

1888.
NEW ZEALAND.

THE DAIRY INDUSTRY

(NOTES ON), BY THE AGENT-GENERAL.

Presented to both Houses of the General Assembly by Command of His Excellency.

The AGENT-GENERAL to the Hon. the PREMIER.

SIR,—

7, Westminster Chambers, London, S.W., 28th June, 1888.

I beg leave to enclose you the first part of a series of notes I have been bringing together on the subject of the dairy industry—namely, Section I., Imports into the United Kingdom; Section II., Notes on the Industry; Section III., Methods and Requisites; Section IV., Recent Imports from New Zealand. It was my intention to have added another section, with the hope of being able to tell our dairy-farmers something of what they have to do and what they ought to avoid; but I have now given this up in favour of a much better thing, as will be explained presently.

In these notes I have tried to bring together the best and latest information on most of the leading points of interest for our colonists; and after reading carefully a great deal on the subject I think I may say that you can rely upon the accuracy of what I have said. The information comes down to the present month, including the most recent official returns, consular reports, special books and papers—including some read at the Dairy Conference of May, 1888, which will appear in the next volume of the Association's Journal. I have been greatly indebted to Professor Long, under whose guidance some of the New Zealand factories are now being worked; to the High Commissioner for Canada, and to Mr. Lynch, the Canadian author of "Scientific Dairy Practice," as to what is being done in the Dominion; to my colleagues the Agents-General for what is being done in Australia; to several large importers as to the results of shipments of dairy produce lately made from the colony; and to many others. The difficulty was how to choose out of the great number and variety of statements and reports not only what seemed to unite the most consensus of opinion, but what would be of most interest to New Zealand; above all, to put it into anything like readable shape. But when I came to apply the information so as to be of any good in the way of advice for the future, I saw that I was really incompetent to do it; so I applied to Professor Long to help me, and to write a paper himself with special reference to the wants and capabilities of New Zealand. I am very glad to say he has consented to do so. He has for some time past taken a great interest in the establishment of the dairy industry in New Zealand, and of all men he is the one best able to advise us; because on the great question of foreign competition which we have to meet no one has ever approached him in the extent and value of his investigations. In his last letter to me he says: "In my personal study of dairy-farming I have had not only to master the scientific problems which are within our grasp, but, for instance, to make all the leading cheeses with my own hands. My daily work at home and at the Royal College [Cirencester] has made me familiar alike with grasses, soils, and manures, and the whole equipment and produce of the dairy. I only say this because I take pride in being something more than a 'science-man,' and in being one whose practice is copied by his farmer-neighbours. Cheese is now being made in New Zealand at some of the companies' factories under my advice, and I also went fully into the condensed-milk question for them, visiting Switzerland and Italy to see factories there, most of which are familiar to me. I am quite sure that, if only the colonists knew how, they could compete in our markets against the world: and I say this with an intimate knowledge of the countries which now hold these markets." The concluding paper of the series of notes will therefore contain not my own ideas, but the practical advice of a high authority, on the dairy industries of Europe.

But it appeared to me in the course of the correspondence with Mr. Long that it would be of immense advantage to our dairy-farmers if, before a permanent teacher was sent out, the Professor could be induced to visit the colony, to see for himself what its capabilities in dairy-farming really are, to give lectures in the chief dairying districts, and to advise you on the spot as to what it would be best to do to promote and extend the industry. New Zealand is essentially a dairy country *par excellence*. As Professor Arnold (Cornell University) says, grass is the basis of food for the dairy, and no system of feeding yet devised can equal grass-feeding for the production of butter. A country, therefore, which can grow English grasses as New Zealand does, and a country where the cattle can thrive in the open air all the year round, may well rival England and Europe in producing the finest butter and cheese in the world, as well as gain the top price for it in this market. Last year, in one part of Munster, a farmer was getting £6 18s. a hundredweight for his butter, and in Normandy two brothers were sending butter to Paris, for which they got 5fr. a pound. There is no reason in the world why our dairy-farmers should be sending butter to England which varies in

price from £5 12s. to £1 8s. per hundredweight, as shown in recent shipments, if, as Professor Long says, "they only knew how" to send it in the right way. Nor is there any end to the profitable extension of the dairy industry by our small farmers, especially having regard to the differing times of summer and winter in the two hemispheres, and their effect on the winter supply in London, if only scientific teaching were brought to their doors, as it is to the farmers' doors in Sweden and Denmark. How to do this in the best and most economical way, and meet the varying conditions of soil and climate in the two Islands, is the essence of the problem; and the advice of a famous expert on the spot would, I venture to think, be of incalculable value.

It will, perhaps, be in your recollection that when the salmon ova were being sent out a plan had to be devised for keeping the temperature of the cool-chamber during the whole voyage within a range of two or three degrees; and nothing would be easier than to apply the same plan to the shipments of butter and cheese—a point, of course, of the greatest importance—to which Professor Long's attention will be carefully given in his report. Throughout the past winter here, Australian apples have, for the first time, been in supply in the London market, so that the novelty is at least established of having that fruit on the table all the year round. And as New Zealand butter can best be sent over from October to March, it can come to London just at the time when it is most wanted, and take part of the place of the foreign butter that now holds the field. It is simply a question, as Professor Long says in his letter to me, of "knowing how," and he is the very man who can make our farmers know how. So strongly have I been impressed with the value that a visit from an expert of such high authority would be, that I sent you a message yesterday asking you to let me arrange, if possible, with Mr. Long, as the best thing you could do for the dairy industry.

