or vapid (*éventé*).

M. Chicoine, after this decision, which thoroughly confirmed him in his views (see last year's report, p. 432), described the process he recommended in these words: "The

skimming is done with the separator, and the cream having been cooled, as rapidly as possible, down to 50° or 55°, is maintained at that temperature till the next day. In the evening of the second day, I allow it to rise to 56° or 57° to be ready for churning the next day, i. e., the third day (*sur-le-demain*) from skimming."

And he added: "Although the best of the samples was made from four days old cream, I think it would be hazardous invariably to wait till the fourth day, unless the cream were kept at a lower temperature than 55°."

The conclusions drawn from this experiment were thus expressed in the same report: The experts, who were evidently good judges, without knowing anything about the derivation of the samples, decided that the older the cream was and the less the butter was worked, the better was the product. To this, there are only two exceptions, the *old* samples, that of the last day worked the second time, is the worst of all the samples; while the *youngest*, worked twice over, is the best of its series, though not the best of the lot. This experiment confirms M. Chicoine in his method, though it is clear there is a definite limit to its practical working: the first butter of the last day, worked only once, is the best of the eight samples; the last of the same day, worked over twice, is, on the contrary, the worst of the whole lot.

But under different conditions, different results may follow. M. Chicoine was advised, in 1888, to change certain points in his procedure, and to observe the results.

The Danish experts invariably practise and recommend the rapid cooling of the cream to a very low temperature when it leaves the separator, before being committed to which instrument the milk had been raised to 75° or 80°. They advise churning sweet or only slightly acidulated milk at a greater pace than usual, and at a lower temperature. These were the rules which M. Chicoine obeyed in the preparation of his experiments in 1888, the details of which are the following.

Six samples of butter, in 3 lots, were made July 2nd. The cream of the former lot being passed over the refrigerator was instantaneously reduced from 75° the temperature at which it left the separator, to 42°; a fall of 33 degrees. Ten hours afterwards, it was slowly heated to 56°; churned, at that temperature, the next morning (24 hours after skimming), at 50 turns a minute, instead of from 36 to 40, the ordinary pace of M. Chicoine's churning. The other two lots were treated in exactly the same way as those of the 1887 experiments: cooled to 55°; churned with 36 to 40 turns,—46 and 96 hours after skimming.

July 3rd, another lot of cream was made into 6 samples (3 lots of 2 samples each), in just the same way as those of 1887, the churning being done 5, 24, and 72 hours after skimming. The 5 hour-old cream, however, was churned at 50 turns, instead 36 as others were treated to.

The 12 samples were all packed in common tubs, and kept in a common cellar till to-day (Jan. 23rd, 1889). These are they that the experts—two of whom were on the jury last year—have just decided upon. With the exception of one single lot (that made from cream 96 hours old) of the other samples, the second sample, twice worked, from these creams 24 and 5 hours-old, is still the best of all the other samples. These last follow, as they did last year, the rule that ago produces quality of flavour.

And, now, how can we possibly reconcile these differences? Is there a contradiction between the decisions of 1888 and 1889? Hardly; for the decisions bear on their faces the mark of exactness; to classify with so much correctness the order of a set of samples whose derivation was unknown to the judges, shows that they were well up in their duties: nothing can be clearer than that.

(1) I particularly commend the following address to the earnest attention of the readers of the Journal. I believe it to be a concise presentation of all the more important points in butter-making.

In my opinion, the changes introduced into the method of working, explain the whole affair.

In what condition in the milk was the butter, or globules, of fatty matter? The scientists of to-day who study the milk-question, such as Soxhlet, Duclaux, Fleisobman, agree in saying that these globules subsist in the milk in a liquid state when they leave the udder, at 98°, and that they remain in that state, even at a low temperature, although the point of solidification (or of congelation) of butter is about 92°. This phenomenon is called *surfusion*, and is due to the fact that the fatty matter, in milk, is in a very finely divided state. Each globule is, according to the same *savants* surrounded by a liquid ring, the composition of which is different from, and the density is greater than, the skimmed milk from which it is, nevertheless, formed. These rings or

but other phenomenon of nature—capillary attraction—prevent the little drops of butter from glueing themselves together. Cream, then, is a collection of drops or globules of liquid butter, massed together as closely as their condition will allow, but which are not in contact with one another. This collection is formed by the separation of the butter-globules—that is, the lighter matters—from the skimmed milk—the heavier matter.

This cream will remain *cream* as long as neither churning nor any other cause creates a change of condition in it by which the globules become soldered together and their conversion into *butter* ensues. Even the thickest cream that the separator can extract is not butter.

How then is the formation of butter brought about? In the investigation of this point chemists have made some very curious experiments with an emulsion of water and oily matters, having about the same density as water. This water, divided into globules or droplets, has endured cooling down to—6° F. (6 degrees below zero) without freezing, that is, provided it is kept perfectly still, but the slightest movement that brings two of the globules into contact causes them to form crystals of ice at once. In other experiments, also made with water, the solidification of the globules was brought about in a very different manner, depending upon the temperature at which it was promoted; when this was low, well defined crystals were obtained, almost invariably distinct or separate from one another; when the temperature was a little higher, the globules were solid, more or less round, and adhered to each other by a single point on their surfaces,

as two balls glued to each other might do; at a still higher temperature, some of the drops retained their spherical form, while others became solid, by either crushing themselves together, or by spending themselves over the surface of the former and partly enveloping them.

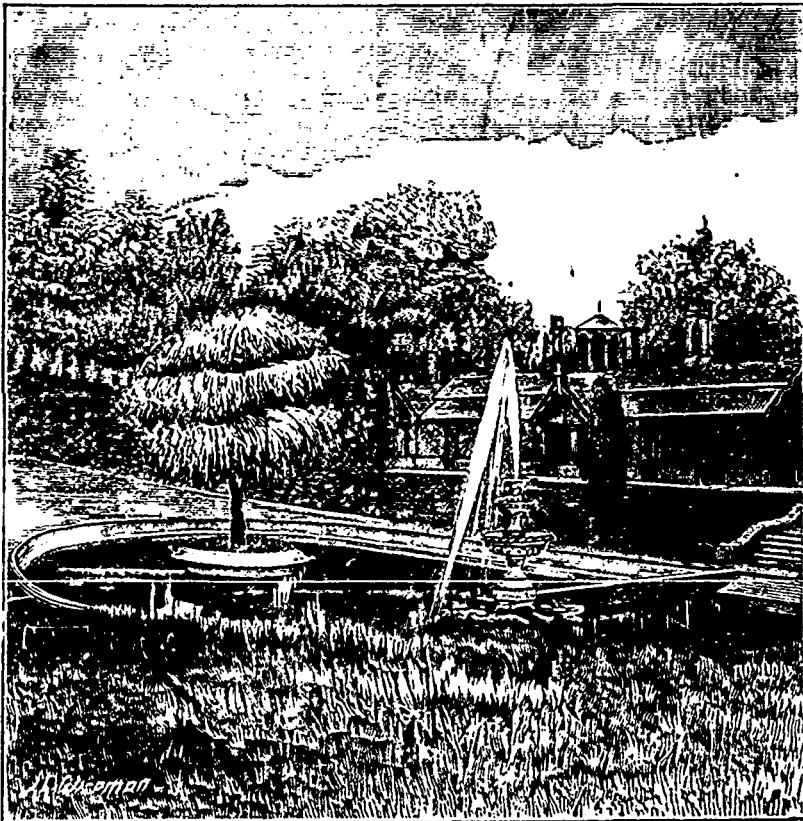
There is, on the other hand, an experiment any one can make; that is, to obtain butter by freezing the cream. Freeze it in a sharp frost, and you will certainly get butter ready-made, which, when the mass is thawed, you can skim off the surface of the cream. The butter will be more or less “gathered” (*assemblé*), but the grains will be fine and well shaped.

