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ANNUAL REPORT

OF THE

Manitoba Dairy Association.

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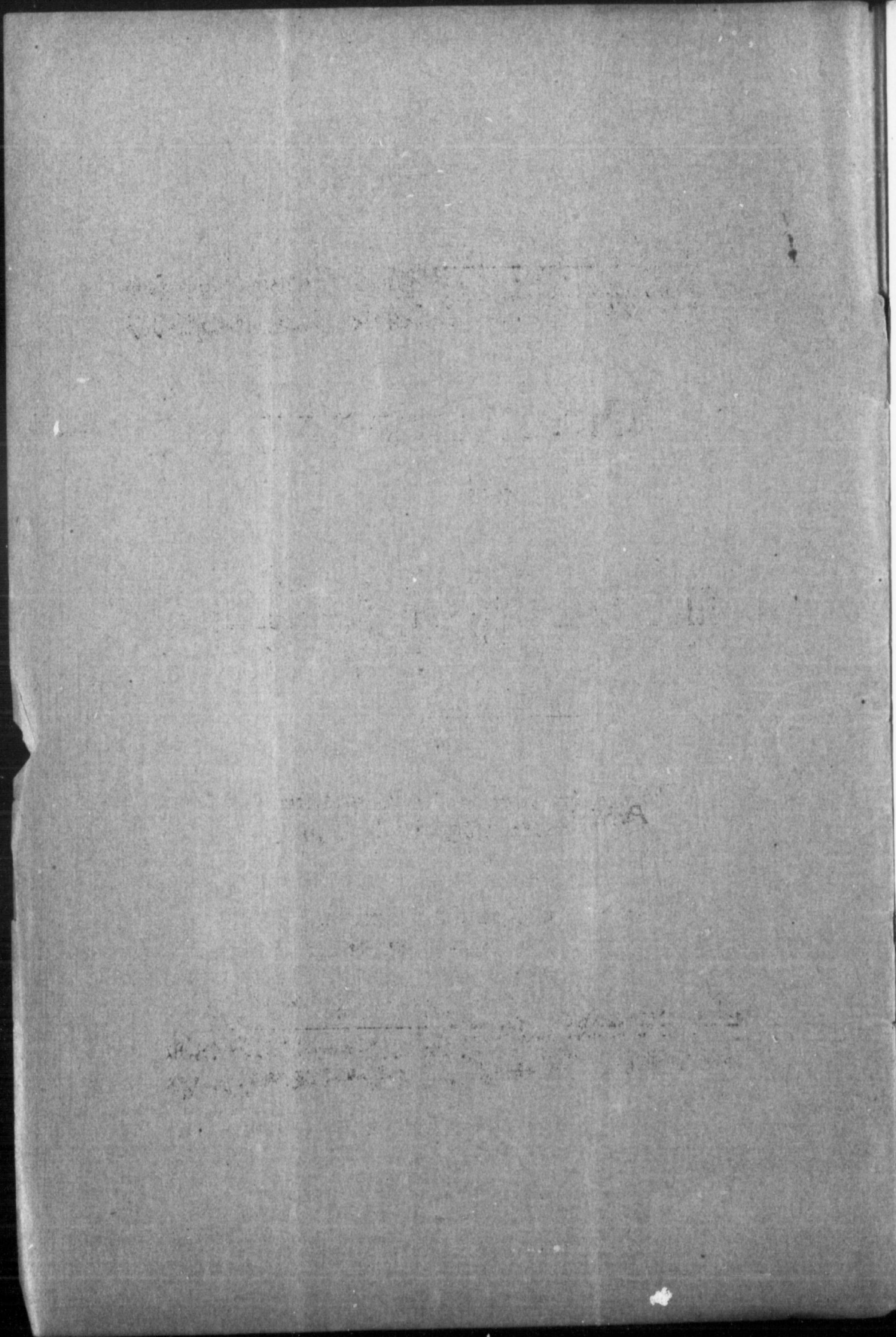
for 1894

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To the Honorable Minister of Agriculture :

Sir,

I have the honor to transmit herewith the Ninth
Annual Report of the Manitoba Dairy Association.

Your obedient servant,

RICHARD WAUGH,
Secretary.

MANITOBA DAIRY ASSOCIATION.

OFFICERS FOR 1895.

President—John Hettle, M. P. P., Boissevain.
1st Vice-President—W. M. Champion, Reaburn.
2nd Vice-President—Robt. Scott, Shoal Lake.
Secretary-Treasurer—Richard Waugh, Winnipeg.

DIRECTORS.

S. A. Bedford, Brandon. R. E. A. Leech, Brandon.
W. J. Young, Emerson. T. Pare, M. P. P., St. Annes.
Jas. Bray, Longburn. Acton Burrows, Winnipeg.
E. A. Struthers, Russell. S. M. Barre, Winnipeg.
G. H. Greig, Winnipeg.

AUDITORS.

W. J. Hinman. L. W. Coutlee.

REPRESENTATIVE AT THE INDUSTRIAL BOARD—G. H. Greig.

MANITOBA DAIRY ASSOCIATION.

**Ninth Annual Meeting, held at Winnipeg,
February 20, 1895.**

The directors met at 10 a.m. in the City Hall and adopted the following as their report for the past year. Present Messrs. Hettle, Champion, Hinman, Waugh. Moved by Champion—Hinman. At same time and place the books of the Secretary-Treasurer were examined by Messrs. Hinman and D. Munroe and certified correct.

Report for 1894.

The past year has been by far the most important in the history of dairy work. The people have made greater demand for information in all kinds of dairy work than ever before, and in response to this demand Dairy Commissioner Robertson sent two pairs of dairy instructors to operate in Manitoba and the Territories, who began work in June and visited Brandon, Reston, Souris, Hartney, Napinka, Melita, Oxbow, Deloraine, Boissevain, Killarney, Crystal City, Pilot Mound, Manitou, Morden, Glenboro, Cypress River, Treherne, Carman. These places were visited by Messrs. Ruddick and Taylor, who afterwards spent a week at the Winnipeg Industrial Exhibition, where Mr. Ruddick did good service as a judge. He visited Gimli and afterwards returned east.

Messrs. McEwen and Zoofelt visited McGregor, Portage la Prairie, Austin, Carberry, Douglas, Oak Lake, Virden, Elkhorn, Gladstone, Neepawa, Minnedosa, Rapid City, Oak River, Bradwardine, Hamiota, Beulah, Birtle, Russell.

At nearly every place two days' meetings were held, and the attendance was on the average the highest ever yet seen in Manitoba, many people coming long distances to be present. Publicly and privately there were strong expres-

sions of approval of the work done, in which your directors cordially join. The mode of instruction was, as nearly as the circumstances would permit, along the following lines :

FIRST DAY.—10.12 a.m.—(1) Running of centrifugal cream separator, and separating cream from about 20 gallons of milk to be supplied by the local committee ; (2) Testing samples of milk ; (3) Preparing about two gallons of cream, to be supplied by the local committee. 2—5 p.m.—(4) Churning of cream supplied by the local committee ; (5) Making of butter, etc. ; (6) Ripening of cream from centrifugal separator ; (7) Address on butter-making.