The British Dairy Farmers' Association will hold their dairy show early in October, and I beg leave to suggest that you should endeavour to induce some of our farmers to send exhibits of butter and cheese, but only of the very best quality, and packed in handy and attractive packages. If such exhibits were sent to me, the farmers might rely on their being shown to the best advantage.

I have, &c.,

F. D. BELL.

The Hon. the Premier, Wellington.

SECTION I.—IMPORT INTO THE UNITED KINGDOM.

THE extent to which the trade in dairy produce has grown in this country is very great. I append some tables, which show that in the last five years—1st January, 1883, to 31st December, 1887—nearly 12,424,000cwt. (621,200 tons) of butter, and 9,124,000cwt. (456,200 tons) of cheese, have been imported into the United Kingdom, of the aggregate value of more than eighty millions sterling. The import during 1887 was 2,788,000cwt. (139,400 tons) of butter, value £11,887,000; and of cheese 1,834,000cwt. (91,700 tons), value £4,500,000. The average of the five years was more than 124,000 tons of butter and butterine, and 91,000 tons of cheese; together an import of more than 215,000 tons, of the aggregate average value of £16,230,000 per annum. For the last three years—1885, 1886, and 1887—the greater part of the imported butter has come from Denmark and France. In 1887, out of a total import of 1,515,000cwt., 903,000cwt. were from those two countries, while Germany and Holland sent 321,000cwt., and Canada 32,000cwt. Of butterine, by far the largest quantity comes from Holland, 1,170,000cwt. out of 1,273,000cwt. coming in 1887. The largest import of cheese is from Canada and the United States, 1,391,000cwt. coming in 1887, out of a total of 1,834,000cwt.; Canada sent 631,000cwt., and Holland came next with 362,000cwt.

I also append a table showing the production and consumption of butter in the chief countries of Europe, and the surplus or deficiency of each. Europe produces 651,000 tons of butter, and consumes 681,000 tons; the United States and Canada produce 404,000 tons, and consume 374,000 tons, leaving 30,000 tons for export.

The production of butter in the United Kingdom is only 90,000 tons, while the consumption exceeds 205,000 tons, so that each year more than 115,000 tons have to be imported. In 1860 only 840,000cwt. of butter were imported, and 583,000cwt. of cheese, less than a third of what was imported in 1887. England is now by far the largest consumer of butter in Europe, and for all practical purposes, so far as supply from New Zealand is concerned, the market may be termed unlimited.

IMPORTS OF DAIRY PRODUCE (Trade and Navigation Accounts to December, 1887, published in January, 1888).

	Quantity.			Value.		
	1885.	1886.	1887.	1885.	1886.	1887.
<i>Butter—</i>	Cwt.	Cwt.	Cwt.	£	£	£
Denmark	377,447	400,556	487,603	2,117,831	2,194,905	2,669,125
Germany	143,482	119,154	156,430	788,899	611,548	793,579
Holland	307,861	359,013	164,474	1,661,380	1,775,454	851,467
France	450,933	402,620	416,067	2,578,618	2,264,001	2,264,669
Canada	36,259	31,348	32,623	146,166	119,970	139,566
United States	77,588	42,336	52,329	314,062	160,391	213,712
Other countries	159,732	188,377	205,379	899,248	1,013,919	1,084,651
Totals	1,553,302	1,543,404	1,514,905	3,506,204	8,140,188	8,016,769

IMPORTS of DAIRY PRODUCE—*continued.*

	Quantity.			Value.		
	1885.	1886.	1887.	1885.	1886.	1887.
<i>Butterine—</i>	Cwt.	Cwt.	Cwt.	£	£	£
Norway	17,411	20,875	16,650	69,995	82,582	61,962
Holland	772,473	833,957	1,172,074	2,793,516	2,767,599	3,546,591
Belgium	40,456	20,002	22,895	144,404	69,240	70,301
Other countries	16,914	11,739	61,476	46,764	38,879	191,094
Totals	847,254	886,573	1,273,095	3,054,670	2,958,300	3,869,948
<i>Cheese—</i>						
Holland	335,973	318,596	362,014	833,490	764,522	883,934
France	29,817	32,103	30,260	96,221	103,185	99,667
Canada	606,002	507,875	631,837	1,229,570	1,116,178	1,552,764
United States	844,361	854,770	759,463	1,863,958	1,834,370	1,847,412
Other countries	16,897	19,843	50,893	41,959	49,641	125,160
Totals	1,833,050	1,733,187	1,834,467	4,065,198	3,867,896	4,508,937

IMPORTS of BUTTER and CHEESE into the United Kingdom from 1883 to 1887 (31st December).

				Quantity.	Value.
1883—				Cwt.	£
Butter and butterine	...	...	...	2,332,701	11,755,419
Cheese	...	...	...	1,797,080	4,882,502
				4,129,781	16,637,921
1884—					
Butter and butterine	...	...	...	2,472,567	12,526,293
Cheese	...	...	...	1,926,070	4,997,894
				4,398,637	17,524,187
1885—					
Butter and butterine	...	...	...	2,400,565	11,560,883
Cheese	...	...	...	1,833,050	4,065,198
				4,233,615	15,626,081
1886—					
Butter and butterine	...	...	...	2,429,977	11,098,488
Cheese	...	...	...	1,733,187	3,867,896
				4,163,164	14,966,384
1887—					
Butter	...	...	...	1,514,905	8,016,769
Butterine	...	...	...	1,273,095	3,869,948
Cheese	...	...	...	1,834,467	4,508,937
				4,622,467	16,395,654

AVERAGE IMPORTS for Five Years from 1883 to 1887 (31st December).

