

1892.
NEW ZEALAND.

THE AGRICULTURAL AND PASTORAL INDUSTRIES COMMITTEE

(REPORT OF, TOGETHER WITH MINUTES OF EVIDENCE).

Brought up 7th October, 1892, and ordered to be printed.

REPORT.

THE Agricultural and Pastoral Industries Committee have the honour to report that they commenced their duties on the 19th of August, 1892, at which meeting it was resolved, "That the Manufactures and Industries Committee be asked to transfer the evidence given by Mr. John Sawers, Chief Dairy Inspector for the colony, before that Committee to this Committee." This request was acceded to, and Mr. Sawers' evidence is attached hereto.

The Dairy Industry Bill was carefully considered by the Committee, copies of the Bill having been distributed throughout the length and breadth of the colony by the favour of members of the House; and the various reasons received in reply, for and against the Bill, were duly considered by the Committee, who made several amendments to the Bill, which was duly reported to the House.

Mr. M. Murphy, F.L.S., Secretary of the Agricultural and Pastoral Association, Christchurch, and Mr. James R. Scott, of Dunedin, gave evidence before the Committee on the 12th day of September, 1892, which evidence is attached hereto.

The Road Boards Act 1882 Amendment Bill referred to the Committee by Order of Reference of the 13th July, 1892, was duly considered, and, after various amendments had been made, was reported to the House.

The Manure Adulteration Bill was very carefully dealt with by the Committee, who made several amendments, after which it was duly reported to the House.

7th October, 1892.

THOMAS MCKENZIE, Chairman.

MINUTES OF EVIDENCE.

MONDAY, 25TH JULY, 1892.

Mr. JOHN SAWERS examined.

1. *The Chairman.*] What is your profession?—Chief Dairy Instructor for the colony.
2. Have you visited the different parts of the colony?—Yes.
3. Will you be good enough to state the parts of the colony that you have visited?—The Provinces of Auckland, Taranaki, Hawke's Bay, Wellington, Canterbury, Otago, and Southland.
4. Have you made a report to your department of the results of your visits?—Yes, I have made three reports on the results of the past three seasons' work.
5. Are these reports printed?—Yes; these are the printed reports. [Reports produced.]
6. How many years have you been acting in your present capacity?—Three.
7. Is there anything you would like to say in addition to what is contained in these reports?—Well, the report for 1892 gives a very clear idea of what I think is required to be done for the advancement of the industry generally. The principal points that appear to me to require your careful consideration are, what means should be taken to encourage the establishment of the factory system, and for the dissemination of information among the farmers as a means of stimulation. I think this can be best done by means of lectures on dairy husbandry and by ocular demonstration. I think it would be well for the Government to undertake the issue of dairy bulletins from the Agricultural Department, for the purpose of spreading useful information bearing upon dairying in all its branches, for the benefit of dairy-farmers and dairy-factory managers; also to extend the dissemination of knowledge as to manufacture by means of ocular demonstration at the factories by the employment of additional itinerant instructors.

8. *Hon. Sir J. Hall.*] Peripatetic dairies?—Not exactly peripatetic dairies, but by peripatetic instructors and inspectors. I think one matter that requires serious consideration is the guarding of our reputation by means of competent legislation in the direction indicated in a part of this paper which I have drafted. [Paper produced.] I say this particularly with reference to the fictitious branding which is now going on with the dairy-produce. The cheese-factories, or, rather, several of them, have now a tendency to resort to what I think is the baneful practice of extracting a portion of the cream from the milk, and then manufacturing same milk into cheese, which is known to the trade as “three-quarter skim-milk cheese,” “half skim-milk cheese,” “quarter skim-milk cheese,” or “full skim-milk cheese,” according to the amount of butter-fat taken from the milk. Necessarily this cheese ought to leave the colony branded what it really is—three-quarter skim, half skim, quarter skim, or full skim cheese, as the case may be. In several instances, however, it has gone out from the colony under a false brand as to quality, with a brand indicating New Zealand “full cream factory cheese,” or New Zealand “factory cheddar cheese.” In the case of butter, much of it leaves the colony branded New Zealand finest “factory” or “creamery” butter, although only dairy butter, or, what is worse, butter collected from the farmers, and mixed by storekeepers and merchants dealing in the line. This is palmed off upon a confiding public, and is damaging to those factories turning out honest and pure goods, being desirous of earning for themselves and the colony a good reputation. Unless promptly checkmated, as the trade becomes more stable and profitable, so will such undesirable tricks be resorted to. I think, what you want to do in respect to this is to make it compulsory by competent legislation for all cheese- and butter-manufacturers to have registered brands, and to compel such to be used, before the articles leave the factories, on both ends of every cheese, and on both ends of every package containing such cheese, and on two sides of every package containing such butter, with the words “New Zealand full cream factory cheese,” or “New Zealand factory” or “creamery butter,” as the case may be, with the name of the manufactory where manufactured. At the same time I think it ought to be compellable for all owners of cheese- and butter-manufactories to invoice the same, and clear the same through the Customs as “New Zealand full cream factory cheese,” or “New Zealand factory or creamery butter,” as the case may be. In the event of the manufacturers making what is known to the trade as graded cheese, or half skim-milk cheese, or pure skim-milk cheese, I think it ought to be compulsory for them to brand this cheese as such. I would also make it a contravention of the Act for any other manufacturers of cheese or butter not the legitimate products of a cheese- or butter-manufactory, or not made exclusively from milk supplied to a cheese- or butter-manufactory, to use such brand, or to use the word “factory” or “creamery” on the cheese or butter, or packages containing the same. I think, also, as a means of encouraging the establishment of the factory system throughout the colony, that it would be well for the department to furnish plans and specifications of suitable buildings, with a detailed list of plant and estimated cost, and other information regarding the business basis, such as the issue of by-laws specifying the conditions of purchase of milk or of cream, as the case may be, and hints to milk-suppliers regarding the feeding and breeding of cows for the special purpose of milk-production. Then, there are the transit facilities from the factories to the port of shipment, and increased precautions against damage from temperature on the way and at the port of embarkation, requiring your attention. The clause as printed is very indicative of what I think ought to be done in this matter. I know that our butter product is seriously damaged in many cases going to the port of shipment through exposure to a high temperature.