SECOND DAY.—9—10 a.m.—(1) Testing samples of milk. 10—12 a.m.—(2) Churning cream from centrifugal cream separator and making butter. 2—4 p.m.—(3) Running the centrifugal cream separator ; (4) Discussion on dairying.

It is to be regretted that owing to his other arrangements Mr. Robertson was unable to give as much attention to cheese and butter factories as was to be desired, but this will be remedied in the coming season.

In addition to the work of the dairy instructors, your President and Secretary have done a great amount of work both by addresses at public meetings and correspondence in spreading information, especially as to the details of factory dairying. The farmers' institutes have also devoted a good deal of attention to the same subject and given valuable help to the work of the instructors.

The government and legislature of Manitoba have given this subject special attention during the year. At the annual meeting held in the City Hall, Winnipeg, on January 17th, 1894, the Hon. Minister of Agriculture and one third of the legislature were present. Besides the ordinary grant of \$100 to this Association a vote of \$250 was put in the estimates for special dairy instruction and as the accounts will show the amount actually spent on that work went much beyond the original estimate. Two dairy instructors, Messrs. R. H. Herbison and Wm. Scott, were employed, and with partial aid from President Hettle, the following places were visited during the summer : Wawanessa, Belmont, Baldur, Miami, Morris, St. Jean Baptiste, Letellier, Niverville, Dominion City, Kildonan, Bird's Hill,

Dugald, Little Stony Mountain, Oak Bluff, Rosser, Oak Point, Balmoral, Rossburn, Seeburn, Shellmouth, Russell, Binscarth, Strathclair, Newdale, Eden, Rathwell. The expense of the work done by the local dairy instructors was very moderate. The control of the local dairy instructors was put in the hands of a committee of your directors and the season's operations were highly satisfactory to all parties concerned.

The managers of all our railways deserve special thanks for the encouragement and special facilities given to the dairy instructors for the conveyance of heavy equipment without extra charge and for occasional free passes.

Mr. Acton Burrows, as your representative at the Industrial Board, has done excellent service and looked carefully after dairy interests.

The great call in early spring for local dairy instruction induced your directors to turn over intact the government grant of \$100 for the same purpose as the special grant, consequently the whole cost of the society's ordinary operations were paid out of its own funds. Your secretary has handed over to the Department of Agriculture all vouchers for expenditures in connection with special dairy instruction, and his other accounts have been found correct by the auditors, Messrs. Hinman and Munroe. A voucher from the Department of Agriculture testifies to the accuracy of his accounts in connection with the outlays subject to their supervision. The subjoined is a vidimus of the accounts for special dairy instruction.

Preliminary outlays by the Department of Agriculture :

Separator presented by Mr. Lister.	
Freight on ditto	\$15 71
Customs duties	5 95
S. M. Barre, fittings	54 65
Alex. Smith, Advance Agent	25 00
Railroad fares, hotel expenses, teaming and small incidentals . .	293 40
Additional fittings	10 60
Salaries Scott and Herbison	133 00
Printing, postage, telegrams	17 45
	<hr/>
	\$555 76

The Secretary-Treasurer's report is as follows :—

1893.			
Nov. 30.	To cash balance	\$30 09	
1894.			
July 29.	To dividend from Commercial Bank	8 45	
Nov. 30.	“ 36 membership subscriptions	36 00	
	To grant from Government	100 00	
		————	\$174 54
1894.			
Jan. 17.	By work done on special bulletins	\$10 00	
“	“ advertising, postages	7 50	
“	“ printing and stationery	13 75	
“	“ salary of Secretary-Treasurer	25 00	
“	“ returned to special dairy fund	100 00	
	Balance	15 00	
		————	\$174 54

COMMERCIAL BANK ACCOUNT.

1893.			
Nov. 30.	To amount of deposit	\$50 00	
July	By dividend	\$8 45	
1894.			
Nov. 30.	By balance	41 55	
		————	\$50 00

Feb. 26, 1895. Audited and found correct, { W. J. HINMAN,
DAVID MUNROE,

Dairy Commissioner Robertson reports an outlay of \$1300 within the Province for the work done by his department.

Management of the Dairy Cow.

The following paper by Geo. Steele, Glenboro, Man., was then read :—

I will take it for granted that you have got together a few cows for dairy purposes and want to raise the calves in a manner to make them good dairy cows. I differ from a great many of our best authorities on the first step to be taken. I want, if possible, to be on hand when the calf is dropped and pick it right up and carry it out of sight, and all the better if out of hearing of the cow, tie it up if you have not room to let it run loose, rub it dry with some dry straw and leave it for an hour or so, then feed it a little of the milk fresh from the dam, and before it gets time to cool, back the little fellow up against the wall, steady him up by standing up at the side and with your right hand guide the head into the pail, letting him suck the milk through your fingers. It will only be a matter of a day or two until he will drink right out of the pail without any

further trouble. I prefer to feed them three times a day for a few days then twice a day after. Feed the milk straight from the cow for from four to six weeks, after that feed half skim milk for another week then whole skim milk warmed to about the temperature of new milk. When the calf is about six weeks old begin to teach him to eat a little chopped oats by putting a small quantity into his mouth after his milk or dropping a little in the bottom of the pail. I do not approve of feeding very much grain, but a handful after the milk and the milk always sweet, with a little fresh hay, ought to bring the calf along all right for the first seven or eight months. For the first winter feed on oat straw and a little hay or sheaf oats, just enough to keep the calf growing nicely, without getting fat. For the second winter, if the heifer is not with calf, and I prefer not, I feed nothing but straw, they will come off the grass in good order and if well wintered are apt to get too fat, from 2 years and 9 months old till 3 years is in my opinion early enough for the heifer to drop her first calf. I know this is considered too late by many, but I am satisfied the heifer wants to be near maturity or you lose more than you gain. If she is to drop her first calf in the stable she wants to be fed just enough to keep her in good condition until a week or two of calving, then if she is in the stable I prefer to feed a little bran in order to have her in better shape for calving. By keeping a close watch you will be able to tell pretty nearly when it will be necessary for you to be on hand and when she drops her first calf is the critical time. If you can get her started right you will have no further trouble, if not the chances are your very best treatment in years to come will not be able to rectify a blunder at the start and as I said at the outset I want to be on hand and take the calf right away out of sight of the cow. I know a great many people will tell you this is all wrong, that it is an outrage on nature to take a calf away from a cow without allowing her to see it, that it gives her maternal instincts such a shock to rob her of her treasure, that it is enough to make her dry right up and not give any milk at all. Well, if I know anything about it, it is a much greater outrage on nature to take a calf from a cow at a day, or a week, or a

month old, the cow will never fret less over it than if taken away at the start. She very soon finds that it is a relief to be milked and instead of fretting for the calf she looks for the milker; I prefer to milk three times a day for a week or so and by handling the heifer before she comes in and using her kindly you will seldom have any trouble. The great objection I have to letting the calf suck is that a great many cows will hold up their milk and not give it if the calf has been let suck for a day or two. I am satisfied that this is done by a number of cows far oftener than their owners are aware of and it is a very bad habit and the means of spoiling a great many dairy cows, but when the cow gets used to this system of being milked from the start she takes to it all right and gives much less trouble. I do not approve of the one person milking the same cow all the time; very often the cow gets so that she wont give her milk to any other milker and as a consequence if there is a change there is trouble, if there are two to do the milking they should change about, milk different cows at night from what they did in the morning and if the heifer is taught this at the start she will give her milk to any one without any trouble.