		Butter and Butterine.		Cheese.	
		Quantity.	Value.	Quantity.	Value.
		Cwt.	£	Cwt.	£
1883	...	2,332,701	11,755,419	1,797,080	4,882,502
1884	...	2,472,567	12,526,293	1,926,070	4,997,894
1885	...	2,400,565	11,560,883	1,833,050	4,065,198
1886	...	2,429,977	11,098,488	1,733,187	3,867,896
1887	...	2,788,000	11,886,717	1,834,467	4,508,937
		12,423,810	58,827,800	9,123,854	22,322,427
Average of five years		2,484,762 or 124,238 tons.	£11,765,560	1,824,771 or 91,238 tons.	£4,464,485

Average of five years :—		Quantity.	Value.
		Cwt.	£
Butter and butterine	...	2,484,762	11,765,560
Cheese	...	1,824,771	4,464,485
Totals	...	{ 4,309,533 or 215,477 tons.	£16,230,045 per annum.

BUTTER PRODUCTION AND CONSUMPTION.

	Production.	Consumption.	Surplus.	Deficiency.
	Tons.	Tons.	Tons.	Tons.
United Kingdom ...	90,000	205,000	...	115,000
Germany ...	160,000	160,000	...	...
France ...	90,000	65,000	25,000	...
Russia ...	90,000	86,000	4,000	...
Austria ...	88,000	88,000	...	...
Scandinavia ...	55,000	40,000	15,000	...
Holland ...	46,000	10,000	36,000	...
Belgium ...	20,000	15,000	5,000	...
Italy ...	12,000	12,000	...	...

Europe produces 651,000 tons of butter, and consumes 681,000 tons. The United States and Canada produce 404,000 tons, and consume 374,000 tons, leaving 30,000 tons for export.

SECTION II.—FOREIGN BUTTER AND CHEESE.

1. NORMANDY AND BRITTANY.

The Normandy butter is most in fashion at present in England, owing to a number of things that combine to give it peculiar excellence. The climate is mild on that part of the French coast, which is benefited, like England and Ireland, by the Gulf Stream, and its soft winds and moisture. Normandy butter is made for the most part at the farms, with an unrivalled exactness and minuteness of attention to every detail, added to a remarkably good quality of milk. The Danish systems and improvements are seldom seen on Normandy and Brittany farms. Cheap labour, with incessant carefulness and patient work by the dairymaids and peasants, combine to produce a result which cannot at present be matched in this country. The secret of this foreign success is that a butter of exactly the same colour, flavour, and texture is turned out in great quantities, and can be depended upon for ever-constant uniformity all the year round. Opinions differ as to its actual superiority in quality to English and Irish butter, many experts holding that it is intrinsically inferior; but it is to a great extent mixed up by powerful butter-workers at the large factories, and blended into the uniform character that is its great characteristic. A single house in London pays to a single Normandy factory more than £30,000 a month. Professor Long sums up the advantages of that part of France as a dairy country when he says that "the system in Normandy is not only simple, but perfect."

A curious point is mentioned by Consul Baillon in speaking of the industry in the Districts of Finistère, Côtes du Nord, and Morbihan. He says that at a recent annual show at Morlaix butter was shown which suffered no deterioration whatever although exposed for a week, yet that this butter could only be introduced into the English markets under a Danish mark. It is said that Normandy butter does not possess what is called the "nutty flavour" of the best home-made kinds; but the London market does not care for that. The one thing it wants is to get always the same flavour, and colour, and texture, and this is just what it does get from Normandy.

2. DENMARK, SWEDEN, ETC.

The great success of the dairy industry in Denmark is attributed by all the best authorities here to the excellence of the technical education given in that country, and to the way it is carried to the farmers' doors, every pupil being taught on the same lines. Consul Inglis, in a report just published (May, 1888), says that the increased export of Danish butter (which five years' ago only amounted to between 80,000 and 90,000 barrels, and has nearly doubled) has been due to the co-operative system of dairying, and the export of cheese has trebled, having grown from 200,000lb. to 600,000lb. Nearly all this is due to the spread of technical teaching. Denmark is permeated with agricultural and dairy-farming schools; and its superiority as the model State in dairy-farming has been achieved by the constant co-operation of science and practice. The butter manufacture in Denmark is chiefly done on the "creameries" system, large creameries having been established to which farmers sell all their cream.

In Sweden there are many Government travelling-teachers. If a dairymaid wants to improve herself the travelling-teacher goes to the farm and tells her what to do, and shows the farmer how to produce the richest milk. Instruction in Swedish dairy colleges includes the methods of farming, varieties of pasture, dairy management, and characteristics of good butter and cheese. Practical work is done in weighing and cooling milk, setting cream, separating milk, and testing; and the Government pays a number of girls for learning how to turn out their produce in the best

way. The result has been that Swedish trade in butter has grown from a large excess of import over export into an excess of export over import of more than 8,000,000 kilos. In cheese, however, there is still an excess of import over export of nearly 500,000 kilos.