9. *Mr. Lawry.*] That is, through bad temperature?—Through a high temperature. Necessarily you would require to see what would be best to be done to obviate that as far as possible. Then, again, I think economy of charges ought to be seen to, both by railway and shipping, which are too high at present. Another matter I would like you to consider are the benefits which would result from the formation of dairy associations for mutual instruction and assistance, and for solving to a considerable extent the question of direct Government intervention. These are the principal items which I think require your immediate and careful consideration.

10. *Mr. Pinkerton.*] What do you think of the desirability of establishing freezing-works at the different ports of shipment by the Government? There have been a good many complaints from dairy manufacturers relative to the freezing conditions. There have been complaints from Burnside (Dunedin) as to the terms, and as to its being almost impossible to get butter into the freezing-chambers?—I think that will involve the necessity for providing cool-storage at the principal ports of shipment; at least, I cannot see how you are going to obviate many of the causes of deterioration that are now going on unless something of that kind is done. I am in favour of cool-storage being provided at the principal ports of shipment.

11. *The Chairman.*] In your reports do you deal fully with the causes of the deterioration of butter on the journey?—No, I cannot say that I do. The conditions as far as they go are very good to insure a good product if sent from the factory and put on board; but there are the different ways in which the packing is done. Then, there is the injury through temperature and other causes on board ship.

12. Do you deal with all these subjects in your report?—No, I do not deal fully with them.

13. Why not?—I have dealt with them in previous reports. In my first annual report, and also in the report I furnished the last Committee that sat here on the dairy industry, I laid my views pretty fully before them on these subjects. A great deal of trouble arose in regard to the packages, but that difficulty has during the past two years been greatly overcome, and now, comparatively speaking, scarcely anything is used but square boxes, lined with vegetable-parchment paper.

14. *Mr. Duncan.*] Does that material require a certain class of wood to be used?—No, it does not. A light wood is preferred for the purpose of reducing weight, and so transit-charges. They use white-pine now. They do not require to use totara or other hard and costly woods. All that is now required is simply common white-pine, well dried, and the boxes lined with vegetable-parchment paper.

15. *Mr. Tanner.*] Is the vegetable-parchment paper referred to the best material for the purpose for which it is used?—Yes.

16. *Mr. Duncan.*] Is it expensive?—No. The boxes we use for the butter cost 1s. 4d. each, including the vegetable-parchment paper. They are 56lb. boxes on an average. Previously the cost of totara kegs and Pond's boxes at the factories ranged from 3s. to 4s. 6d. each. Now you can see the profit effected to dairy factories through this one item.

17. *Mr. Tanner.*] Is the vegetable-parchment paper a colonial industry?—No.

18. Imported?—Yes.

19. Where from?—England.

20. Has any attempt been made to manufacture it in the colony?—Not that I know of.

21. *Mr. Duncan.*] Is there any special reason why it could not be manufactured in the colony?—No, not that I am aware of.

22. *Hon. Sir J. Hall.*] Do you know what it is made of?—It is made by immersing a good quality of ordinary unsized paper for a few moments in sulphuric acid diluted by about half its volume of water. On drying it is found to have assumed a new character, resembling rather that of animal membrane than vegetable fibre, and its strength is nearly doubled. After the immersion it is washed in water, afterwards in diluted ammonia, and if any of the latter remains it is removed by lime or baryta.

23. Have you formed any opinion, as regards cream butter-making, of the value of creameries sending their cream to the central factories, to separate butter-manufactories in different districts?—Well, there can be no doubt that the establishment of a central factory, fed by "creameries," or what they call "feeders," would reduce to a great extent the cost of production, also the cost in buildings and the cost of utensils; and I feel sure that on the whole a large line of such butter would sooner work out for itself a history, and take the market better than would the same amount of produce manufactured in separate dairy factories. The more we can concentrate our work in that direction the better will be our results.