This brings me to the feeding. Of course people must be guided largely by what is within their reach. I will give you briefly our feed, not that I consider it the best, I know it is not, but it has this advantage that it is within the reach of every one that keeps a cow. Our pasture consists chiefly of timothy, with some unbroken prairie, not that I consider timothy an a 1 pasture for a dairy cow, but I have not yet been able to depend on anything better. If at all possible the stock should have the run of the summer fallow and this helps out a scant pasture considerably. For green feed in the fall I prefer turnips, I will perhaps be told you can't feed turnips without turning the milk, so let me tell you a story. A countryman of mine agreed to send his milk to a milk dealer, the milkman insisted on putting it in the bargain that no turnips should be fed the cows, all went well for several months, then came a letter from the milkman saying the milk was not as good as it was and asking what was wrong. Back went the answer

"The turnips that I was not to feed are all done." "Then buy some more" said the milkman. Of course there are turnips and turnips, and some kinds will taint the milk, but if you feed the Purple Top or Yellow Aberdeen just after milking you can feed a reasonable quantity without tainting the milk. They are easy to grow and easy to harvest and will be found a great help to keep up the milk flow and put your stock in first-class shape for going into winter quarters. Our winter feed is principally straw, with some wild hay and a few loads of oat sheaves, a little crushed oats and barley, or oats and wheat, to milking cows, no grain to dry cows, until within a couple of weeks of calving, nothing but straw to yearling heifers not with calf. Feed the bulk of the straw in the winter and the hay in the spring, keep the best saved hay to feed the milking cows along through April and May, and feed a larger grain ration than to fresh cows, this I find is the time when the cows will lose flesh most rapidly if not well fed. We feed no grain at all from the time there is a full bite of grass until winter sets in, we depend on the pasture, the run of the summer fallow, the after growth on the hay land and the patch of Aberdeen turnips to keep up the milk flow, and at no time of the year do we ever feed a pound of anything that is not grown on the farm.

I have been asked by the Secretary to give you my experience with Ayrshires in Manitoba and how they have done with us. I mention this, as I do not approve of people taking opportunities of this kind to talk about the breed of their fancy, unless requested to do so. We have now been breeding Ayrshires in Manitoba on a small scale for 7 years. Most people that saw them when we first brought them in thought they were too small for anything, but after we had raised a few grade steers and put them on the scales they were a surprise to many. The first Ayrshire and grade steers we raised we sold for \$29 each off the grass at the age of 2 years and 5 months on an average; the last grade steer we raised we kept for our own use and at 2 years and 9 months old he weighed 1100 lbs. live weight and dressed 660 lbs. or 60 lbs. to the hundred. All of these steers were raised on skim milk after they were 6 weeks old, and wintered on straw the second win-

ter, with a little hay in the spring. We have never had any grade Ayrshire cows as we never had any heifer calves from the few cows we had when we started to keep Ayrshires but the only fault I have heard found with this grade by those that have been using old bulls, is the smallness of their teats. The Ayrshire has usually a shorter teat than most other breeds and this I find is an objection taken by a number out here, much more so than it was at home. As for the pure bred cow no one who has seen our cows has ever doubted their ability to fill the pail, and our herd will average 11 lbs. butter each a week from calving in March until the month of August, unless the flies are very bad in July, without any forcing, but just fed in the way I have described without any grain on the pasture. We have never tried to see how much we could make out of the best cow, as I consider a herd or breed should be judged by what they will average. We have had an increased demand for bulls and at present are completely sold out and have not been able to supply the demand. Every year brings us more letters of enquiry than its predecessor, which I think is proof that they are here to stay.

Private Dairying.

At the evening meeting, David Munroe, of Neepawa, read the following paper :—

The value of the dairy products of Canada as well as of the U.S., which far exceeds that of the wheat crop, brings to our notice the comparative importance of this work. The uniform success of dairy work through many years and steady maintenance of values during the universal shrinkage of every other farm production has quite naturally turned the hope of many to this product. But the awakening finds us poorly equipped for the work. How, then, shall we accomplish the so generally desired change? The subject assigned me, under present circumstances, affects the most extensive department of dairy production. It is a branch of the work of the great majority of the quarter sections of our land. The private dairy is by far the largest element in the dairy production of the country and the one in greatest need of almost universal reorganization. Co-operative work through creameries is not available to

the great majority, and many of these have not been so successful as to furnish sufficient inducement to the establishing of others. Yet if proper skill and appliances were devoted to the work the results from the private dairy would at once be very satisfactory. This country is especially adapted to dairying. The elements in soil and climate which make it famous for No. 1 hard wheat are equally favorable for the production of a similar standard of dairy product. In support of this statement we have the evidence of such good authorities as Commissioner Robertson, and Messrs. Ruddick and McEwan. Every quarter section should support well at least 10 good cows and still raise as much or more wheat as they now do. If this was being done, conceive if you can the vast additional revenue to the people of this fair province individually and its importance to the country as a whole.

The prices for the great bulk of the dairy production offer little encouragement to its manufacture. The country merchant is usually relied upon to receive it in every conceivable flavor, color, texture, salting and form of package. He finds it difficult to secure a market that will save him from loss, even at the prices given, and, to avoid offence to some customers he offers a uniform price to all for good butter and poor alike, then secures himself by giving in exchange goods at a credit price, which means the addition of a large per centage to their cash value, this is a serious loss to the country as a whole. Many remedies have been suggested but so far most, if not all, have failed to bring relief. Dairy products should be sold for cash, the same as any other crop, and purchases made on the same basis.

Other things being equal, the private dairy has some advantages over creamery work. To make it successful it must be conducted in the several processes on similar lines to the creamery. It has the very great advantage of having every operation from the moment of drawing the milk from the cow's udder to the ripened cream, entirely under the maker's eye. The cost of hauling milk or cream, and of the making up is retained at the farm, while the value of the buttermilk to feed to growing pigs at the farm is also a considerable item.