In Germany there are a dozen agricultural colleges, with large grants of from £3,000 to £5,000 a year from the State; sixteen schools, with grants up to £1,200 a year; and thirty-two farm schools, with small grants. In France there are four colleges and more than fifty other schools, the cost of the principal institution being £10,000 a year. In Belgium the chief State agricultural school costs £4,500 a year. In Italy technical instruction in dairying is most carefully given, each season being utilised for different kinds of cheese. In nearly all these countries, wherever dairying is at all possible, it forms part of the technical instruction provided.

In Canada the cheese is nearly all made in factories. It is now claimed to be at the head of American cheese in the markets of the world; and the statistical tables I am sending show what a hold it is getting on the English market especially. I long ago called attention to the excellence of the Canadian cheese shown at the Colonial and Indian Exhibition.

Consul Sadler, in a report just published (June, 1888), gives instances of the magnitude of the dairy industry in the prairie States of America. In the seven prairie States of Iowa, Illinois, Missouri, Kansas, Wisconsin, Minnesota, and Nebraska there are nearly five million milch cows. Iowa alone produced last year 86,000,000lb. of butter, and Minnesota 40,000,000lb. Chicago alone received in 1887 128,000,000lb. of butter and 46,000,000lb. of cheese. But the supply of butter will soon be unequal to the demand within the United States; and, so far as New Zealand butter is concerned, the competition of neither the States nor of Canada need be feared, only about 52,000cwt. having come thence to the English market during 1887. In cheese, on the other hand, 766,000cwt. came in last year from the States, and 630,000cwt. from Canada, so that here the competition is formidable.

SECTION III.—METHODS AND REQUISITES.

Three factory systems are in general at work in making butter: (1) Milk factories, where the whole milk is brought from dairy-farms; (2) creameries, where the farmer sends his cream but keeps the separated milk; (3) butter factories, where the farmer sells his butter fresh as it comes from the churn, the factory grading, finishing, and marketing it. Each of these systems has advantages and faults peculiar to it. No factory can possibly be a profitable business if the milk is not of the best quality; but the milk is often grossly adulterated, and very often, even when pure, does not show the quality it ought to do. There does not seem to be yet a simple and rapid method of testing milks accurately which could be applied by managers of dairy factories.

Until the passing of the English Margarine Act last year it seemed as if nothing could stop the adulteration of butter. Mixtures containing 20 per cent. of margarine were constantly made to pass for pure butter. At a meeting of the New York Dairy Association the president said that a thousand million dollars had been lost by the dairy industry of the United States in consequence of the manufacture of imitation butters; and there can be no doubt that losses of the same kind have been entailed on the dairy industry of the United Kingdom. Nevertheless the public taste for margarine seems to be growing so steadily here that (as Professor Long told the Dairy Conference of May, 1888), if the taste continues to increase to the same extent, it will soon be a question with dairy-farmers whether they should not turn their own attention to that trade, where the profits are much greater than in the sale of true butter. What is called the "paralysis of native dairy industry" is attributed, indeed, to the constantly-increasing demand for cheap animal fats instead of butter; and complaints are constantly made that the new Act is practically a dead-letter.

So far as genuine butter is concerned, there would seem to be no longer any excuse for saying that just as good butter as the foreign import is not made in England and Ireland: indeed, it is now claimed to be really much better, only that the middleman insists on keeping up the "name" of the foreign brands. The consumption of foreign butter and cheese is increasing so much here that foreign dealers are starting shops in all the large towns, and their cheese, butter, and condensed milk are being sold in every village. Professor Long recommends the English dairy-farmer to meet this by combining and opening shops next door to the foreigners, in order to show that he can not only supply a better article, but can afford to take less for it, theirs being salt and stale, while his own is mild and fresh. There is no doubt that, in the same way, English farmers can turn out cheese quite equal to that of the best dairies of France and Italy. But there can also be no doubt of the real reason why, so far as butter is concerned, the foreigner is beating the English farmer out of his own market. The reason simply is that foreign butter, even if it is not of such high quality as the finest English and Irish, can be and is sent over in immense quantities of perfectly uniform quality, whereas here every dairy makes its butter of a different flavour, colour, and texture. The fashionable colour in the London market now is primrose, and butter of other shades, whether lighter or darker, is not saleable. Going away from London the taste differs. Here it must be quite fresh; but as one goes north it has to be saltier and saltier, until what is in demand there could hardly be sold in London at all. In the London market the one golden rule is to have uniformity of colour, taste, and texture. In that way a top price can be had, and in no other way. The consumer will not give up a brand of uniform quality, and sent over in large quantities, for the variety and uncertain supply of country dairies, in which it is in vain to look for the watchfulness and minute attention to detail which distinguish, for instance, the dairymaids of Normandy. As the English or Irish dairymaid will not give the same minute care to her work, the only thing the farmer can do is to send his milk or cream or butter to a factory; indeed, it may be said in general terms that for ordinary farm-dairies it is all but impossible to make really good butter, of a perfectly uniform colour, flavour, and texture, to compete with butter which is graded, passed through mixers, and blended and worked up to the requisite evenness in a large factory. At the Derby butter-market last year two hundred farmers' wives and daughters and dairymaids found themselves at the end of the day with their butter unsold; the butter itself was really excellent, but there was no buyer

for it, because of its not being of uniform quality. Hundreds of similar instances could be given. Mr. Jubal Webb, a well-known leading factor in London, had an order for butter of one standard kind, to be taken a ton at a time; he could not get it in England, and had to go abroad for it. A thoroughly-trained expert is wanted for grading and blending butter properly, as is done every day in Normandy.