24. Do you know whether anything of the kind is done in Victoria or New South Wales?—Yes, on a large scale in Victoria. They have got over two hundred factories and creameries at work, and only some thirty-five of these are manufacturing centres.

25. And the rest?—The rest are "feeders," or "creameries." They send their cream to these central factories to be manufactured into butter.

26. Is that in Melbourne?—That is in Melbourne and all throughout the country—Geelong, Sandhurst, Warrnambool, Ballarat, and other good centres for railway and other facilities.

27. *The Chairman.*] Can you tell the Committee on what terms cream is fed at these central factories, or through the special vehicles provided for it, and what is the freight?—The freight is very low, especially in carrying it a long distance. What it is exactly I cannot say, only that I know that cream is brought from a distance of about a hundred and fifty and two hundred miles to the factories to be manufactured into butter.

28. I suppose it is brought in high tin cans?—It is chiefly carried in jacketed tin cans—a tin within a tin—that is, a tin having an outside jacket which is filled with cold water when it leaves the creamery. That preserves the cream by keeping it in a cool state, and thus it is kept comparatively sweet until it gets to the manufactories. The Railway Department also provide ice-trucks for the transit of cream and butter during the hot weather. I have heard that they go so far as to carry it at a loss during the summer months.

29. At a loss?—Yes.

30. *Mr. Tanner.*] Can you give the maximum distance it is conveyed in that way?—Well, I should say two hundred miles is the maximum.

31. Before reaching the central dépôt?—Yes.

32. *Hon. Sir J. Hall.*] You do not know what rate is charged?—I do not know.

33. Can you obtain the information?—Yes. I shall obtain the information and attach it to my evidence.

MILK, CREAM, BUTTER, AND EGGS.

Milk and Cream, in Cans, by Passenger-trains.

	Per Can.		
	84lb.	126lb.	144lb.
1 to 15 miles	Os. 4d.	Os. 5d.	Os. 6d.
16 " 30 "	Os. 7d.	Os. 8d.	Os. 9d.
31 " 50 "	Os. 10d.	Os. 11d.	1s. 0d.
51 " 70 "	1s. 1d.	1s. 2d.	1s. 3d.
71 " 100 "	1s. 4d.	1s. 5d.	1s. 6d.
101 " 150 "	1s. 6d.	1s. 7d.	1s. 8d.

One-fourth to be added for every 28lb., or part thereof, over 144lb. $\frac{1}{4}$ d. to be dropped, and $\frac{1}{2}$ d. or $\frac{3}{4}$ d. to be charged as 1d.

When cheaper, fourth-class rate, owner's risk. 9d. per ton per mile, department's risk, prepaid. First-class minimum.

Milk and Cream, in Cans, by Goods-trains.

	Per Can.		
	84lb.	126lb.	144lb.
1 to 15 miles	Os. 3d.	Os. 4d.	Os. 5d.
16 " 30 "	Os. 5d.	Os. 6d.	Os. 7d.
31 " 50 "	Os. 7d.	Os. 8d.	Os. 9d.
51 " 70 "	Os. 10d.	Os. 11d.	1s. 0d.
71 " 100 "	1s. 1d.	1s. 2d.	1s. 3d.
101 " 150 "	1s. 3d.	1s. 4d.	1s. 5d.

One-fourth to be added for every 28lb., or part thereof, over 144lb. $\frac{1}{4}$ d. to be dropped, and $\frac{1}{2}$ d. or $\frac{3}{4}$ d. to be charged as 1d.

When cheaper, miscellaneous-class rate. First-class minimum.

34. *The Chairman.*] There is another question which occurs to me with regard to this matter. In what way is the cream prepared for forwarding—is it put through a separator?—Yes.

35. In all cases?—In all cases; it is all separated by mechanical means. Of course, I am not sure that it would be good on our part to convey cream such long distances. I do not think it is even necessary. It many cases they have these creameries and factories established in districts which, when we consider our New Zealand surroundings, are comparatively barren—that is, in the way of pasture. They are thus placed in such a position that they cannot produce sufficient milk within a given area to keep a large factory going; and in that case central factories with “feeders” are beneficial. It would be highly desirable for us in taking up butter-making in many sections to concentrate it more than we have done hitherto.

36. Would any of these central factories you speak of supply separators to their customers?—Well, the way the whole thing is done is this: The central factory is owned by the same shareholders as own the creameries. Whenever a guarantee of a sufficient quantity of milk is given them in any centre they put up a “creamery” or “feeder.” They put up a shed, in which are one or two separators, according to the quantity of milk to be treated, in a certain position in the district. The milk from the surrounding settlers is taken to that centre, and there separated through these machines. The settlers take the skim-milk home with them. That is the way it is done. The central factories provide both the buildings and the plant necessary for the separation at each of these “creameries” or “feeders.”