How to make this work really of advantage to the

many people who are now considering it, and save hosts of them from the disappointments that are surely in store for them is a question of very serious importance. The first great essential is education. To make a good article requires not only that the maker shall be a judge of good butter, but have also a knowledge of methods. While the circumstances of our people may not warrant the expectation of a prompt revolution in dairy work, the interest manifested and good work accomplished by dairy instructors during the past season give ample assurance that the seed may now be planted with reasonable hope of an abundant and permanent gain in the near future. Dairy education, like every other sort of education, depends upon the diffusion of knowledge. The class who principally need it do not usually seek it earnestly. To them it must be carried and induce them to realize its need. The spirit of ridicule and censoriousness so generally bestowed upon the product of our small dairies and dairy folk, might very properly be tempered with charity and consideration for the conditions under which they are forced to labor and the light they have to guide them. Ridicule and censure are not favorable means to create a spirit of interest and adopt better and newer methods and thus benefit the masses whose benefit is sought by this association. Yet even with the poor appliances I know several private dairies that make a quality of butter not excelled by the best equipped creameries, whose product is not nearly large enough to supply the demand at a good price, even at the present time when a great supply is being urged upon the most unsatisfactory market probably ever known in the history of the province. These of course, are a small minority while the great bulk of the majority is a motley array of indifferent value, exceeding many times the combined product of the best private dairies and all the creameries in the land.

To remedy this state of the industry should be the commendable effort of the dairy association and our provincial government. To make a success of any form of dairying every step, from the breeding and rearing or the selection of the herd to the marketing of the product, must be correctly taken. The object of the dairy association is chiefly

educational, its purpose to promote the interests of the private dairies and the creameries, to elevate and make uniform the quality which will also advance the price, to increase the yield, and to jealously guard the industry from the inroads of impostors who seek to supplant genuine, honest dairy foods, the pure product of the churn, with slaughter-house fats and cotton-seed oils made into the form and color of the food they attempt to imitate. The manufacture of bogus butter in the U. S., in 1890 was 30,000,000 lbs. In 1894 it was 75,000,000 lbs. The excellent laws of Canada on food adulteration have made the name of Canadian cheese a synonym for purity. It has driven the product of the U. S. out of the best English markets and even invaded their home markets.

The people of Manitoba heartily approve of the action of their government in the interests of dairying. I believe they would be remiss in their duty to the people not to follow it up with further grants to the dairy association for more extended work in conjunction with the institutes, and especially if they neglect the establishment of a dairy school at some central point where our young people and the older ones interested might get fuller information through actual contact with the whole work, from the study of the cows, their breeding, feeding, shelter, care and testing, to the handling, making, packing and marketing of the product. In justification of this work I only need to refer to the work in this line, and its popularity and its rapid extension in our other provinces, in many states of the U. S. and in New Zealand and Australia, with the great benefit at once following. The expert commissioner in this department should be a central leading spirit in the dairy association work, and through whom, with Government support, our creameries should be assisted in their effort to retain for this province the market at the west which should belong to us by virtue of merit and location, instead of to Eastern Canada or Australia.

I am advised that I may speak of the breed I prefer. In my opinion the breed discussion has been pretty well aired recently, and they all have it. The scales and Babcock test sit in judgment, let them decide. Too much stress has been put upon breed names, and far too little

upon individual merit. That the selection must be from the recognized dairy breeds seems pretty certain. In them we have many generations of effort, combined to improve this very quality. No one of these breeds has a monopoly of all the good qualities. Among them all are far too many "weeds" that should have gone to the shambles. Whichever of the dairy breeds may be selected from, the individual test should decide their fitness, together with the family records of their ancestry. The past season has brought out some good dairy records. It is very significant that the large results are never without good dairy breeding to back them. Among recent comparisons of different breeds that of Prof. Haecker, of the Minneapolis Experimental Station, is eminently complete and fair. Pedigree does not amount to much unless it reaches to the milk pail. Any cow that produces less than 250 lbs. of butter in a year should not be retained in the dairy. The oft-repeated saying, "The bull is more than half the herd," continually gains favor in my estimation. The most important of all the selections is the head of the herd. The bull we breed from should combine as much concentration of the very best family records as we can possibly buy or breed. The value of a good bull was finely illustrated last summer, when one of the largest dairies in the province was dispersed at public sale—95 head of young things, of three generations, bred from the herd, and sired by a choice thoroughbred bull, were offered, and brought prices that must have been gratifying to the owner in return for his investment, while the purchasers were equally pleased with their end of it. But that was not the end, the influence of that bull will live on for many years, scattered over the province to the great benefit of the dairy industry. Moral: Don't look at the dollars too long when you need a good bull.

Very often we see good breeding ruined by bad feeding. Either is a twin to the other, and it is a big blunder not to realize that they must be treated as entirely separate departments of dairy work. Good feeding can never create the character or temperament of a cow, nor make of her a good dairy animal if she has not already the inherent qualifications. It is useless to waste time and hope in the

attempt to it. Modern dairying is affording many lessons on skilful feeding. A properly-balanced ration in the proportion of 1 of nitrogenous, to about 6 of carbonaceous elements is found to be most suitable—a generous portion of it to be succulent food. We cannot expect the cow to furnish milk unless we furnish her the elements that enter into the composition of milk, besides the food to support the physical system. No single food fills the bill, but the varieties necessary for a complete ration can and should be raised on the farm. This is an interesting feature of the work worthy of careful study. The cheapest of all and yet the most generally neglected is a flood of sunlight, an equivalent to much food. During this winter our feed has been about 30 lbs. hay, 4 lbs. barley-meal, 4 lbs. bran and 20 lbs. pulped swedes each per day, costing about 9c., decreasing the feed as the milk diminished. We have fed green barley and oats with very good results. Corn is being grown more extensively every year in our vicinity, and it proves a very satisfactory crop. The silo will soon be the main reliance for the bulk of the ration. I hope clover will form a portion also. The best dairy animals have the highest nervous development, which, of course, makes gentleness most imperative.

Just following this food question and somewhat related to it, is that of the value of manure. It will soon come to the front. One thing is certain. If we continue to drain our soils of their fertility, to be exported from them in the shape of grains, we must expect to reap less as the years go by and soon find our lands terribly depreciated in value. A ton of butter contains 2.4 lbs. nitrogen, 1.4 lbs. phosphoric acid, .5 lbs. potash, a total of 4.3 lbs. of fertilizing matter, while a ton of wheat contains 37.8 lbs. of nitrogen, 18.6 lbs. phosphoric acid, and 12.8 lbs. potash, or 69.2 lbs. of valuable fertilizer. Where does all this fertility come from? and what are we doing to replace it? Do we realize the need of constant repair if we continue to boast of our wheat production?

Finally a word as to the work in the dairy house. The dairy work of our parents is doomed to a back seat. Modern appliances and methods are capable of producing a better butter than was possible for the most beloved of

our mothers. After the most careful milking, handling and straining, the separator bowl holds up to our view a mass which, to put it mildly, we will call disgusting. This was then a factor in "gilt edge" butter (?), but it should be spelled "guilt." It is an element foreign to pure butter fat and a rapid generator of decomposition. From my experience the use of the separator has produced a gain of more than 25 per cent. over the deep setting, and a very much more satisfactory way of creaming. The cream takes a quick road from the cow to the churn. Ripening the cream, churning, salting, working and packing, all require study and skill. No fixed rule applies, on account of varying conditions. If the quality of butter is made an earnest study and brought to a proper degree of merit, then if a regular supply every week in the year of good fresh butter, of uniform quality and nice packages, bearing the maker's especial brand on every parcel, is put into the retailer's hands, the demand would not be wanting nor the price a subject of complaint. The market in this way becomes very much the property of the maker's brand, besides being an incentive to effort that every parcel bearing that brand shall be no discredit to the maker.