Another point in which the foreigner excels is in meeting the seasons, providing for the natural falling-off in winter and excess in summer, and sending his butter to this market of exactly the same quality, colour, flavour, and texture all the year round. If it were not for Danish butter, during the winter months in England, the public would have to take almost entirely to butterine. And if the English or New Zealand dairy-farmer wants to compete with the foreigner in the London market, he must do as the foreigner has done, cast away all the old dairying traditions, and simply set himself to make the butter that pleases the public taste for the moment; and as often as the public taste changes he must change with it, and adapt himself to the wants and demands of the hour. But above all things he must, in order to succeed at all, do what is done in Scandinavia, and bring science to his door, since the farmer will not come to science, and have specialists to teach him in his own dairy what to do.

Again, the foreigner excels in his form of package. Custom and fashion give the preference in the London market to small wooden boxes holding 24lb. in twelve lumps of 2lb. each. Not only is uniformity of package required, but especially uniformity in tare of the package. Dutch casks, for instance, can always be depended upon for regularity in 16lb. tare. A good butter-package is the Canadian cask holding 112lb., or 56lb. to 100lb. firkins, or 28lb. baskets as now introduced by the French. The plan of packing butter in tins for export is increasing fast, and is thought highly of. In Denmark it is done in 2lb., 4lb., and 6lb. tins, suitable for consumption in small families, with an evidently growing demand.

The British Dairy Farmers' Association has classes at its dairy-shows for packages, whether for butter, cream, cheese, or other dairy produce, and the establishment of "packing-houses" is strongly recommended, with proper appliances for the reception, manipulation, packing, and shipment of produce.

With regard to condensed milk, Dr. Elliston, in a paper read at the Dairy Conference of 1888, says that the condensed-milk industry is becoming one of great magnitude in America, and also in some parts of Europe, especially Switzerland, and is becoming established in this country. A large factory has lately been put up at Colchester. The process consists in first straining and then heating to a temperature of about 150° Fahr., the cans of milk being placed in hot water. The milk is afterwards passed through strainers and conveyed to boilers, where evaporation and condensation take place. About 1lb. of sugar is added to 1 quart of the condensed milk, and it is then drawn off in cans properly soldered.

Professor Long, however, doubts whether condensed milk can be made in England with profit to the farmer. 100lb. of rich milk with 10lb. of cane sugar will produce 25 tins of 1lb. Each pound of condensed milk costs (with the tin) more than 4½d., whereas Swiss milk can be bought wholesale at 4s. 6d. a dozen 1lb. tins, after paying two profits. The manufacture of condensed milk does not appear to have taken root in Denmark.

With regard to cost of carriage, Danish butter can be got to market for something like a farthing a pound. In Canada they think themselves on the whole well off in the matter of freight. In England there are great complaints of the disadvantage the home dairy produce is in point of railway charges compared with foreign. At one of the dairy conferences it was said that if a buyer got butter from Bridgewater he had to pay 1d. a lb. carriage, and it took two days to reach him; whereas he could get Normandy butter in twelve hours at a freight of less than a farthing a pound. The charge for conveyance on the English railways is much in excess of that on the Continent; and preferential rates are constantly given to the foreign produce. The Great Eastern Company brings sea-water from Lowestoft to London for a halfpenny a gallon. If an eastern counties dairy-farmer wants to send the same weight in butter, he has to pay three times that price, besides something for the "empty" back.

SECTION IV.—RECENT IMPORTS FROM NEW ZEALAND.

I have been in communication with the largest importers of dairy produce from the colony, and now beg leave to enclose copies of letters I have received from Messrs. Miles Brothers and Co., the Loan and Mercantile Agency, and Messrs. Redfern, Alexander, and Co., which give valuable and interesting information on the results of the shipments already made to London. I also append copy of a letter from the British Dairy Farmers' Association.

I take the opportunity of making the following extract from an article that appeared the other day in the *Standard* respecting shipments of butter from New South Wales: "Dairy-farmers in New South Wales are well satisfied with the results of sending butter to England so far. The *Anstralian* says that a farmers' association, the West Camden Co-operative Company, began by shipping 1 ton of factory butter last October, which sold at £5 12s. per cwt. in London. Next they tried 2 tons, which realised the same price; then 3 tons, of which the best factory butter sold at £5 12s., and some made in private dairies from £3 5s. to £4 12s.; and on the fourth occasion no less than 35 tons, the factory butter again selling at the price named above. Altogether 170 tons were sent to reach England during the cold season. The expenses were about 3d. a pound, and, although the company made a small loss, the shareholders who supplied the butter got a good price, and were well satisfied, especially as the price in Sydney market was kept up by preventing a glut of butter. Another company obtained as much as £6 for butter which arrived here in March. The report of London buyers, it is said, was that the Australian butter was as good as Danish. Dairy factories have been established for four years in New South Wales."

Messrs. MILES BROTHERS and Co. to the AGENT-GENERAL.

DEAR SIR,—

79, Gracechurch Street, London, E.C., 20th June, 1888.