Starting from these facts, the results arrived at by M. Chicoine may be explained in a fairly rational manner

The difference in the formation of the grains shows the importance of churning at the lowest temperature that operation will admit: the butter grains are finer in proportion to the lowness of the temperature, and the washing out the buttermilk with water is most successfully done. But, as all the samples of 1888 were churned at the same temperature, how can we explain the fact that, contrary to the results, of 1887, the youngest cream gave the best butter? Thus

M. Chicoine made *keeping*, not *fresh* butter. Now, the quality of *keeping*, other things being equal, depends in great measure upon the quantity of *casein* left in the butter. In fresh milk or fresh cream, the casein subsists in a dissolved state; in

staler milk or cream it may be *curdled*. Hence, it follows as a principle, that it is easier to extract the whole of the casein from fresh-cream-butter, by pressure or by washing, than from stale-cream-butter. In fact, when once *curd* is shut up in the butter, in pieces finely divided by the action of the churn, it is not within the power of washing or pressure (*malaxage*) to extract it. On the other hand, fresh milk is more mucilaginous or gummy than staler milk; the adhesion of this to the globules of butter is more forcible than in the case of buttermilk which age has made more liquid (in water). But, in the 1888 experiments, the cream that was churned fresh had been, at its exit from the separator, suddenly cooled down from 75° to 42°. The cream having been thus seized upon by this fall of temperature, we may conclude that a considerable number of butter-grains were formed, just as in the case of cream subjected to the action of the frost. The ease with which the butter was “brought”



THE POULTRY HOUSES.

in churning, in spite of the freshness of the cream, proves that the cooling had had its share in the churning. But these droplets of butter, thus formed at 42°, a temperature much lower than the churning temperature—55°, must have been proportionally more crystallized, of a better grain. The washing of the butter, in such a state of things, was easier; the casein, all dissolved in the buttermilk, running out easily with the washing-water from the interstices of this mass of fine crystals of butter; and the result was that this sample of butter, made from fresh cream indeed, but that cream cooled down to 42°, was pronounced to be the best of the twelve samples submitted to the experts for their decision.

The cream of sample No. 2 (5 hours-old cream), had not been cooled, but, as in the case of No. 1, the pace of the churning was faster than usual; which greater disturbance may, perhaps, have promoted a more sudden formation and a more perfect crystallisation: in this case there is no other solution of the question. As the experiment was duplicate, and as the second samples of the 24 hours and 5 hours old cream, worked a second time, occupy a corresponding relative position (classified 5 and 6), we may be allowed to retain this solution unless further experiments prove it to be erroneous.

Hence, we conclude:

That with the changes of process introduced into the 1888 experiments, M. Chicoine obtained better samples of butter than with his ordinary process, from the same cream and at the same time.

This was not unforeseen, since the Danish practice had suggested the idea of these changes to M. Chicoine. Let all our butter-makers make a trial of this method, on a small scale: it may be thus condensed: The cream, on leaving the separator, should be cooled down to from 35° to 40°, at which temperature it should be kept for at least 4 or 5 hours; towards evening, the cream should be warmed up to 55° or 57°, and kept there all night; churning to be done 24 hours after skimming, at the greatest pace the churn can, practically, be worked; careful washing, in grains as small as possible, just so much working as may make a butter thoroughly free from unnecessary moisture.

This last point brings up another question arising from the experiments of 1888. One working produced, with fresh cream, the best butter. This shows that the lesson of 1887 is completed: the less butter is worked, provided that it is worked enough, the better it will be. The best samples of 1887, and, again, of 1888, were only worked once. It is rather difficult to say exactly where one should stop, but it may be laid down as a general rule, that the best method; to pur-

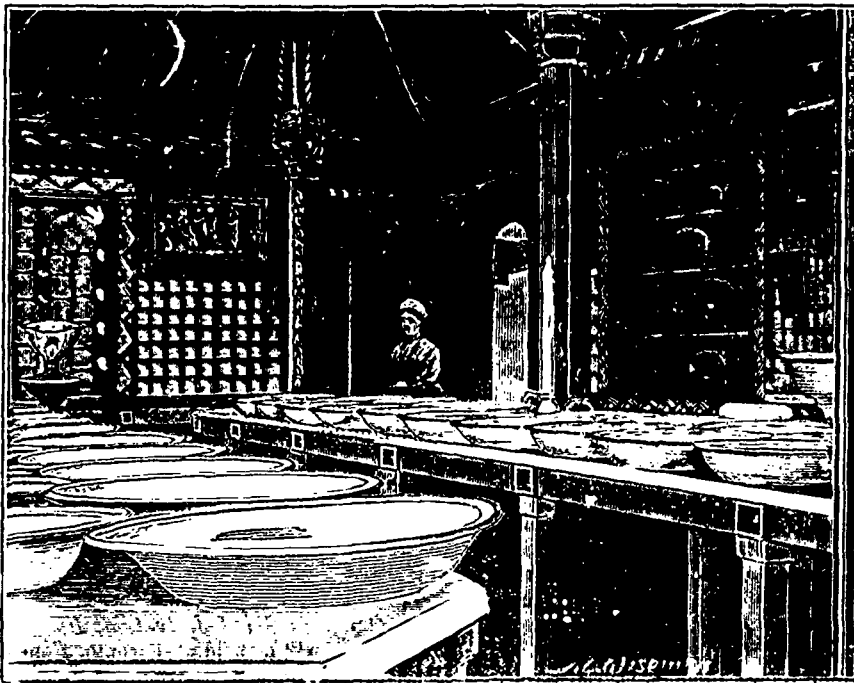
suo is that which reduces the number of workings or *malaxages* (1) to be given to the butter.