37. This involves the sending-in of the milk to what may be called the creameries?—Yes.

38. Are there no means by which the separators could be sent round to the different farms, and there separate the milk?—No.

39. What is the cost of a separator?—You can get them from £20 up to £95.

40. The price is dependent upon the quantity of milk you can put through the separator?—Yes.

41. What amount would a £25 separator put through?—Thirty gallons per hour.

42. *Mr. Lawry.*] That is, a hand separator?—Yes; you can get a 300-gallon separator for from £80 to £85.

43. What time can the cream remain at the creamery before it is sent away—is it sent away daily?—Daily.

44. *Mr. E. M. Smith.*] Are you aware that the separators are in the hands of people who claim the sole right of disposing of them? A gentleman in Taranaki sent down and bought one or two separators in the Middle Island from the firm of the Hon. Mr. Ward. Another party who was selling them in the South disputed the right of sale, and therefore the firm would not sell any more to this person. The consequence is, the settlers have to pay £5 or £7 10s. more than if they were allowed to purchase them from the firm alluded to down South. Can you propose a remedy?—No; I do not see that I can.

45. *The Chairman.*] Is there a monopoly?—There exists no monopoly that I am aware of in cream-separators. There are too many in the market of different makers.

46. *Mr. Duncan.*] How many makers are there?—There are seven different machines represented in New Zealand.

47. *Mr. Lawry.*] The Delaval machine is the most popular?—Yes; it is the most popular machine.

48. I do not say it is the best?—It is the most popular.

49. *Mr. Duncan.*] What power is required for these various-sized machines?—A large Delaval machine, to separate 300 gallons of milk per hour, would require one-and-a-half-horse power.

50. *Mr. Lawry.*] I suppose your experience is that water-power is the best if you can get it?—Yes; it is the best.

51. No smell?—No; and no heat.

52. *The Chairman.*] You know the facilities that exist in different parts of the country in regard to the establishment of central factories?—Yes.

53. *Mr. Lawry.*] I suppose you are aware there is a company in Auckland worked by Mr. Spragg?—Yes, the New Zealand Dairy Association.

54. I believe they have adopted the plan of carrying the cream to one central dépôt.—Yes.

55. Are you in possession of information as to whether the results are better under the new system than those which obtained under the old, when they manufactured the butter in different places?—Yes, the results have been better.

56. *Mr. Tanner.*] The butter is of better average quality?—Yes; its quality has improved, and more uniformity has been engendered.

57. *Mr. Lawry.*] Do you know that Reynolds and Co. have adopted the same system?—Yes, they have adopted the same system both in the Province of Auckland and Taranaki.

58. *The Chairman.*] Have you in your report dealt with the question of grasses, quality of land, and breed of cattle suited to different localities?—I have only touched upon them. I have gone into those matters when addressing meetings of farmers and those interested in dairy husbandry at different centres of the colony. My lectures have been largely copied into the various newspapers. That is the only way I have touched on the breeding and feeding of cows for the production of milk to any great extent, and not through any bulletins or annual reports of the department.

59. *Mr. Tanner.*] Is it within your knowledge that a large demand has sprung up in the North Island for the Jersey breed of cows since the dairy export trade has been established?—Yes, the demand for that breed of cattle has increased to a great extent, and this will continue in any section of country where they intend to make butter-making a specialty.

60. *The Chairman.*] Have you any remark to make as to grasses supplementary to anything you have stated in your report?—I think we cannot desire much better feed than the grasses and clovers common to New Zealand. At the same time it is necessary, and is obvious in districts

where factories are in successful operation, that considerably more green feed should be grown—such as a mixture of tares, oats, peas, rye, and rape—to keep up the milk-supply at the back end of the season, when the grass begins to fail, or to want the necessary succulence demanded for milk-production. Hitherto the cows have been milked for about seven months, and dry five, through want of supplementary food-provision for the later period to the milking season. It is not necessary, and highly undesirable, that any farmers should keep a cow to look at: what is wanted is for the cows to give milk ten months instead of seven.

61. *Mr. Duncan.*] Would that interfere to any great extent with the producing qualities of the cow?—Yes, it will interfere, but in the right way, by inducing the cows to give a larger flow of milk, which is a step in the right direction.

62. *The Chairman.*] It will cause them to give more milk?—Yes, it would have a tendency to induce a larger flow of milk.

63. *Mr. Lawry.*] That is, over the whole period?—Yes.

64. Then they would give more milk in the ten months than they would in the seven?—Yes.

65. *The Chairman.*] Do you mean daily or in the aggregate?—I mean in the aggregate. It is folly to keep a cow for a period of five or six months without getting any return. A cow will give more milk if her milking season commences early in August, than if it begins late in September or October, for when the cold weather comes in the fall she has a greater tendency to dry up, and is therefore a boarder on the farmer too long without giving any return. Likewise, it does not do to keep a cow dry too long, as she has not then the tendency to be of the same use in her productive season.