There is no product of the farm depending so much upon its good reputation as butter and cheese, and none so effectually ruined by a bad reputation. Under the system of anonymous packages, delivered to the country merchant at a level price for all grades, in exchange for goods only, the inducement to excel in quality is pretty effectually discouraged. Education is the great overshadowing need. May the efforts of the Dairy Association and the farmers' institutes, with liberal support from our Government, bring a speedy improvement and benefit to us all.

Mr. Muuro showed several pound packages of butter, stating he had bought them not so much on account of their quality as to show the form in which he put up his butter for market, this being in his estimation a very important factor in the success of any dairy product.

At the close of Mr. Munroe's paper, the chairman said: Mr. Munroe has stated that each quarter section if properly managed should be able to support at least ten cows and grow as much wheat as it does at present. This would

mean 250,000 cows for the Province. I have put my rate per cow lower than Mr. Munroe's, and will say 200 lbs. per cow, that would be \$50,000,000 lbs. of butter, which at 15c. per lb., would be \$7,500,000. This year we had one of the best crops the country has seen. It was estimated at 17,000,000 bushels. It brought about \$7,000,000, and out of this must be paid the expenses of growing, threshing, drawing, etc. Beside this, a great part of this money goes out of the country to pay for implements. If we had the milk of ten cows from every quarter section in Manitoba the bulk of the money made in this way would remain in the country. If we provide proper feed for our cows there is no reason why we should not command any market for our butter. I remember when Irish butter was the most sought after on the English market. Then the Danes established the creamery system and practically ran Irish butter out. If we wish to compete with Denmark we must work on the scientific plan. England is going in for scientific butter making and we must do the same if we wish to be at the top of the market.

Mr. Scott asked how many bushels of wheat had been raised by Mr. Munroe.

Mr. Munroe said 6,500 bushels.

Mr. Scott then stated that he had visited Mr. Munroe's farm and found that he was far from a hay meadow and had supplied the place of hay with green feed.

Mr. Munroe: The reason I spoke so much of the quarter section being able to support ten cows and raise the same amount of wheat as at present was on account of my own experience. I had a field of 19 acres on my farm and the first year I plowed and sowed it and it brought forth 62½ bushels of grain and a million bushels of weeds. Next winter we drew out manure on a part of this land. My neighbors told me it would not do, but I noticed that we harvested just two stooks of grain on the land that was manured to one on the part we had left alone. The year following I summer-fallowed until July, then sowed with a crop to be cut green. This crop was cut on the 19th September, with very good results. Mr. Waugh has been at my place and knows the field of which I am speaking. This year I sowed this field partly with barley and partly

with wheat. The wheat yielded 48 bushels to the acre. By summer-fallowing a part of my land each year and then getting a green crop off it I am enabled to get a crop off all my land each year. The green crop provides a great part of the food for my ten cows.

The Dairy Shorthorns.

The following paper by F. Noble, Wawanesa, Man., was next read :—

A great deal has been said and written about the breed that pays best. As far as my experience goes I prefer Shorthorns and Shorthorn grades. Of course it would be hard to get two of the same opinion, every one thinks his breed the best, but I have been in Ontario where they had different breeds and I took particular notice to their milking qualities and did not see any cows there to beat the Shorthorns and their grades. Here some of the Shorthorns are not good milkers, but if you get the right type of Shorthorn cow and breed her to a bull of a good milking strain, I think you can raise Shorthorns that will hold their own with anything in this country; Besides they are strong, healthy, will eat all kinds of rough feed, are capable of standing any amount of hardship and will give you good returns for the food consumed. You cannot expect a cow to milk unless you give her a good comfortable stable, plenty of good water and all the food she can eat up clean. We have 5 cows which calved in January, we feed them wheat straw, chaff and oat straw with a gallon of oat feed chopped, mixed with bran and shorts in equal parts three times a day, and a little hay once a day. They are all doing well, they make on an average from 10 to 12 lbs. of butter each in a week. We have had cows that made from 12 to 13 lbs. in 7 days on oat straw and wheat chaff with 9 lbs. of frozen wheat and oats mixed and ground. I have a Shorthorn cow just calved, Lakeview Maid, that milked up to calving but I don't approve of it. I think it injures them to a certain extent for the next season. I had one before milked in the morning and came home with a calf at her foot at night, but she did not do so well that summer. I think to give them a rest of 5 or

6 weeks would be about right, some only milk their cows about 8 months in the year but I think a good deal of the fault is the farmer's not the cow's. I know some men that have good cows and they are all dry; the way they stable them is, drive them into a shed at night and turn them loose in the day time to a straw stack. I find that cows will milk fully better here than in Ontario if properly fed and cared for. We are milking 13 cows, 5 of them calved, the rest of them calved early and get very little grain, just enough to make them eat up the straw and chaff, I notice they eat the straw better by getting a little meal thrown on it. Three years ago I had 10 cows that were fed through the winter on chopped frozen wheat and in 12 months made \$500 besides keeping a large family in butter. We sold the butter for 20c. a lb. all the year round and raised all the calves.

The Holstein Cow.

W. J. Young, Emerson, read a paper on this subject. After speaking of the antiquity of this breed and the skill shown in handling them by the Dutch, Mr. Young went on to say, I am free to confess that about the only profitable branch of my farming operations for the last 3 years has been the breeding of Holsteins and dairying. I started with a little herd of 9 about 3 years ago, since then I have sold over \$1,500 worth of stock, have kept all my foundation herd except two, and to day have 12 more than I started with. I have never had a case of sickness amongst these, never had a case of abortion and never had a farrow cow. Although I have not kept any record, except of sale of stock, I am confident each cow has produced, besides her calf, over 200 lbs. of butter a year, and to value her calf at \$70, which is the least I have sold any for, and the butter at 25c. a lb., would give an income from each cow of \$120 a year. I do not wish to throw out the impression that I think there are no good cows except amongst the Holsteins, on the other hand I have great respect for a good dairy cow no matter what breed she belongs to, or if she is only a scrub. But the rugged character of the Holsteins and their immunity from disease, coupled with

the many brilliant victories they have won in public milk and butter tests of the past few years, have made them favorites with dairymen and breeders of dairy cattle everywhere. From my experience with them I can confidently recommend them to anyone who wants a genuine business cow. I have found them perfectly hardy and adapted to our province, but I must confess I have not tested their hardiness by sheltering them beside a barbed-wire fence in winter and pulling at a straw stack, and I am afraid the man who expects a big return from Holsteins or any other breed treated in this way will be disappointed. But it does not require rich feed or hot-house care to obtain good results. In regard to grades there is nothing older than two-year-old heifers in our district. I only know of two of these that have had calves, one is owned by C. Baldwin, who expressed great satisfaction with her, saying there was only one mature cow in his herd of Shorthorn grades that would give as much milk as this half-blood heifer. The other is owned by Wm. Irwin, manager at Emerson for the Martin - Mitchell elevator, who informed me he measured the milk of his heifer, the production of 12 hours, and she gave 12 quarts of milk, which is equal to about 48 lbs. a day. In view of this and from the fact that any of my own mature cows, with just, good, liberal treatment, will give 60 lbs. of milk a day while fresh, testing between 3 and 4 p. c. of butter fat, and taper down to about 20 lbs. when within about two months of calving, I would not hesitate to advise any one who wants a good working dairy to invest in Holsteins, either pure or grade.