From the seventh Report of the Dairymen's meeting of the Province of Quebec.

(From the French.)

Bonnemain's bush or dwarf beans are not "the most esteemed variety for table use in a green state," whatever they may be in "a mature state": v. Mr. Evan's catalogue, p. 7. I, unfortunately, sowed a quart of them for use in the green state, gathered them in their most infantine condition, and found that, after two hours hard cooking, they were as hard as stirrup-leathers! Neither are they "earlier and more productive than any other kind in cultivation": *butter-beans*, sown the same day alongside of them, were ready for use on the same day as the *Bonnemain's*.

Sainfoin. (2)—This plant, an anonymous correspondent



THE ROYAL DAIRY.

kindly informs me, is not from the French *saint*, holy, but from *sain*, wholesome or healthy. He derives the scientific word *onobrychis* from *onos*, an ass, and *bruo*, to grow, to be plentiful. Liddell and Scott, in their Greek lexicon, give for *bruo*, "to swell": is it possible that "The Golden Ass" of Apuleius got into a *sainfoin* field before the dew was off, ate too much, and became *météorisé*, or, as we term it in England, *blown* or *hoven*? If the *brychis* is from *bruo*, a verb only used in the pre-

sent and imperfect tenses, how does my friend account for the introduction of the *ch*—the Greek *chi*—? For the sake of euphony, I suppose. (Thanks.)

Ladoga wheat.—This Russian wheat, introduced by Prof. Saunders, of the Ottawa Experimental farm, has been distributed over the Dominion in small parcels of 3 lbs. each. It is said to be ten days earlier than the Red Fife, but the opinions of millers and other experts differ as to its quality. By the bye, Mr. Saunders speaks of the yield per 3 pounds of grain sown: I should prefer quoting the yield per acre.

The Montreal Board of Examiners of Wheat and other Grain, speaking of sample No. 3, say: "some mistake must have been made respecting the original seed, or in the product sent to the Director—Prof. Saunders—for it seems scarcely possible that the samples submitted could have so

(1) From the Greek *malakos*; whence the Latin *mollis*=soft.

A. R. J. F.

(2) See Journal for July p. 100.

deteriorated in one sowing as to produce so inferior a grain: it would not grade above ordinary spring wheat." Change of soil and position will make a wonderful difference for in the sample of grain evil as well as for good. In 1861, and again in 1865, the *Chevalier barley* I imported from England weighed 57 lbs. the imperial bushel. It was grown on chalk-soil, and was as perfect as barley can be. Sown, by a good farmer, on good free soil, on the Chambly road, the first crop hardly weighed 47 lbs., and was only fit for "chickens' victuals." Barley, again, grown, on chalk, in Essex and sown in Kent, on the plastic-clay, is utterly unfit for the maltster's use; Essex itself producing the finest malting barley in England.

The Toronto Board of Trade, in the Report of the Millers, Grain Dealers and Exporters, says:

"The most important test of commercial merit in a spring wheat sample is the percentage and quality of gluten it contains."

"The examination made by the committee of sample 7, the original importation, and of samples 3 and 4 (those grown at Plum Creek and Brandon Hills), shows that all three are very deficient in gluten, or strength, being not superior to the present standard of No. 2 spring of Ontario growth."

"No. 2 spring is at present worth 80 cents per 60 lbs. here; No. 1 Manitoba hard, which contains 85 per cent. of Red Fife, is worth 90 cents. The answer to the enquiry as to how these wheats would compare in value with Red Fife would therefore be: Pure Red Fife is worth 11 to 12 cents per bushel more than samples 7, 3 and 4."

The Winnipeg Board of Trade:

We find that most of the samples submitted are not fully matured, and they are all lacking in good colour. (1)

Sample No. 3 (grown at Souris, Man.), would seem not to belong to the Ladoga variety of wheat, being a wholly soft specimen which would grade as "No. 3 spring."

No 1 and 11 (grown at Lethbridge, N. W. T., and Touchwood Hills, N. W. T., respectively), show the effects of frost action.

No. 2 (grown at Edmonton, N. W. T.), has a bleached look, which might arise from a very slight touch of frost or the effects of hot winds.

For feeding purposes we would recommend the original sample from Russia in preference to any of the others submitted.

Mr. Frank Gibb, Grain Inspector, Port Arthur, inspected 9 samples of wheat from Wm. Saunders, C. Ex. farm:

Ladoga wheat, from Riga.....	No. 1 Northern.
" " Lethbridge	No. 1 Frosted.
" " Edmonton.....	No. 2 Manitoba hard.
" " Souris	No. 1 spring—50% soft.
" " Brandon	No. 2 hard, &c., &c.

A sample from Moosomin.
N. W. T. No. 1 hard—good.

The samples of *Kubanka* and *Saxonka* wheats, grown in Manitoba, were said to be Arnecta, Rice-, or Goose-wheats, worth 35 cents a bushel less than No. 1 hard; both very inferior, and quite unsuitable for seeding purposes.

Mr. Ogilvie, the great miller, hopes that Mr. Saunders "will realise the necessity of encouraging the growth of Red Fife as much as possible, and discouraging all other varieties of wheat."

Mr. Shutt, the chemist to the Experimental Farm, contends

(1) The finest white wheats, such as Chitham, Talavera, &c. sown on inferior soils in England, lose colour and quality, and become, one may say, converted into *brown* wheats in the course of two seasons.

on the other hand, that the Ladoga wheat grown in the Dominion is 31% superior in gluten to the Fife! This is curious, when we consider that the Toronto Board—v. supra—found that "No. 7, the original importation, and samples 3 and 4, very deficient in gluten, being not superior to the present standard of No. 2 Ontario spring wheat." And, again Mr. Shutt gives the two samples of *Saxonka*—said to be very inferior indeed by all the experts—the following per centages of gluten:

Saxonka.....	14.56	} average = 14.21 %
"	13.87	
And to Red Fife.....	13.68	} average = 13.83 %
	14.06	
	13.87	

Making the average of gluten .38% less in the Red Fife than in the worthless *Saxonka*!

For my part, I prefer the opinion of the millers and grain-inspectors.

Côte des Neiges, July 23, 1889.

A. R. JENNER FUST,
Editor *Journal of agriculture.*

Sir,—Would you kindly insert a notice in your paper (Aug. 1st issue) calling attention to the Annual convention of American florists, which will be held in Buffalo, N. Y., this year. All those interested in floriculture are invited to attend. The Railway Companies will issue tickets for the round trip, good for ten days, at one fare and a third, on the certificate plan. The Convention will open on the morning of Tuesday the 20th of August, and will last three days. All those wishing to attend can have full information by communicating with the undersigned.