66. *Mr. Lawry.*] Is it a fact that there is a stronger desire on the part of the factory-owners to have milk from Jersey cows than exists on the part of farmers?—That is so.

67. As a general rule the farmers have no great desire for Jersey cattle?—The farmers have no great desire to get the Jersey cows.

68. The general desire of the farmer is to keep the cow that will produce the most milk, irrespective of quality?—Yes.

69. *Mr. Duncan.*] What difference is there in the quality of the butter made from the milk of the Jersey cattle and that made from milk of the ordinary mixed breed?—There can be no doubt that any country making a specialty of butter-production would do well to have a blend of the Jersey breed in their herds, either by systematic crossing, or by the direct use of a certain percentage of Jersey cows, in order that the product may possess a touch of the desirable qualities which would be imparted to it through the Jersey influence. Unquestionably no other breed of cattle possesses such a high character of butter quality, flavour, colour, and grain, as does the Jersey. For the sake of all concerned, and as an inducement to farmers to breed and feed for a special purpose like butter-production, and to overcome the difficulty of quantity *versus* quality, all milk should be paid for according to its productive qualities. I may say that is being done by two factory companies in New Zealand, and I am anxious to get it initiated in the other butter-factories as soon as possible. It is not so difficult to value milk for butter-making purposes as for cheese-making purposes, for not only have you to take into account the amount of butter-fat, but the amount of other solids; and there are other points to consider which make it very difficult to solve. As far as practicable, it is necessary that some basis should be established and applied, so as to provide for the equitable payment for milk at all factories according to its real value for manufacturing purposes.

70. From that it would appear that there is a difference in the quality of cream?—Yes. There is a general productive character about it the same as about milk, but that is due more to the special breed of cow and individual influence.

71. *Mr. Lawry.*] And pasture?—The special breed of cow has more to do with the character of milk than what feed has to do with it.

72. *Mr. Duncan.*] With regard to feeding, what crops are injurious to butter-making?—The turnip-crop is just as bad as any you can grow, so far as the manufacture of cheese or butter is concerned.

73. Would not that apply to mangolds?—Not to such a great extent to mangolds.

74. *Mr. Tanner.*] Is beet an objectionable thing?—I have never had any experience in the feeding of beet.

74A. *The Chairman.*] Have you not arrived at a process by which the bad taste in butter caused by turnip-feeding can be entirely obviated?—Yes.

75. What is it?—In the butter we can obviate it by first heating the milk to a very high temperature before separating, and then having means of cooling the cream coming from the separator to a very low point—say about 40° Fahr. We may have to raise the heat of the cream up again at intervals, and cool it down, until we find that the objectionable taste is gone. We can obviate it entirely in that way.

76. *Mr. Lawry.*] That causes additional trouble and expense?—Yes; it means a little more expense in the first cost of the factory—that is, by bringing in a small refrigerator. There is no doubt that within the next three or four years you will find that almost every one of the butter-factories will have to resort to the introduction and use of a small refrigerator.

77. *Mr. Tanner.*] Is feeding with turnips confined to any particular districts, or is it general?—It is confined to particular districts.

78. What are they?—Principally in Southland.

79. *The Chairman.*] Has the heating of the milk or cream any effect, injurious or otherwise, on the butter?—It has a good effect on its keeping qualities.

80. *Mr. Tanner.*] It is rather an improvement?—Yes.

81. *Mr. Duncan.*] Up to what heat does the heat extend?—To about 150°.

82. *Mr. E. M. Smith.*] Are you aware that in Devonshire and Cheshire, two celebrated counties for making cheese and butter, the plan is to spread lime over the land? Would not that answer in New Zealand? Would it not sweeten the grass, and tend to produce a better class of milk and

butter? Would it not be advantageous for the farmers to use lime, provided they could get cheap lime?—It would certainly make a great improvement in the milk-product, and on the butter and cheese made from it. That is well illustrated on the Tokomairiro Plains. Since the farmers started using lime freely throughout that section, the milk coming into the factory off the farms where lime is extensively used can be easily detected.

83. *Mr. Duncan.*] How would that apply to Cave Valley and Waireka?—The land there does not require it, so far as my experience goes of the working of the factories there for a term of three years.

84. *Mr. Lawry.*] Do you not think it would be advantageous to the dairy-farmers as a whole to impress upon them the desirability of breeding their own cattle, taking cows to carefully-selected bulls?—Yes, I think that if ever they are going to establish a good breed of cattle they will have to do it themselves by paying more special attention to the crossing by carefully-mated bulls. Jersey bulls with large shorthorn or Ayrshire cows would make the best cross, especially for butter-production.

84A. Do you think that, acting in that way, they can get uniformity of temper in the cows?—Yes; it would have a great tendency in that direction, and I think that no farmer is competent to know what the milk-producing qualities of a cow is outside his own herd.

85. You realise the necessity of uniformity of temper in the various cows?—I do. I think it is a great matter.

86. Have you ever directed the attention of dairy-farmers to the very objectionable system of hauling about cows with a leg-rope?—I have, because I may say that until I came to New Zealand I never saw such a practice.