The Farm Separator.

W. M. Champion, Reaburn, Man., read the following paper :—The success of the cream separator has never been disputed. But like every other labor-saving machine it must be thoroughly understood to get the best results, and I will answer in this paper some of the questions that have been asked me during the past two years. 1, Does it pay? 2, Is it hard to work? 3, Have you to be very particular about keeping it clean? 4, Is it expensive to keep in order? 5, Would you advise a person with 10

cows to get a separator? 6, Would you advise a person who cannot make good butter by any one of the old methods to get a separator to improve his make?

To the first question, "Does it pay?" I answer "Yes." Because you get more butter from the same amount of milk the season through. The weather has no effect on the separator, and you can get all the cream out of the milk in a thunderstorm or when the thermometer is 90° in the shade, as at any other time. You never have to feed sour milk to calves, and they grow better on the skim milk than on any other skim from the old methods.

2. "Is it hard to work?" No, but the operator must understand the machine. The farm separators are geared from 38 revolutions of the first motion up to 7,500 revolutions, which the bowl makes in a minute. Now it is essential that all the parts be understood. The first thing is to take the machine all apart and learn every wheel and every pin. In the directions for setting up the separator you are told it must be level. That means just what it says, it must be level. For those who wish to set up a separator and have not a good spirit level, if the milk and cream troughs are filled with water it will show whether it stands level or not. After a person can take a separator to pieces and put it together and set it level, he will have no trouble in working it by following the directions as regards speed.

3. As to keeping it clean. The separator is not easy to keep clean and requires great care. To do this, while the machine is running, put through a pail of warm water, this will remove all milk. Then when the machine has stopped take out the bowl, wash with milk warm water, using the brushes freely that you get for the purpose. Then scald out the bowl, using a little sal soda in the scalding water, then rinse with cold water, and keep the bowl out in the fresh air until wanted again.

4. "Is it expensive to keep in order?" Not from my own experience, as my Alexandra has only cost me the oil used in two years.

5. "Would you advise a person with 10 cows to get a separator?" Yes, if there is not a factory close at hand. All things considered it makes the work lighter and the

returns will be more satisfactory and the calves will thrive better.

6. "Would you advise a person who cannot make good butter to buy a separator to improve his make?" No. All the separators now in use will not make a careless, poor butter maker into a good one, and I still maintain that good butter can be made and is made by the rule of thumb and the flat pan. But it is not what I say, it is what the public say, and what do they say? It is this: Creamery butter is the most to be depended upon. Now I will give you a few of the reasons why it is better as a rule than butter made in other ways. The person who will go to the expense of starting a separator means business. He will follow out every detail, he will read and study. By studying he learns that the milk must be separated at a temperature of 85 or 90 degrees, that the cream must be then cooled down to 40 or 45 degrees, keeping each skimming by itself until there is enough to churn. Then it is mixed and brought up to 60 or 65 degrees for 12 or 24 hours, as the case may be, to get it to what is called the second acid. Now here is where the "know how" comes in. To handle the cream at this stage is, I find, where the good or inferior butter is made, and as to the churning, washing, salting and preparing for market any one can learn by reading. But with working the separator everything must be done by rule, the thermometer and the clock. There is a time in the fall of the year when the small quantity of milk given by the cows gets too cold to separate properly, so I aerate the night's milk and keep it until morning, then mix the morning milk with the night milk and bring the whole up to 90 degrees by using hot water. I put the water into the milk. I find it more satisfactory than separating the pure milk. I have found the Babcock test has helped me with the separator.

Naturally you would think that turning a little faster or a little slower would make no difference, but I find the speed must be regular and according to the printed directions sent with the machine. My own separator is a No. 2 Alexandra. I run it with a 2-horse tread power, using one small horse. The power stands at an elevation of 15 degrees, and the horse walks at the rate of $2\frac{1}{2}$ miles an hour.

The power has speed regulators attached and the speed can be regulated as easily as a steam engine. If any of you would come to my place in the butter-making season you would see that the workings may be crude, but they all tend to save labor. The milk cans are placed on a stone boat and taken to the stable to receive the milk, the milk is then drawn to the place of separation, the horse is then taken off the stone boat and led on to the power, and when the separating is finished the horse is again put to the stone boat and draws away the skim milk and washing up water to the pigs and calves. The same horse churns every other day, and draws the butter to the station once a week. The butter is put up in 1 lb. bricks, wrapped in parchment paper, labelled "Rose Lawn Creamery," and packed in refrigerator butter boxes. I have never had any labor-saving machine that has given me the satisfaction the farm separator has done.

There is no reason why a farm cream separator could not be run with wind power. If I had wind power instead of my present power I could utilize it by pumping water into an elevated tank and then run the water back into the well; and use the water to run the separator. By doing this we would be sure to have the best of power for separating, and the wind mill would be sure to keep the tank full, as it would have 24 hours to do the pumping in, and it would only require one hour in the 24 to separate the cream of 20 cows. I think those who have wind mills to do their pumping can with very little expense run a farm separator to great advantage.

A separator was used to demonstrate the paper while it was being read. In speaking of the dirt found in the ball of the separator Mr. Champion stated that since the introduction of the separator his family had entirely eschewed the drinking of new milk.

At the close of Mr. Champion's paper it was suggested by Mr. Scott that Mr. Champion would find cold water better than warm for the first washing of the machine. Mr. Scott also mentioned that the maker of the machine in question had gone to very great expense to get the machine on the market and is now offering a new machine with smaller capacity. Mr. Champion has said the machine he

has is not hard to turn but he uses a horse. For those who must do this work by hand the smaller machine will be found a convenience and it will separate 40 gallons of milk per hour. Another feature is that the ball is made of aluminum, which reduces the weight about 3 lbs. and instead of taking out the bottom to clean it, in the new machine you remove the top, which is a very great convenience. There is also a still smaller machine for men with only a few cows, which will only separate some 16 gallons per hour. I think the suggestion of the windmill is the best part of the paper and every farmer should get a Little Turbine Wheel for use with the water supplied by the windmill.

Mr. Young wanted to know how the windmill could be made to work regularly. Mr. Champion explained that the water supplied by the windmill would be stored in a tank and from this allowed to fall over the wheel.

Mr. Munroe : My separator is a large one and we turn it by hand, myself and my boy of 16 doing all the work. We milk 20 cows. It was hard work at first and I did not find the directions very clear, but I wrote to the Professor for further directions and after that we had no trouble. We find a gain of $17\frac{3}{10}$ per cent. in using the separator.