I remain, yours &c.,

JAMES MCKENNA,
Vice President S. A. F. for the Province of Quebec,
Côte des Neiges, P. Q.

Canada's Great Industrial Fair And Agricultural Exhibition will be held at Toronto, from Monday, Sept. 9th, to Saturday, Sept. 21st, 1889.

DAIRYING IN NORMANDY.

French and Canadian Butter Making Compared.

LONDON BUTTER UNSALTED.

Butter Merchants Bring Uniformity out of Variety—
"Normandy System" Not Advised For Canada—
Improved Transportation Facilities Required For Perishable Commodities.

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PERSONAL NOTE.—In explanation of the interval between the publication of the letters, my readers will pardon a personal allusion. Besides the clerical work connected with furnishing the letters to the press, an increased correspondence, the working up of the proposed convention, it became necessary, for private reasons, to visit this western coast. I had by working continuously while travelling to be able to continue

the letters uninterrupted; but, unfortunately, on my arrival here I found myself from insufficient sleep, and, perhaps, a little overwork, obliged to put myself in half harness, which meant the discontinuance of some of my duties for a time. Being now quite rested, and about to return home, I hope to be able to carry on the series to completion with little or no further interruption.

I am glad to say the prospect of a Dominion convention is exceedingly good; that the local associations have generally responded to the suggestion, and all have appointed delegates. The date which will best meet with the convenience of those with whom I am in correspondence appears to be the second week in April. After complete arrangements shall have been made, a circular will be issued from Ottawa, and due notice be given through the press.

Faithfully,
W. H. LYNCH.

Washington Territory, February, 1889.

LETTER X.

If my farmer friends will take a lump of butter fresh from the churn, work it over well—a little too thoroughly—and, without adding any salt, serve it at table, when from two days to a week old, they will have a very fair impression of what sort of butter is eaten at most of the London tables. The average Canadian, or American, visitor to London will find the butter so “flat” and “tasteless” that he will make a practice, for a time at least, of sprinkling upon it a little salt. When he returns here he will tell what excellent butter he ate in London. If my readers were to visit Normandy, in France, where a large proportion of butter eaten by Londoners is made, they would find that the intrinsic quality of this butter is not better, on the average, apparently, than the butter ordinarily made on Canadian farms. Yet, when the butter made on this side of the water, which fresh from the churn would be pronounced excellent in London, when it has been worked, salted all it will bear, has stood the test of package, transportation and marketing, and has at last found its way to England, it would be utterly denied a place on a London table.

There is a teaching on the very surface of all this. For one market at least—and that one the market of the British metropolis—butter is the better liked the nearer it is to the churn, and the freer it is from salt.

It may be an open question whether Canada will find it possible or profitable, under the severe conditions of competition, to cater to the London taste. Yet a study of the butter question would have been incomplete without an enquiry into the methods of existing supply. Normandy was the district which naturally would be chosen for such enquiry.

The system in Normandy is peculiar. In the market towns there is one market day in each week. The market days of adjoining towns are two days apart. Market towns are near enough together to allow most of the farmers to reach two or three markets each week. Churning days and market days are the same. Everything is planned to do the churning in the early morning, and the butter is then brought to market not only fresh from the churn, but absolutely unsalted, and only somewhat imperfectly worked. It goes without saying that every means are taken to keep the butter cool.

There are a considerable number of merchants who attend each of the different markets. Thus it happens that the same set of producers meets the same set of buyers, two or three times a week, though only once a week at any one town. The system results in an extensive trade, lively markets, and stiff competition.

It is a novel experience, a visit to one of these Normandy market towns on market day. The early morning trains bring in the many buyers, and the one horse carts bring in the country people with their newly churned butter in baskets, tubs or pails usually well wrapped up in damp cloths. Traders by the score open up stalls in the open squares or the wide streets; each supplying his own special line. The peasant leaves with these traders a fair share of the gold which the buyer pays him for his butter.

Each butter merchant is provided with a number of large baskets and wrapping cloths, a weighing scale, also a table or desk, a cash box, and a book of tables for rapid calculation. It is astonishing to note the rapidity with which the buyer receives, weighs, prices, and pays for the butter, and throws it into the huge baskets, ranged side by side, to be filled with the different grades of quality.

The mystery of the apparent instantaneous estimate of value of butter, or pricing of it, is explained when one learns that each merchant has one or more buyers moving about the market among the peasants, examining and bargaining for the butter and scratching on the butter itself the price per pound agreed upon. The butter is therefore practically sold before it is brought to the merchant or his receiving clerk, who has only to weigh it and pay the price agreed upon. Some of the larger merchants are assisted by one or more clerks, to record the sales and pay for the butter, and all are kept busy for two or three hours until the butter is all sold and bought. It is a scene of business activity that inspires a feeling of admiration of the business qualities of those engaged. The receiver deftly turns the butter out on the scale, tosses the empty basket and cloth back to its peasant owner, weighs the lump, calls out the number of pounds—“*Vingt six à vingt quatre sous*” (24 lbs. at 12 pence)—and calls for the next. The clerk must needs be lively in his movements to glance at his reckoning tables, make an entry of the purchase, count out the amount, in gold, silver and coppers, and be ready for the next weighing—“*Cinquante à vingt trois sous*.”

I could not quite understand by what rule the butter was assorted in the different baskets. Generally, it seemed to be done according to price; but watching closely, I noted some exceptions not easily accounted for. It may either have been a mistake on the part of the receiver, or it may have been a difference in judgment between the buyer (who fixed the price) and the receiver who weighed and assorted the butter.

Again, neither the prices paid nor the assorting of the lots as received accorded with my ideas of quality. In my humble judgment the butter was graded on a different standard from our ideas of butter quality, and on a lower level than that upon which our finest qualities are judged. I observed a buyer toss one lot of butter which was possessed of a fine tinge of color into a basket containing butter of a dull, dead color. In explanation he told me that “color” did not count—they judged only by the “odeur” (odor.)

The fact that the butter was to be artificially colored was, doubtless, one reason why so little was made of color. Yet, the natural color or appearance of butter ought to be taken into account, as being, in itself, one indication of quality. The use of the term “gilt-edge” by Americans, applied to the very finest quality of butter, is a just appreciation of the importance of color, or tinge, or blush, as an indication of intrinsic quality.

I noticed, however, that consistency, or solidity, was taken into account practically in the estimate of value; for one buyer, with his hand, squeezed out a heavy proportion of water, and fixed a low price, giving the valid reason that he was “buying butter, not water.” The occasional tasting of butter by buyers proved that flavor also appeared in some degree to be considered, as, of course, it should be.