87. And I suppose you realise that by the use of the leg-rope the cow would be pulled back from her natural position?—Yes.

88. And then would struggle to stand easy?—Yes.

89. *Mr. Duncan.*] After the butter arrives in England is there any system carried on to insure proper disposal there?—Well, whoever the butter is consigned to is the only party that seems to look after it, or to see to it after its arrival there; and, so far as we can find out, there is not so much reason to growl at the treatment on that side. After it is landed safely there the disposal of it seems to be placed in fairly good hands. Of course, a few years ago there were many impediments in the way, through the produce getting into incompetent and untrustworthy hands; but that cause of complaint is now very little raised, the trade having greatly cleared itself of that impediment during the past two years. It is true the produce did get into very undesirable hands at the outset of our exports to Great Britain, and hampered its success a great deal; but the difficulty now seems to be overcome. While on that point, I would like to read to the Committee a letter I have just received from a gentleman in Ireland concerning some butter made in one of our New Zealand factories, a sample of which I sent to one of the principal merchants there, that he might give his report upon it. [Letter dated 28th May, 1891, and marked "B," read.]

90. *The Chairman.*] Was borax used in that butter?—A preparation known as "preservitas," which is supposed to contain a portion of borax.

91. *Mr. Lawry.*] Is that the same as salsaline?—Yes, it is somewhat similar—an antiseptic.

92. It is supposed to be innocuous?—I could not say, but I should not think so.

93. *Mr. E. M. Smith.*] Would it not be well to submit the different butter-preservatives to Sir James Hector for his opinion?—Yes, I think it would be well to do so; although, of these high authorities there seems to be not the same opinion existing with any two of them. The "preservitas" has been already submitted to the Victorian Government Analyst, who says that it contains more borax than another chemist in Melbourne says it contains, so that there seems not to be the same opinion expressed on the matter by them. However, I should say it would be a good thing to submit the "preservitas" to the Government Analyst here, and see what was really in it, and if he considered that it would be injurious to health.

94. *Mr. Duncan.*] What quantity of "preservitas" was used per pound in the butter referred to in this letter?—At the rate of one pound to the hundred.

95. *Mr. Lawry.*] Have any overtures been made to you or to the Government relative to the desirability of the Government advancing money at a low rate of interest to establish factories?—Yes, several propositions have come up in regard to that.

96. Have you favourably entertained any of them?—No, I have not.

97. Do you think it would be unwise for the Government to do so?—I think it would be exceedingly unwise for the Government to entertain any of the proposals which have come to hand for such a purpose. I think, however, that the Government could benefit and foster the industry immensely by the initiation of a scheme whereby pecuniary aid could be given under restrictions similar to the "Loans to Local Bodies." First, by the settlers petitioning the Government to have their district declared a dairy district. Settlers then to elect a Board, with power to rate the district, and to raise a loan from Government for the purpose of establishing and equipping a factory. Such district to be first reported upon by a competent person on behalf of the Government as to its suitability for dairy purposes. The loan could be repaid to the Government by similar means as done by local bodies.

98. Then, what are your opinions relative to the system of granting bonuses for the production of butter, similar to those which obtain in Victoria?—Well, I think you could not initiate a worse system. A worse system than the payment of an export bonus I do not think could be established.

99. Do you think that in many cases the quantity of butter is produced in order to get the bonus itself?—Yes; and I think that the system is open to fraud in every possible direction.

100. *Mr. Pinkerton.*] Do you prefer butter being carried in freezing- or cool-chambers on board ship? and, if in cool-chambers, whether cheese being in the same chamber would affect the butter?—I would prefer the butter being carried in a cool-chamber, provided the cool-chamber was kept at a proper temperature.

101. *Mr. Duncan.*] You might as well state the proper temperature?—From 32° to 35°.

102. *The Chairman.*] It would require ventilation?—Ventilation in that case might not be so desirable. If kept at the temperature I have mentioned, I do not see that much ventilation would be required. Cheese and butter could not be kept in the same cool-chamber, because to keep cheese at the temperature I have stated would simply make them almost useless—that is to say, the cheese would become very tallowy, and in many cases would incline to burst.

103. *Mr. Pinkerton.*] To put cheese in the same chamber as the butter will injuriously affect the butter?—Yes; to put them in the same chamber would injuriously affect one or the other. If you put butter into a cool-chamber with cheese, and keep the temperature down to what is desirable for the butter, you would spoil the cheese; and if you keep up a high rate of temperature for the cheese, you would spoil the butter by too great a heat.

104. What suggestion would you make for the purpose of carrying butter and cheese? Would you have them carried in separate chambers?—Yes, we require separate chambers, kept at temperatures best suited to the produce: that is all that is possible to be done, and that ought to be done.

105. Would it be necessary to freeze the butter before being put in a cool-chamber?—No; it is necessary that the butter should be fairly cool, and kept cool during the voyage.