Your favour of the 13th instant duly reached us, and we have now much pleasure in giving you the following information respecting New Zealand dairy produce:—

Butter.—We received a consignment of butter from New Zealand when the cool-chambers in the steamers were first fitted on board; but the shipment arrived out of condition, and our friends were rather discouraged from making another trial, as they stated that butter of a quality fit for shipment was difficult to obtain. As, however, a very large quantity found its way to the market in good condition last season, we conclude that dairy-farmers on the other side have mastered some of the difficulties of good butter-making, and are able to turn out a much better article. We wrote to our house at Christchurch some months ago, and advised them to ship when the season opened. We understand that butter is received from Auckland packed in specially-prepared cases, enamelled inside, which are costly, and are supposed to be returned to the colony; but this is impossible, as the cases are sold with the butter, and it would be most difficult to collect the packages when empty. Our broker states that this patent case is no advantage, as butter comes quite as well in kegs if properly packed. The weight should be from 60lb. to 75lb. net (the 60lb. net preferred), and the kegs should not be filled, but half an inch left all round between the butter and the keg. The cask should then be headed up, and a hole made through which pickle (strong brine) should be poured in until full, when a bung (wood) should be inserted to prevent the liquor running out. The butter should be made as little salt as possible consistent with its keeping sound. Unless butter is perfectly sweet and good to eat it should not be sent Home, for if it has gone off at all or is in the least tainted it brings a miserable price, as it is used for cooking-purposes, and our market is flooded with such kinds. Directly the butter is made it should be packed and sent off to the refrigerator, and it would then in all probability arrive here in good saleable order. Shipments from New Zealand begin to arrive in November, and continue up to, say, early in April, for we do not get any parcels during the summer months. The trade is growing very fast, and we hope to make £6 per hundredweight next season for really good quality New Zealand butter. The kegs should have galvanised-iron hoops, as they do not rust.

Cheese.—By the s.s. "Aorangi," in December, 1887, we received a consignment of thirteen cases loaf-cheese and eleven cases large cheese; by the s.s. "Kaikoura," which arrived on the 22nd February, 1888, twenty cases; and by the s.s. "Rimutaka," which arrived 19th May, 1888, fifteen cases. The first shipment was not of fine quality, but happened to arrive when loaf-cheese was scarce, and we were fortunate in obtaining £2 8s. for the loaves; but they were so hard that the buyers could not dispose of them, and they were resold for considerably less money. The large cheese made £1 16s. The second shipment consisted principally of loaf-cheese, which is not much liked here, as it is too wasteful, having so much rind. The quality was poor, with a total absence of richness, and we obtained £1 19s. and £2 for the loaves. The four cases of large cheese were also of poor quality and very crumbly, and made £2 3s. The parcel per "Rimutaka" was not of one quality, some of the cheese being good and some indifferent; eight cases we sold in London at £2 6s., and seven cases in Bristol at £2. The larger the cheese the better it is liked here—say, from 60lb. to 65lb. each. New cheese is preferred to old. New cheese, if made in the hot weather, should be placed in the steamer's refrigerator, say, within ten days after it has been made; but the best time to make it would be in the cool of the New Zealand autumn—say, March. We hear, however, that there is an objection in the colony to sending Home new cheese, as it cannot be turned in the cool-chamber on board; but we think it might be sent as new as possible. New Zealand cheese has been selling in the shops in London at 6½d. to 7½d., according to quality. The wholesale price is ruled principally by America, which is usually of better quality than New Zealand. We believe that London is the best market for both butter and cheese.

Condensed and Powdered Milk.—We have not seen any of these, neither have we heard of any shipments to this country from New Zealand.

Shipping Rates.—The freight is 1d. per pound in cold-chamber for both butter and cheese from New Zealand.

We are, &c.,

MILES BROTHERS AND Co.

The Agent-General for New Zealand, 7, Westminster Chambers, S.W.

Mr. H. M. PAUL to the AGENT-GENERAL.

New Zealand Loan and Mercantile Agency Company (Limited),
London, 14th June, 1888.

DEAR SIR,—

In reply to your letter of yesterday, we have much pleasure in giving the following information upon the several inquiries made respecting New Zealand butter and cheese, &c., viz. :—

1. (a.) *Butter and Cheese.*—Shipments handled by this company here during the season 1887–88 amounted to 9,150 packages of the former and 5,200 cases of the latter. The season covers the period from October to May. (b.) Butter was packed mostly in kegs containing about 60lb. each, generally well made, of white hard-woods with galvanised-iron hoops; but a large quantity came in Pond's patent boxes, containing about 50lb. each, a very nice form of package, but only suitable for the primest qualities. The other packages availed of were large kegs (containing about 100lb. each), plain wooden boxes, old beer-casks, tins (round and square), tin-lined cases, and occasionally baskets. Cheese was packed almost entirely in hexagonal or octagonal open wooden cases, containing from two to eight cheeses, according to size. Some came in tins, and some in closed boxes or cases; but the total so received was quite unimportant. (c.) Prices have ranged, according to quality and time of sale, between £1 8s. and £5 12s. per hundredweight for butter (say, 3d. and 1s. per pound), and between £1 4s. and £2 16s. per hundredweight for cheese (say, 2½d. and 6d. per pound). These are wholesale prices. We have no means of arriving at the retail prices secured.