The quality of the butter, as a whole, in my mind, did not average very high. While few of the samples were exceptionally fine, some of them were exceedingly poor—sometimes flat and flavorless, other times with positively objectionable flavor. Some of the butter appeared already to be overworked and dull colored, and I saw samples of this description thrown in with better samples, having a rich color.

The baskets into which the butter was thrown were about two feet high, about 18 inches across the top and 15 inches across the bottom. I give these approximate dimensions from memory. Two large and heavy canvas sheets were provided for each basket. They were first wrung out in cold water, laid in the baskets in a way to line the inside of the basket and to surround the butter and cover its top surface—thus affording a complete wrap for the butter.

On a summer's day the butter when received by the buyers is on the warm side; but hard or soft it is unceremoniously plumped, one piece on another, into the baskets. The baskets are packed full to heaping ten inches or more above the top, and the ends of the cloths are then brought over to cover the butter completely. Straw is laid over the top, on the cloth, and the whole tied down. The baskets are marked to indicate the quality or grade, then addressed, loaded immediately on carts, taken to railway station, and shipped to the head quarters of the butter merchant, or, in other words, to the packing or blending house, which is reached within three or four hours by rail.

In warm weather every precaution is taken to keep the butter as cool as possible.

Even after the baskets are loaded into the waggons, pailfuls of water are thrown over the top, to be soaked up by the heavy cloths. In one place which I visited the waggons sent to the station to receive the butter were provided with high canvas covers—what on the Western prairies would be called "schooners."

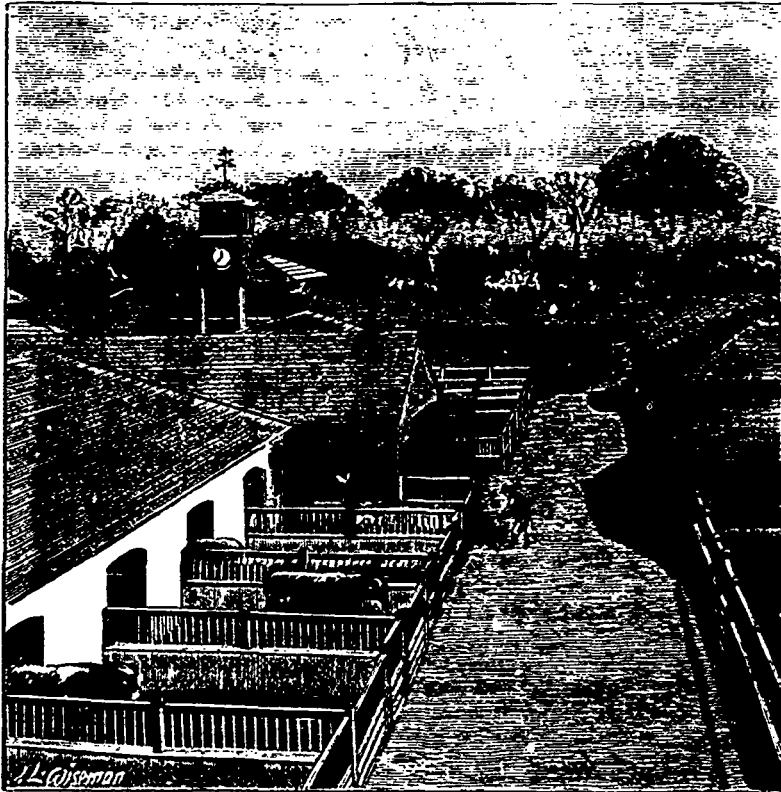
When the butter reaches the town to which it is sent there are waggons waiting, and it is at once hauled to the blending house. What is there done with it is more or less a secret kept from the general public. We all know, however, that there it is colored, worked over, packed, graded, and in a few hours made ready for shipment, and ready, in a most enticing form, for market. We know, too, that little or no salt is added, but that artificial refrigeration is provided, and, possibly, artificial preservatives may be added to the butter. In fact, it is "doctored." The last market I visited was at Carenton, near Isigny. Merchants having headquarters at

Valognes early in the afternoon were at home with their morning's buying. The following day the butter would be all prepared for the London market and shipped by railway to the port of Cherbourg. Leaving Cherbourg in the evening, I found myself the following morning at Southampton, England. There were very few passengers, and the freight appeared to be little else than agricultural products, the bulk of which was Normandy butter, done up in tasteful boxes and buckets, as one sees it in the London market, uniform in appearance and attractive; so unlike the all-sorted mixtures I saw purchased in the Normandy markets, that one could hardly believe it was really and truly one and the same thing!

While we have much to learn from the enterprise of the French butter merchants, I was not much impressed with the Normandy system as a whole, nor, indeed, with the butter with which it deals. A year or two ago the French dairy-

men were reputed to be in advance of all competitors in the English market. Now the Danes are placing themselves ahead, and in Denmark this blending system is growing out of favor.

As to the intrinsic quality of Normandy butter, it is not what, because of its reputation in the London market, it is popularly supposed to be. The quality as it comes from the churn, and is sold to the butter merchants, is not better than the average quality of Canadian butter at the same stage of existence. Yet the one is the noted Normandy butter much in favor in the London market, and the other is the notorious Canadian "axle grease" which takes second place to margarine! The great difference is in the



THE SHAW FARM.

system of preparing for and placing in the market, and in the length of time which places it on the consumer's table.

To the consumer the quality of Normandy butter appears to be very uniform. A dealer asserted that there was little or no difference between the receipts of August 31st and those of December 31st. But, while one great merit of Normandy butter is its uniformity, yet as it is bought in the market fresh from the churn it is of all grades of quality, of all shades of color, all flavors, all degrees of solidity. What might be its lack of uniformity if the butter makers had the whole care of it all through—working, coloring, packing—if there were no system of putting it on the market?

What saves the Normandy butter is the fact that it is taken from the peasant directly from the churn, as it were, and falls into the hands of shrewd, skillful business-men. By them it is assorted according to quality, handled with all necessary precautions against changes in temperature, it is well worked

over, neatly packed, and sent quickly to market to go into immediate consumption. In a word, it is most skilfully "fixed up," and marketed in a business-like manner.

Aside from the merit of uniformity, however, Normandy butter possesses no other striking quality of merit over other butter. It has a certain quality that almost any butter would have, treated skilfully to present a pleasing appearance, and consumed fresh—before any defects develop. Being high-colored and being fresh, it takes well in a market like London, where butter is preferred mild and absolutely free from salt. Its quality is rather of a negative than a positive character. It has usually, at least, one positive fault—that of being overworked. In intrinsic quality I do not think it equal to Danish butter. Nor is it equal to samples of English butter which I have seen alongside of it, and which were not second to Danish. I have tasted the Normandy butter in the shops when, notwithstanding its short age, it had acquired the sharp taste which characterizes butter when it begins to go "off." It is not subjected to the test which Danish butter has to undergo, and it is doubtful if it would stand such test.