Mr. Wm. Scott thought one was not enough to run a separator to advantage when the work was all done by hand, but where horse power was employed one person could attend to the entire operation. Professor Barre here stated that he was always pleased to receive suggestions as to the improvement of his separator.

The Chairman then called upon Professor Barre to address the meeting, which was full of practical suggestions regarding the future of Manitoba dairying. In addition to his paper Professor Barre made the following suggestions :

1. The Provincial Government should aid the establishment of factories, in the shape of a bonus or otherwise.
2. He placed great importance on the question of a dairy school. I consider Manitoba one of the best countries in the world for dairying, and I think the time has come for a school of butter and cheese making should be organized and the establishment of such a school would materially push our dairy work.

3. Owing to the probable increase in our cheese production and owing to the fact that we must in the near future export cheese, we must have a practical school of cheese-making. During a conversation which I had recently with Professor Robertson he proposes to use a cheese factory located in a central position, where he will send a competent teacher. To this factory men could come from all parts of the Province to study the most approved methods of making cheese.

3. I think it would be the duty of our board of directors to ask for cold storage transportation.

At the close of the Professor's paper, Mr. Hettle expressed the obligation of the Association for the advice and suggestions of the Professor, at the same time expressing his hearty approval of the school of dairying, the cheese inspector and the cold storage transportation.

A Minister's Speech.

The Hon. Robert Watson was next asked to address the meeting. Mr. Watson expressed his regret that so few ladies were present, more especially as dairying was the branch of farming in which they were most nearly and practically interested. It had afforded him great pleasure to listen to the addresses and papers, and he only regretted the unavoidable absence of Mr. Greenway, who had so much more practical knowledge of the subject under discussion than he had. His knowledge of dairying was chiefly confined to an appreciation of good butter and milk. He was of opinion that there was no product of the farm on which there was so much loss owing to inferiority of quality. He understood that in the town of Birtle, one merchant, or all the merchants, he was not sure which, had established the price of butter according to the grade. That butter was bought and sold entirely according to the grade, and already a marked improvement in the quality was noticeable. He thought this a matter worthy of the attention of the Dairy Association, and that it would be well to advocate this arrangement throughout the Province. A great deal had been said during the evening about the duty of the government in reference to these

matters. As a member of the government, he would say they were most anxious to assist the dairying industry, as they were anxious to assist every industry. But the revenue was small and the expenses of the government were constantly increasing. The government was endeavoring to teach the people at the lowest possible cost and were undertaking to instruct the children in public schools in practical agriculture, and he thought these lessons were calculated to do a great good. Mr. Rutherford thought it would be well to admit farmers' sons and daughters to take instruction with the Normal students, and he also thought this would be a cheap and easy method of giving instruction. He had been a little amused as different persons have advocated different breeds of stock. Between the black and the white Mr. Young had a good argument. In this country farmers had to look a little to the beef as well as to the dairy and he thought Shorthorns hard to beat. He repeated his regrets that more of the public do not attend these meetings. He was much interested in what Mr. Munroe had said as to the necessity of manuring land. There is continually a complaint of boys and girls wanting to leave the farm. He thought the difficulty was with the farms. If the farms were made interesting and successful the boys would not wish to leave them. When one looks at many of the farms in this country it cannot be wondered at that the boys and girls are in haste to be gone. If there is pure bred stock, good horses and good dairying arrangements both boys and girls would soon take an interest in the farm and be glad to work on it. He agreed with what had been said as to the quality of butter. People will not eat rancid butter, they will rather eat lard. If we get good bread and butter we can live. It had been suggested that the government should give a bounty for good butter. For the reason he stated before — the limited revenue of the province — it was doubtful if they could encourage the making of good butter in this way. They were anxious to encourage the farmers in every way to change their mode of living on the farm. It appeared to him the quicker they could teach the people to live within themselves on the farm the sooner they would teach them to prosper. Even with a yield of 40 bushels to the acre farm-

ers will not prosper if they give 10c. a lb. for meat for their threshers. In closing, he assured the meeting that everything the government can do with the limited means at its command, will be done to further the dairying interests of the province. Mr. Hettle, the president, and a member of the legislature, had pleaded the cause of the Association with such success that he was allowed to considerably exceed the grant originally made to the Association.

Dairy Feeds.

Superintendent Bedford, of Brandon Experimental Farm, then spoke. He said :—As the hour is late I will not read the paper I prepared, but will briefly state some of the chief points and will endeavor to answer any questions asked me. In the first place let me say that during the past year we have been struggling with the question of green feed, how to grow and how to preserve it. The trouble has been to preserve the food as nearly green as possible without danger of rotting, and without the expense of building a silo, and it was thought this might be accomplished by stacking the corn when well cured between layers of straw. We commenced our stack with a foot of straw on the ground, then a layer of the green grain, then another foot of straw and so on till the stack was completed. We now have a stack containing between 50 and 60 tons of feed. The fodder is in very good condition—the stack having been opened just shortly before I left. The corn did not freeze. We chopped it before feeding. I think I may say that we have solved the problem of green feed and its preservation. We averaged 14 tons to the acre of North Dakota Flint and it cost us at the rate of \$1.40 a ton green. There is another thing that is often asked me, viz.: What to use in the place of oil cake? We should not buy things off the farm if we can help it. I have advised growing flax for this purpose. I find flax seed can be grown with great success, the crop giving \$22 as against \$11 for wheat. Then we have tried peas. The difficulty with growing peas in this country has been the expense of pulling and the fact that the wide spaces of our prairie fields and the strong winds cause the bunches

when pulled to be blown about until they are largely threshed out upon the ground. Some years ago we tried equal parts of oats and peas together but this did not work. The peas were crowded out by the oats and the yield of peas was poor. This year we have tried it again. We mixed 8 pecks of peas with 2 pecks of oats. By this means we have had a good crop and one that could be cut with the binder. Any of the good small varieties of peas and any standard variety of oats will do. Prize Cluster is a very good variety for the purpose. The average return of this crop is about even and in the neighborhood of 20 bushels of each. We have succeeded well also with native grasses and have found that Austrian Brome grass gives a large yield of hay and excellent fall pasture at a time when our own prairie grasses are liable to be dried up. Brome grass does well if you plough and sow the same day but you require to sow near the surface and if it is not sown while the ground is moist it will not germinate. We have been trying to grow the seed of the millet and we have ripened sufficient of it this year to make a fair commencement. We have no trouble in growing sunflowers but are not quite sure of their feeding value. Every year we are finding out a little more that the farmer can grow and we hope to go on along this line until we know everything that the farm can produce in this great country of ours. In answer to a question as to whether the difficulty of harvesting was his objection to growing of peas and whether a pea harvester would not get over this difficulty, Mr. Bedford said there seemed some doubt as to whether a really satisfactory pea harvester could be obtained. Mr. Hettle asked Mr. Bedford if he had tried a certain pea grown by the Mennonites. Mr. Bedford said he had not, that there was so much stink weed in that part of the country he was always suspicious of anything that came from there.