(d.) Sometimes the country markets were better than the metropolitan, but, as a rule, the reverse was the case. The time of year, the state of the market, supplies, and quality of consignments have to be taken into consideration in deciding whether town or provincial markets are best.

2. *Condensed Milk*.—We know of no consignments having reached this market from New Zealand, nor can we offer any opinion as to which is the best market, and what the probable price, until we shall have seen samples.

3. *Shipping Rates* (on cheese and butter).—Speaking generally, the freight has been paid on the other side, and we have not been informed of the rate. In some instances, however, it has been 1d. per pound, with 5 to 10 per cent. primage. Having regard to the charge made for carrying frozen mutton, this appears to be somewhat excessive. Information on the subject of rates can, however, be most readily obtained in the colony.

4. *Suggestions*.—As regards the details of quality, colour, condition, packages, &c., which must be attended to by shippers in order to meet the requirements of this and provincial markets, we may say that full information has already been conveyed to those interested in the trade through the various branches of this company in New Zealand. A copy of these instructions could no doubt be obtained on application to our office at Auckland or at Christchurch. Speaking generally, the great desideratum is *uniformity* of package, condition, and quality of all shipments made from New Zealand, in order to compete with success against the uniform character of shipments from the United States and Canada. The best months for the sale of New Zealand butter extend from October to March (inclusive), and for the sale of New Zealand cheese from October to May (inclusive). During these periods it is most desirable that shipments arrive regularly here.

Yours, &c.,

HENRY M. PAUL, Manager.

The Agent-General for New Zealand, 7, Westminster Chambers, S.W.

Messrs. REDFERN, ALEXANDER, and Co., to the AGENT-GENERAL.

DEAR SIR,—

3, Great Winchester Street, London, 26th June, 1888.

In reply to your inquiries *re* New Zealand dairy produce, we beg to inform you that from the beginning we have imported, and are still importing, considerable quantities of both butter and cheese; the former has been shipped in kegs weighing 70lb. net, and the latter in cases weighing from 113lb. net to 165lb. net. The wholesale and retail prices have ranged from 8d. to 1s. 4d. per pound for butter which was fit for the table; of course, greasy and very rank butter was only used for confectionery purposes; and from 6d. to 8d. per pound for cheese. London is undoubtedly the best market for the sale.

Condensed and Powdered Milk.—We regret to say that we have not been able to obtain any reliable information about these.

Shipping Rates.—These have ranged from £3 per ton gross, and 10 per cent. primage, to £9 6s. 8d. per ton net, and 10 per cent. primage, for butter, the latter rate being more general; and for cheese the rates have been from £4 per ton gross, and 10 per cent. primage, to £11 13s. 4d. per ton gross, and 5 per cent. primage.

Feeling great interest in this industry, we collected all the information we could obtain, and this we sent in a general letter to all our friends in the colony early last month. We enclose two copies of this circular, dated the 4th ultimo, which we think will give you all the information you require for future shipments. We cannot too strongly impress upon you the absolute necessity of keeping all shipments even in quality and weight.

We remain, &c.,

REDFERN, ALEXANDER, AND CO.

Sir Francis Dillon Rell, K.C.M.G., C.B., 7, Westminster Chambers, S.W.

[CIRCULAR.]

DEAR SIRS,—

3, Great Winchester Street, E.C., 4th May, 1888.

In view of the increased quantities of dairy produce now being exported from New Zealand, we have obtained some information and hints which we think will be both useful and interesting to those engaged in this industry.

First of all with regard to Cheese.—The earlier arrivals came to hand in very bad condition; those sent over not in cool-chamber having their best properties heated out of them, and the cases saturated with fat. The consequence of which was that when the cheese was cut it was found to be hard and crumbly, and very low prices had to be taken. Some of the chief drawbacks were, and are now, although to some extent they have been remedied, the strong flavour, irregularity of colour, and quality under each brand, and the form of package, and size of each cheese. Particular attention must be given to these requirements: that each cheese of each brand should be mild-flavoured, regular in colour, quality, and weight. The shape which sells well being the English "Cheddar," weighing about 60lb., packed two in a case. The cases in which they are packed should be equal weight if possible, to save labour. Shipped in cool-chamber, not refrigerator, as the latter seems to impoverish the cheese, and they do not cut so well when they are first landed. Some of the later arrivals have come in very good condition, and answering all the foregoing requirements except uniformity of flavour; and, as they have to compete against American and Canadian, which have so long held the sway of this market, it is absolutely necessary that every possible improvement that can be made should be attended to as early as possible. Cheese can arrive all the year round.

Butter should not arrive before the middle of October, and not later than the end of March, because, when exposed to the milder temperature after being in the refrigerator or cool-chamber, it speedily goes rank: this being one of the greatest objections, and a defect which the producers should try to overcome. We would impress most emphatically upon the packers not to pack anything but the very best quality; and nothing unless in refrigerator or cool-chamber; the extra cost of freight