Let me, in parenthesis, add that it is due to the French dairyman to say that the butter which I have been describing is not the finest butter made in France. The finest of his butter is sent to the Paris market. I was assured of this fact by a butter merchant in Normandy. Prof. Long, of England, say very truly: "He sends to us his second quality, and for this we pay a very good price, and consider it superior, especially if it is well displayed by the retailer and labelled Brittany or Normandy."

I feel confident that I speak correctly in saying that much of that which we now call "axle-grease" when it is first taken from the churn is equal to the butter I saw in Normandy fresh from the churn; and that if our butter could be handled like the Normandy butter and as quickly marketed and consumed, it would deserve and obtain as good a reputation. If this be true, ought we to adopt the Normandy system?

The conditions of a successful working of that system are very difficult to meet in Canada. The Normandy system involves:

1. That the make of butter in a given district be of sufficient quantity to warrant the holding of at least two accessible markets each week; and to encourage the necessary competition among buyers.
2. That a system be adopted by butter dealers; and that the butter producers adapt their methods of work to that system. The buyers must possess enough enterprise to find a market and supply it. The butter makers must do the churning immediately previous to marketing to ensure that the butter be delivered in a fresh condition.

The Normandy system would appear to be adapted to the handling of fresh, unsalted or light-salted butter, intended for immediate consumption, rather than for butter to be packed for long keeping.

The first condition is a difficult one, from the fact that where such a system is most needed the bad condition of the butter industry has sometimes caused a largely diminished production. A good authority in my own township (in the Eastern Townships—somewhat butter-famous) tells me that fifteen years ago there were three cows to one to-day. The inauguration, however, of a successful system, would doubtless lead to an increase of cows and of production. Again, we are at a disadvantage in the fact that our competitors working this system are but one night's sea-distance from a foreign market, while we are ten days.

I have given the details of the Normandy system not because I think it practicable to adopt it, but that it may possibly suggest some modification of the system suited to our peculiar conditions.

With our present transportation facilities the Normandy system, or any modification of it, even if it could be adopted here, would be suitable only for the supply of our own local markets. Whether we may some time compete with the Normandy peasants in the London market depends on various contingencies, the main ones of which are improved continental and ocean transport facilities, and our practical application of the wonderfully effective principles of refrigeration. In other words, our success will depend largely upon the measure



THE FLEMISH FARM.

of our intelligence and enterprise.

W. H. LYNCH.

February, 1889.

FOREIGN DAIRY SCHOOLS.

The Simple Character of the Danish Schools.

Theory and Practice Kept Separate—Dairy Schools Only One Factor of Improvement—Wanted in Canada Schools for Training Teachers.

LETTER XI

In the London *Canadian Gazette* of recent date there was an extract from a Toronto paper insisting upon the establishment of dairy schools. This suggestion is the echo of an impression that is very general that dairy schools would be the likeliest means of bringing about a speedy improvement in our butter industry. The argument is that improvement

abroad has been due to the dairy schools. I frankly confess to a belief that the influence of the dairy school, as it is known in Europe, has been over-estimated. While it may be made to take an important place as one of various agencies of improvement, it must needs be only one of several factors. Moreover, our dairy schools, if we have any, will require to be something adapted to our peculiar conditions, not a cheap copy of what exists abroad.

The dairy school in theory, afar off, is a different thing from the dairy school in fact near by. For us to establish in Canada mere imitations of British or even continental dairy schools would be to invite disappointment.

Frequent reference is made in current discussion to Danish dairy schools, and it has been claimed that they have been the cause of the wonderful dairy progress in Denmark. When I questioned Prof. Segelcke, of Copenhagen, about the Danish dairy schools, to my utter astonishment he replied that there were no dairy schools in Denmark! What he meant was that there were no dairy schools, as the term is understood in Great Britain or here. Danish schools are mainly nothing more nor less than the private dairies of the country, utilized for the purpose, where, under the auspices of the Government, pupils are taught dairy work. Every Danish dairy is a possible dairy school. It is not required that the dairy farmer be a graduate of some school or college or a professor. All that Prof. Segelcke requires to know, before sending pupils to a dairy farm, is the fact that the dairy produces good butter. He has no other standard—no prescribed system. If a dairy is known to produce good butter he sends a pupil or two, and watches results. If the pupil makes progress and becomes a capable butter-maker, he continues to send pupils. He has sent pupils to dairies which he himself had never visited, and whose proprietor he had never seen. About 1,000 young men have gone through a practical course in this sort of a dairy school in Denmark. Not all these men have remained in Denmark. Other countries have drained Denmark of these students. The present chief instructor of Finland is Danish taught.

Professor Segelcke mentioned the fact that Mr. Tobieson, official head of the dairy department of Norway (who was present at our interview), was even then advertising for a Danish instructor, and offering more for his services than Denmark was paying. It was the intention of Prof. Segelcke to advise the Government to increase the salaries of Danish instructors.

Again, in these farm "dairy schools" there was little or no theoretical teaching, there was taught only the practical work of the dairy. Prof. Segelcke believed in keeping theory and practice separate. In the dairy only practice was taught, in the schools the teaching was pure theory. There was no distinct dairy class, said Prof. Segelcke, even in the agricultural college. The study of milk and its products was simply a part of the theoretical course.

Prof. Segelcke believed that only a limited number of pupils could be engaged in practical dairying in schools. "Where there are too many there was not work enough for them, and so they were taught in idleness, not in industry."

Pupils are taken for from six months upwards. They are required to do actual work and they pay for the privileges. Fees are small—say from ten dollars upwards.

From a report by Prof. Long, on "Education in Dairy Farming," it would appear, however, that there are really one or two dairy schools in Denmark—distinct from the farm schools, but they must form a very small proportion of the means of dairy instruction which has been so important a factor in Danish dairying. Prof. Long himself says: "It is a striking fact, borne out by our personal investigations on the spot, and by the voluminous details we have received that

there are no large, no expensively conducted schools, no high salaries to officials, and no heavy grants made by Government."

The purpose of these letters does not require that the dairy schools which I visited be described in full detail. Those I visited, especially in Ireland and Sweden, were elaborately equipped, and expensively conducted schools. They are doing a good work, but limited in scope and results, but hardly commensurate with the cost on the Danish basis.

We may, doubtless, learn something from the elaborate dairy school system of Great Britain, and something from the more simple, economical and severely practical system of farm schools of Denmark.