106. *Mr. Tanner.*] Did I understand you to say that butter should never be exposed to a freezing temperature?—No, I did not say that butter should never be exposed to a freezing temperature.

107. It should never be so low as 32°?—It should never be so low as to freeze it. No butter will freeze at 32°.

108. *The Chairman.*] Leaving the subject of butter and cheese, have you contemplated the possibility of manufacturing margarine and imitations of butter which are now finding a large sale at Home? Have you given that any consideration?—Yes, I have given that consideration; and, of course, I think that the manufacture of margarine in New Zealand will not be resorted to at least for a few years to come; but it is necessary that we should be on our guard and give an unceasing and relentless opposition to the manufacture and exportation of spurious dairy produce. The manufacture and exportation of margarine would simply ruin the dairying industry here.

109. Why so?—It would simply cripple the industry, because the margarine would be coloured and sold for butter, and butter would be adulterated with more or less margarine, to the detriment of honest goods. It is hard enough for us to compete with the other countries and build up an assured trade by furnishing honest goods; but if we resort to sending perhaps hundreds of tons of disguised foreign fat, costing the manufacturers only 3d. to 5d. per pound, and so ruin our reputation, profitable butter-making on honest principles would be impossible.

110. Are you aware where margarine comes from?—Principally from Holland.

111. And from Denmark?—Yes; but very little of it comes from Denmark.

112. It does come from Denmark?—Very little of it.

113. And the best butter comes from Denmark, and fetches the highest prices?—Yes; the butter that dominates the English market just now is Danish butter.

114. Do you not think it would be possible to utilise fatty products in the country, such as margarine?—I think that it can be done by making oleo. I think that can be done very well.

115. Would it be difficult of undertaking?—No; it is only the more oily part of beef fat pressed out at a low temperature, or when the stearine crystallizes.

116. Would it give much employment, or be the means of getting a larger price for the fat?—It would not give much employment, but it would be the means of getting double the price for the fat.

117. *Mr. Duncan.*] What is oleo principally used for?—It is principally used for the making of margarine, or imitation butter. You can see that in Holland the dairying industry is practically ruined by the manufacture of margarine. In Denmark the laws regulating the manufacture, sale, or exportation of margarine are very severe, and are carried out with great vigilance. I think exportation is a contravention of the laws, and a margarine manufactory must only manufacture margarine pure and simple. No milk, or cream, or butter is allowed to be bought, supplied, or sent to any margarine factory, which prevents them from adulteration. In that way the population of Denmark is protected from imposture, and the makers of pure butter from dishonest competition. I think that our distance from the Home market, and the high transit and other charges, would be too great to warrant us going in for the manufacture of margarine. It would simply stop a lot of trade in honest goods, that would otherwise be carried on at a great profit to the colony. In the New York State, during the years 1888 or 1889, they had completely to stop the manufacture of margarine. They started to mix it in their cheese and other products, and it was largely stopping the manufacture and consumption of the sterling article. My object would be this: To guard the reputation of New Zealand as far as possible in the manufacture of pure dairy-produce of the highest quality, and I think that is the only possible way we have of making a history for ourselves in the English market in the face of our present strong competition, and of rearing up a trade of ever-increasing dimensions. That is my honest opinion on the matter.

Statement by Mr. Sawers.

The first and, to my mind, the most essential recommendation I have to make to this Committee for the speedy and successful development of the dairying industry is that as soon as possible more dairy factories should be established. I venture to say that, as quickly as co-operative dairying is established, just as quickly will the success of the industry follow. It must be quite obvious to all that if ever the trade in dairy-produce is to be of the desired commercial value to the colony factories must be established. It does not appear to me that it is possible, in the face of such strong competition, for us to make a history for our dairy-products and build up a trade of ever-increasing dimensions by means of home dairying, or, every farmer his own maker. While an extensive system of individual dairying is carried on, the anticipated results will never be attained; and likewise by

such a method there are many impediments come in the way which leave the seller comparatively at the mercy of the buyer. The manufacture of butter and cheese in factories will undoubtedly give a uniformity of quality and excellence to our product, thereby enabling it to take its place as an article of commercial importance, as the making of any product by skilled workmen must always do. Co-operative dairying would also in a great measure solve the problem of keeping more milch-cows, and thus increase the food-value per acre. It would be superfluous to go over in detail the benefits which would accrue to this colony through a well-organized system of co-operative dairying, and I am certain it would solve many of the difficulties which now beset the small farmer, as indeed it has already done in several sections. Co-operative dairying is a comparatively new feature in our agricultural work, and has already proved itself, when carried on with skill and judgment, competent to return a good remuneration for the labour employed. For a ready return, and as a means of increasing labour and so carrying a necessarily large population, I think it stands unequalled in importance. Since population is principally responsible in giving value to property, a well-founded system of dairying tends to increase the value of every property in the locality where it is generally engaged in.