being more than repaid by the prices realised here. The tendency of New Zealand butter is to cut mottled, or two-coloured; that is, with streaks of white. This is a serious defect, and depreciates the value to the extent of 10s. or 15s. per hundredweight. The packages most in favour here are the small kegs made of white wood, and having four galvanised-iron hoops on them (plain iron hoops get rusty, and spoil the appearance of the package); and square enamelled boxes holding about 40lb. net, with lids screwed on. In each case uniform tares are very desirable. The kegs should be perfectly air-tight and filled up with brine, as the butter in them keeps longer after leaving the refrigerator. There is a powder which is now generally used on the Continent to preserve the butter sent to London sweet and fresh: $1\frac{1}{2}$ per cent. of this in butter, and $1\frac{1}{2}$ per cent. salt, make perfectly sweet and mild butter, which will keep its qualities for an indefinite time, and the cost is £5 per cwt. There is also a preparation far superior to the enamel now sometimes used, which, being worked over the insides of the casks, will make them absolutely impervious to brine, and prevent the butter sticking, thereby the cask becomes clean, and the tare remains practically unaltered, and the butter just as it is shipped; quantity needed is exceedingly trifling, and the price is £1 per cwt. As with cheese, uniformity of quality under one brand is a most essential feature in the shipment of butter, as now, when buyers come to inspect the butters, they are obliged oftentimes to waste a lot of time in examining so many packages, which otherwise would not be necessary if the quality were one; and they frequently reject the parcel on account of its irregularity.

If care be taken to fulfil all these requirements we look for a large increase in business with New Zealand produce. The prices during this season have ranged from £1 10s. to £2 16s. for cheese, and £1 10s. to £5 18s. for butter.

We are,

Yours truly,

REDFERN, ALEXANDER AND CO.

The SECRETARY, British Dairy Farmers' Association, to the SECRETARY, Agent-General's Department.

SIR,— British Dairy Farmers' Association, 191, Fleet Street, E.C., 16th June, 1888.

I beg to acknowledge the receipt of your letter, and I have pleasure in replying to the questions as under:—

1. In London very mild fresh butter commands the largest sale, but in the North of England the popular taste requires rather heavily-salted butter. The most approved packages are (a) boxes containing twelve 2lb. rolls, and (b) Normandy baskets containing 28lb. At the present time the best imported mild fresh butter comes from Normandy, and the best imported salt butter from Denmark. Well-made butter, *i.e.*, completely free from butter-milk, and containing the smallest possible proportion of water, is best kept in good condition by refrigeration. Badly-made butter will not keep long. The wholesale prices for butter of good quality may be roughly stated at 9d. in summer and 1s. 0½d. in winter.

2. The cheese which finds the readiest sale in the English market is fine, mild, nutty Cheddar. The cheeses vary in weight from 60lb. to 120lb.

3. Powdered milk is not in commercial use. Condensed milk is most extensively made in Switzerland, but there are a few factories in different parts of England, Ireland, and Sweden.*

The enclosed pamphlet on butter-making and preparing butter for market may be of interest; but, with regard to making suggestions on points not mentioned, that opens out a large subject which cannot be properly dealt with in the limits of a letter. If, however, I can further assist the Agent-General in arriving at reliable information of any matters within my knowledge, I shall be glad to do so.

By book-post I have pleasure in sending a copy of the current number of the Journal of the association, together with the papers read at our Eastern Counties Conference last month. A full report of the proceedings (discussions, &c.) will be given in the Journal now in preparation. I take this opportunity of saying that I should be pleased to receive from time to time any publications, news, &c., relating to New Zealand, which you may have for distribution.

I have, &c.,

WILLIAM C. YOUNG, Secretary.

W. Kennaway, Esq., Secretary, Agent-General's Department,
New Zealand Government Offices, 7, Westminster Chambers, S.W.

The AGENT-GENERAL to the PREMIER.

SIR,— 7, Westminster Chambers, London, S.W., 14th July, 1888.

I omitted to mention, in my notes on the dairy industry sent to you last mail, that the Departmental Commission on Agricultural and Dairy Schools in this country had recommended the establishment of a central school at the public expense. The matter was mentioned in the House of Commons a few nights ago, when Lord Lewisham said that, although the Government had not yet decided to establish a central school, they would make a grant this year of £5,000 in aid of local schools and lectures.

Professor Long is attending the show of the Royal Agricultural Society at Nottingham, which will delay his report a little.

I dare say your attention has been already called to the chapter on New South Wales dairy-farming, in Mr. Consul Griffin's report, just published at Sydney. Mr. Griffin is doing for that colony the same service he rendered to New Zealand in his reports on our own commerce and resources.

I have, &c.,

F. D. BELL.

The Hon. the Premier, Wellington.

* The import returns do not specify the quantities of condensed milk, these being included under a more general heading.

EXTRACT from the "*Times*," 6th July, 1888.

DAIRY SCHOOLS.

Mr. TAPLING asked the honourable member for Lewisham whether the Government intended to persevere in their scheme of dairy schools; whether the attention of the Government had been drawn to the exceptional claims of the County of Leicester as a great grazing county in a very central position; and whether the Government would consent to the principal dairy school being established in the County of Leicester.

Viscount LEWISHAM.—The honourable member probably refers to the recommendation of the Departmental Commission on Agricultural and Dairy Schools that a central school should be established for Great Britain at the sole cost of the State. It has already been explained that the Government have not come to any decision on this point, but that they have decided to make a grant during the present year of £5,000 in aid of dairy or agricultural schools or lectures established by local effort, and found, on inspection, to be doing useful work. If any such school or system of lectures should be established in the County of Leicester during the current year an application for a portion of the grant-in-aid will be considered.

[*Approximate Cost of Paper.*—Preparation, nil printing (1,875 copies), £8 3s.]

By Authority: GEORGE DODD, Government Printer, Wellington.—1888.