The elaborately equipped and complete dairy school might prove a potent agency of improvement among us, but I would advise it, not as the means of making dairymen or dairymaids, in the numbers wanted—not for the purpose of teaching the individual farmer (although he should not be denied the benefit of its privileges if he deserves them,) but as a sort of training school—a normal school, as it were, for the training of persons (of suitable fitness and inclination) for teachers or inspectors. These teachers would be the means of bringing knowledge to the mass of workers. Such teachers would perhaps do the most effective work as travelling instructors, carrying instruction into the factories, and even into private dairies.

On the other hand, we may profit by the Danish system and utilize the farm dairy, and the factory, too, to the fullest extent, for the education of the dairy workers of the country. I would never advise the application of the Danish system as it is, but a modification of it to suit our peculiar conditions. The course of study or practice should be of the simplest character, the length of time and the studies to be in some measure optional, and the fees light. It would appear to be desirable to teach enough theory to explain practice, but the main requirement should be a correct practice. The graduates of the normal schools may serve an important purpose in this connection, in imparting knowledge to the workers in the local or minor schools; and, as travelling inspectors, introducing the best known dairy practices. Doubtless in our application of the European system, we may in some ways improve on our models.

Such dairy schools as above proposed could be made an inducement and encouragement to young men and women to devote themselves to the work of teaching. The conditions of availment of the privileges of these schools should be not financial means, but an inclination or fitness for the work of teaching, and an intention or obligation to teach. These privileges could also be made an inducement to factory managers, and even private dairy proprietors, to perfect their methods and open their factories or dairies to pupils.

Here is still another possible means of disseminating dairy knowledge. Sooner or later the common education of the people will be partly technical. Clearer ideas are beginning to obtain of what is education. The education of the future will have more relation to the probable occupation of the learner, and if it does not fit him for that occupation will not always be thought education for the embryo agriculturist to be made to memorize the names of stations on a line of railroad, and not taught a single fact of nature's great book of wonders. Though to the farmers of to-day the book of nature's economy is hopelessly sealed, to the farmer's boy of an early day it will have to be opened, to his lifelong benefit and infinite delight. No better beginning of reform can be made than the introduction of technical instruction in agricultural subjects in schools. By giving country pupils an insight into the delightful mysteries of nature, and a knowledge of facts that would be advantageous to agricultural labor,

country schools might be made more interesting and a country life more attractive.

Let the thin end the wedge be inserted in at least homopathic doses of dairy instruction in the rural schools! If not practical lessons, at least there may be taught in regard to milk and its products facts which would be helpful to practice at home. This teaching would be made easier if there were provided suitable text books for the purpose, and materials necessary for object lessons. I might go further and suggest practical ways of teaching dairy practice in common schools, but to do so might take away the breath of some of my more cautious readers.

In conclusion, it is a matter of choice to copy the elaborate, well-equipped dairy European schools, or to follow the Danish plan of private dairy schools, or to profit by the experience of all our European competitors, and establish something suited to our peculiar conditions. I believe there are advantages, more than commensurate with the cost, in either action. At the same time, I believe that the first two proposed lines of action are not the best adapted to our great need, and would prove somewhat disappointing. On the other hand, some simple system of dairy instruction (such as the wisdom of our dairy authorities may advise) doubtless may be inaugurated, which could be developed in practice and prove of immense value as one factor in the improvement of dairying in Canada.

W. H. LYNCH.

February, 1889.

A Message to Cheesemen with a few hints on the shipping of cheese.

THE OUTLOOK POINTS TO LOW PRICES IN BUTTER—A FEATHER IN CANADA'S CAP—WHAT A CANADIAN DAIRYMAN SAW IN ENGLAND.

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LETTER NO. VII.

More space than was intended has been given in these letters to the meetings of the British Dairy Farmers, and yet it seems as if more has been left out than written. The reader will notice how closely we have been studying the question as a problem, leaving out the lighter matters of places, people, and incidents. Not a word of

SOCIAL FESTIVITIES,

excursions, banquets, speeches, new acquaintances and pleasant gossip, nothing of scenes and sights new enough and striking enough to make a new world dairyman forget that he had ever heard of milk, nothing about the country seats and parks the village greens, the homes of cottagers, of lords, and even of royalty—for our excursion ended with a visit to Sandringham, the home of the Prince of Wales, and a banquet given by His Royal Highness; nothing about the old cathedrals and castles, and yet the writer confesses to dropping an hour's dairy conference (at Framlingham College) much as boy would drop a book for any new sight or sport, for a tramp to the near-by castle, that was the first one he had ever seen; and yet, after three months of sight seeing, still satiated to the point of indifference, an afternoon at Canterbury Cathedral was an experience never-to-be-forgotten.

And so reader, if these letters be heavy reading, remember that the imperative conditions of the theme, and the real purpose of the letters forbid the freedom that writers usually enjoy and let your interest in the subject make the letters easier reading. It may be that when the study is completed we may all feel inclined for two or three gossip letters which may be the creaming, as it were, of the interesting features of

the trip, and having no other than this figurative reference to dairying.

Immediately following the meetings of the British dairy farmers, I determined to learn the present state of the English market and our own standing therein as producers. This line of investigation embraced a run through England, Scotland and Ireland, and its chief feature was a series of

INTERVIEWS WITH LEADING IMPORTERS

of Liverpool, Glasgow, Dublin and Bristol. The lessons learned in these interviews were of exceeding value, and I will try to give the chief points without going too much into voluminous detail. First of all, I must deliver two special

MESSAGES TO OUR CHEESE MAKERS,

with which Mr. Widgery (of Bristol) charged me. On the side of every cheese box the figures of the weight of the cheese it contains should be *stencilled* in plain figures. Stencils are frequently used for the names of factories, and this well; but the weights are nearly always written in pencil, often badly written, indeed, sometimes not readable. It often happens, too, that pieces of the box, on which the weight is written, slit off and the weight is lost. It is impossible, as things are to tally 1000 cheeses twice alike! From the importer's point of view it is more important that the weight of the cheese be easily deciphered than that the name of the factory be made plain. The latter is a good thing, in connection with excellence of quality, to help to make a reputation and to advertise one's factory; for the former is absolutely necessary for the convenient and correct checking of weights. This may by some be thought a trifle; but to the wiseman nothing is a trifle which is essential to highest success. The importer is the buyer of our goods, and it is to our interest to please him, even as it is to our interest to satisfy the consumer. Here, then, is an opportunity for our factorymen, to make a very little extra care and labor tell profitably on our cheese exports. The second message was in the form of

A CAUTION TO SHIPPERS.