Tuberculosis Among Cattle.

S. J. Thompson, Manitoba Provincial Veterinarian, said :—There has been so much said and written about this disease that it is not my object to give you a long history of the disease, but to give you, in as concise a way as pos-

sible, first—To what extent I find the disease prevailing in this Province. I speak after a careful inspection of a great number of cattle in different parts of the Province, and after having used the tuberculin test on about 120 suspected cases, of which 68 were found to be affected with tuberculosis, the greater part of which have been destroyed, and post-mortem examination made on the great majority (which helps to prove the great value of tuberculin as an agent for detecting the disease in its earlier stages while quite impossible to detect it by physical examination), and after a careful summing up, I believe I am quite safe in saying there is not more than 3 per cent. of our cattle affected, but there is no doubt we will find the great majority of those among our dairy cattle. We find there are many people who go to extremes on almost every subject, this among others. Some will tell you there is little or no danger, that the disease is no worse than it was twenty years ago, and that the tuberculin test is all nonsense, while others will paint in the darkest colors the great dangers the people are exposed to by using milk or meat from tuberculous animals and loudly call for the destruction of every animal affected, however slightly. I believe those are the two extremes. That there is danger from the use of tuberculous animals cannot be successfully denied, as many smaller animals and calves have been infected by its use in carefully made tests, yet we find that in 80 per cent. of diseased animals the milk is not infected, that is none of the bacilli or germs can be found in it. We might say that is the majority of cases where the disease had been found in the milk, tuberculous nodules have been found in the udder, or the disease had so far advanced that it was disseminated through the system.

Second.—Measures to prevent the spread of the disease :—(a) By testing every thoroughbred animal coming into the Province. This I consider very necessary, as cattle breeders in other parts are getting to understand enough about the disease to want to get rid of any animal shewing the least symptoms of it, and as it is so prevalent in other places we cannot be too careful in admitting cattle into this Province. (b) By testing with tuberculin all thoroughbred cattle sold in this Province for breeding pur-

poses, especially males, as the disease is often introduced into healthy herds in this way. (c) By the destruction of all animals showing physical signs of the disease, that is piners or wasters, cattle that become emaciated, having a cough and discharge from the nose, or with enlarged glands of the throat, flanks or udder, or a combination of symptoms. (d) The thorough cleaning and disinfecting of all stables where affected animals have been stabled. I wish you to distinctly remember there is little or no use destroying animals if you put healthy animals into the same stable without thoroughly cleaning and disinfecting it. There is no doubt that 90 per cent. of the disease is caused by the inhalation of the bacillus tuberculosis in the form of fine dust, therefore our great care should be not to allow any of the discharge to dry on the mangers, stalls or floors, or to rise in dust. Sprinkle your stable floor thoroughly before sweeping. (e) By allowing no person affected with tuberculosis to feed or care for cattle, as there is no doubt that the disease originates in some herds in this way. (f) By careful isolation and branding of all animals that react with tuberculin test.

I will be asked what is the use of isolating them if they have tuberculosis? I answer, to slaughter as food for man, or for breeding purposes. The question will be asked is meat from tuberculous animals fit for human food. I answer in the affirmative, that is where the disease is localized in the lungs, liver, or some of the smaller glands. After a careful study of the many tests made by Professors Nocard, Bangs, Williams, and the professors of the Bureau of Animal Industry at Washington and others, I have come to the conclusion that there is little or no danger from the use of meat from animals with localized tuberculosis, and positively none if the meat is well cooked. Therefore, when we have a herd with a number of young animals slightly affected, as we sometimes find the case, I do not think it right or necessary for stock raisers or dairymen to be at the loss of their cattle, but all that are not required for breeding purposes should be at once fattened and killed.

Breeding from tuberculous cattle. If I had a herd of dairy cattle that to all appearance was healthy and strong,

with a few exceptions, I would feel it to be a very great grievance and wrong if I was forced to destroy them unless I was fully recompensed. It would be quite right and just to prohibit me from selling milk or butter from such a herd, but to prevent me keeping my cattle isolated that I might increase my herd with their progeny, 99 per cent. of which with judicious care, I would expect to be free from this disease, I would consider a great hardship, therefore, if I had a herd of cattle that I had cause to suspect were affected with tuberculosis, I would have them tested with tuberculin. Those that showed physical signs of the disease, besides reacting with test, I would destroy; the others that reacted I would isolate. I would go on and breed them as usual, taking away their calves as soon as born and feed them on boiled or sterilized milk. I would again test those calves when about a year old, with the full expectation of finding them free from tuberculosis. And I believe, under certain circumstances, I would go further, that is where I wished to isolate my cows in a distant pasture, where it would be very inconvenient to milk the cows and feed the calves, I would allow the calves to run with their mothers until time to stable them in the fall, when before stabling I would test the calves with the expectation of finding very few, if any, affected by the disease. There is one thing more I wish to mention and to lay a great deal of stress upon, namely, I believe it should be made a criminal offence to sell milk or its products from tuberculous cows, or to sell an animal that is tuberculous (or has been branded as such) without informing the purchaser and also notifying the Department of Agriculture, so that the continued isolation could be insisted on. Where sold to butchers to be slaughtered, it should be inspected by a qualified man.

Those are some of the means I would take to hinder the spread of this disease and minimize its effects on our dairy cattle, and through them on the human family.

At the close of his paper, Mr. Thomson expressed his willingness to answer any questions on the subject. Prof. Barrre said:—I think this paper is a most important one when we consider that more than one-fifth of the human family die from this disease and we cannot be too careful

in regard to it. Ans.—It has been proved by experiment that this disease can be given by man to beast and by beast to man through the milk. Tests have been made as to butter and cheese and we find that we have little to fear here. In the case of the cheese the chemical process through which it passes almost entirely destroys the germs. We should however be very careful to sterilize milk before using it for drinking.

Q.—Is it necessary to test cattle to know if they have it? A.—Sometimes it is and sometimes it is not. Some cattle may have the disease and yet seem entirely healthy, though in cattle who have it in at all an advanced stage it is easy to tell from their appearance.

Q.—Is tuberculin a preventive? A.—Not at all.

Q.—Would it be necessary that the animals which have the disease be tested before they are ordered to be slaughtered? A.—I never order any one to slaughter cattle. I only advise that they do so.

Q.—Can the disease be cured in its early stages? A.—An animal may show reaction from the test at this time of the year, we would turn it out to grass for the summer and next fall we would test it again and find it show the disease but it is arrested and, as in cases of consumption in individuals, it may never go any further.

Q.—You think it safe to breed from cattle that have the disease?

At this juncture arose quite a heated discussion by three of the city dairymen all trying to speak at once. The chairman called them to order, and Mr. Thomson then reiterated what he had already said in his paper as to breeding from infected cows.

Mr. Stephen Nairn regretted that peas were not more extensively grown as large quantities of split peas were used, and there was no reason why these should not be grown and split in Manitoba. Teaching on agriculture in our schools I think is good but I think it would be well if instructors on these subjects could be sent throughout the country to give series of lectures.