The English law forbids the importation of foreign goods with English names on them intended or calculated to lead the consumer to believe them to be of English manufacture. The customs authorities will refuse to clear goods which appear to be so intended. For instance, they would detain goods marked with the words "Leeds," "Manchester," or "Birmingham," or even "English Cheddar." The latter would be supposed to be resting on the reputation of a particular cheese made in a certain district in England. Now it sometimes occurs that an English name on Canadian cheese gives the importer a deal of trouble to clear it and causes vexatious delay, because the name on the cheese happens to suggest to the customs officers an intention to deceive the British public. I need not say that any name on Canadian cheese is there legitimately, being a Canadian as well as an English name, but though it may have no unlawful significance, the officer will retain the goods until the importer shall have convinced him that the similarity of names is a mere coincidence. The Canadian shipper may easily provide against any such annoyance or loss to importers, by simply placing the word Canada in close connection with any name on the cheese which is English as well as Canadian. For instance, instead of "Leeds" or "Cheddar" write "Canadian Leeds," or "Canadian Cheddar."

I had not long to speak with importers before I found confirmation of my conclusions, given in a previous letter of an

INEVITABLE FUTURE OF LOW PRICES.

A Liverpool importer emphasised the fact that for any ex-

tensive trade the limit of prices was necessarily low. When cheese becomes higher-priced than meats and other available strong foods, the quantity consumed would at once decrease. This is because in England the bulk of cheese is eaten as a food, and the consumer buys it, not so much because of any particular preference for it as because it is a food and a cheap one. True, it is a convenient food, not requiring cooking, always ready and appetising; but these are qualities for which it does not care to pay luxury prices. In a word, he is not wedded to the consumption of cheese, and for economy's sake, will accept a substitute in other foods when the latter are cheap enough and palatable. The limit of the price of cheese, therefore, depends much upon the prices of foods available as substitutes. In the opinion of my informant the probable limit for cheese would be 50 shillings sterling landed in England.

As to butter, when it rises unduly in price, its substitute—margarine—will be used by many consumers. The limit to which prices of butter may rise before they will be so high as to cause consumption to decrease (giving place to margarine) was placed by my Liverpool authority at from 8 to 10 pence, or at about 16 to 25 cents per pound retail. This limit may be thought placed too low, but it is quite certain that there are consumers in England who will not buy butter at 8 to 10 pence when they may buy margarine at 5 or 8 pence.

If all this be true, it may be expected that where there are not other causes—such as stiff competition—to keep down the price, both of butter and cheese, the high price itself will cause consumption to decrease and give prices a downward tendency. On the other hand, low prices will have the effect, of course, of increasing consumption and stiffening the demand. In view of the whole situation, then, we may believe that the competition of the future will be along the line of

COST OF PRODUCTION,

as well as quality of product. I have already touched upon this phase of the subject, but surely it will not be thought vain repetition to speak of such important matters as often as they press themselves forward in our investigation of the that will be so imperative in its character, and so important subjects. That is not the only phase of the subject in its bearing, that on the principle of line, upon line and precept upon precept, will demand reiteration.

I have never been accused of being a pessimist, but I have written so much in this connection that is on the dark side that it may be thought that the picture might be painted brighter. I will quote what Prof. Sheldon said in 1886, but was not seen by myself till after having penned the matter in these letters, in striking confirmation of all I have written:

"What on earth is dairy farming coming to? is a query typical of what one hears on every side, most of all in districts where cheese and butter are leading products, and where the milk trade is little known. It is likely enough true that farmers have not for many years been quite so near their wits' end as they are now. In my own time I have known cheese and butter lower in price, no doubt, than they are now, but never with a slacker trade or a more languid demand at this time of the year. The month of March is not half gone as I write, and butter is down below what ought to be a summer's price, and almost always has been for twenty years or more. I may say, indeed, that if we throw the twenty years into bulk and take the mean of them, we shall surely find that I speak within the mark. And as for cheese—well, cheese commands no sale at all worth the name; it is disposed of, no doubt, in some sort of way, from time to time, and a transfer is made from farmer to dealer; but it is not often sold out-and-out, and once-for-all, as it used to be in days gone by."

He goes on to say that cattle, too, had not kept their value,

and even the milk trade was "limp and languid," and that farmers were in danger of being "clean beaten out by the times;" touches upon margarine, and claims that "dairying will have more to contend with as the years roll on." He despairs of the private dairy and looks to the factory system for relief. "Most of these things," he says, "are

OF RECENT GROWTH

and they have a heavy bearing on the question of dairy farming. Competition is keener than ever, but not so keen as it will be, perhaps. In any case it is clear that our present systems of dairying have such a strain on them as no one expected, a strain which many of them cannot bear; and the question of factory *versus* farmhouse will soon have to be solved."

He then speaks hopefully of the strong pull being, and to be made "against the current of depression." Canadian farmers will learn from all this that while there is no royal road before them, there are others whose road is even less smooth, and if these others may be hopeful, surely they may be.

It is pleasant to turn from this phase of the subject to some of the many good things said touching the reputation of our cheese, which reputation is, indeed, veritably

A FEATHER IN OUR CAP.

Mr Price (Bristol) said he had entered Canadian Cheddar cheese in the Jubilee class of the Frome show, in the heart of the English cheddar district, in the Cheddar Valley, and out of about 100 entries, Canadian came out best in over 80 entries! The firm got a "highly commended" on Canadian cheese. This, too, was under unfavorable conditions, for the show coming off in September, they had to exhibit the first summer cheeses.

I may here correct an error which crept into a previous letter, where I referred to samples of cheese being officially examined and none found adulterated. The number of sample were not "about 390," but 112—itsself a large number, however. The following was the report cabled: "Agricultural journals admit that, seeing that 112 samples were analysed without a single example being found of cheese containing extraneous fat, the Canadian commissioner is justified in asserting that *filled* cheese, common in the States, is not made in Canada.

Touching the reputation of our butter in the English market, it will require a whole letter to do the subject justice.

Jan. 5th, 1889.

W. H. LYNCH.

NON-OFFICIAL PART.

CREAMERY.

Farmers wishing to have a first class creamery in their locality, are requested to send their application at the earliest opportunity to the *Illustrated Journal of Agriculture*, 20, St-Vincent Street, Montreal.

FOR SALE.—Percheron, Norman and Breton Horses, Ayrshire cattle, Berkshire pigs, Plymouth-Rock poultry, apply to Mr. Louis Beaubien, 30 St. James Street, Montreal.

APPLE-TREES FOR SALE.

12,000 *fameuses* and divers varieties perfectly acclimated.

Address to PAUL S. LACOMBE, Nurseryman,

Ôtée des Neiges, near Montreal, P. Q.