I have already said that a well-organized system of co-operative dairying would increase the food-value per acre, which before going further I wish to illustrate. Take our wheat-crop as an illustration. Now, only about one-half of the possible life-sustaining value of the entire crop lies in the flour as prepared for human food. What is termed the refuse, or residue of the crop—I mean the straw, the chaff, and the bran—which is totally useless as human food, can be with profit fed to milch-cows, and by them changed into milk, butter, and cheese. Thus, by the use of cows farmers are enabled to furnish themselves with both bread and butter, and to export food of the most valuable and concentrated kind. I know many would say that it is not profitable to feed such to cows, and that since we have an abundance of grass for eight months in the year it is not desirable. But I venture to say that we will never give the desired character to much of our butter-product until a little concentrated food is given. By such means the total milk-solids, especially the butter-fat, would be increased, and so increase the profits to all concerned. Personally I know that the industry has not reached a stage of development when the breeding and feeding of dairy-cattle will receive the attention it ought to do, and will do at no distant date. Indeed, there is a steady and increasing movement towards this desirable end in sections where factories are now in successful operation. Dairying will also keep more of the substances in the soil which go to sustain plant-life, and will enable the farmers to sell their labour and skill to better advantage, as well as keep up the fertility of the soil, which cannot be so easily done by continued grain-growing. By grain-growing it would seem the soil becomes more of the nature of a mine, the fertility of which is bagged up and exported to other lands.

Before going further, perhaps it will be well to introduce a few remarks regarding the present status of co-operative dairying in this colony, as being of some interest. New Zealand co-operative dairying was represented last season by seventy-eight cheese-factories, butter-factories, and creameries; the respective numbers being, thirty-eight cheese-factories, twenty-two butter-factories, and eighteen creameries, having an output for the season (1891-92) of 2,490 tons of cheese, and 1,087 tons of butter, representing nearly 12,000,000 gallons of milk, the product of about 34,000 cows. Estimating the 2,490 tons, or 5,577,600lb., of factory cheese at 4½d gives a total value to that product of £110,390. Estimating the 1,087 tons, or 2,434,880lb., of factory butter at 10d. per pound gives a total value to that of £101,453 6s. 8d., or a grand total of £211,843 6s. 8d. It is evident we have at last surmounted the difficulties which invariably beset most new ventures. I learn through information received from Home merchants who are handling our products that during the past season the produce has arrived in much better condition, and that complaints are much less numerous concerning the quality, so that we may now congratulate ourselves on having at last got a recognised position in the Home market. This is no doubt due to the more uniform and improved quality of the shipments, which must to a great extent be due to increased knowledge on the part of the factory-managers. During the season our best factory butter and cheese have met with a ready sale at remunerative prices, and it would seem that the trade with this class of article is capable of enormous expansion.

Now, the first question, to my mind, for us to consider is, what means should be taken to encourage the establishment of the factory system. I venture to suggest an extension of your present system as being the most effectual means of bringing about the desired result. With the present system of instruction by the use of itinerant instructors I would couple a system of milk-inspection. From my sojourn among the factories I find that the practice of slightly adulterating the milk furnished to such establishments is much too prevalent, much of the milk being of a doubtful character. Nothing tends to more quickly bring the whole system into disrepute than when it becomes known to honest patrons that some are tampering with the milk they supply to the factory. To assist in preventing the dishonest practice alluded to it is necessary there should exist some statutes to provide against frauds in the supplying of milk to cheese- and butter-manufactories, and with this end in view an Act is now in course of preparation.

With reference to the grading of dairy-produce before leaving the colony, I am confident such a step would not prove of much practical utility, although by such means a certain amount of equality might be secured. I know there has been a divided opinion expressed regarding this, and it has been pointed out that Irish butter is so treated previous to exporting. But there exists no analogy in the two cases. The Irish butter would retain its class, and would arrive in much the same state as when it left the country, as it is only subjected to a few days' test on its journey; but, as in our case, a three-months voyage, and that very often frozen and thawed, makes all the difference. I say without fear that much of our butter would be inspected here and branded as firsts, and by the time it got Home it might, and in many cases would, be a bad second, or *vice versa*.

What should be done is to make it compulsory by competent legislation for all cheese- and butter-manufactories to have registered brands, and to compel such to be used before leaving the

factory on both ends of every cheese, and on both ends of every package containing such cheese, and on two sides of every package containing such butter, and one side of every pat or print of butter, with the words, "New Zealand full-cream factory cheese," or "New Zealand factory" or "creamery butter," as the case may be, with the name of the factory where manufactured; and, if the same is for export, to compel all owners of cheese- or butter-manufactories to invoice the same, and clear the same through the Customs, as New Zealand "full-cream factory cheese," or New Zealand "factory" or "creamery" butter. Make it a contravention of the Act for any other manufacturers of cheese or butter not the legitimate product of a cheese- or butter-manufactory, or not made exclusively from milk supplied to a cheese- or butter-manufactory, to use such brand, or to use the word "factory" or "creamery."

JOHN SAWERS,
Chief Dairy Instructor.

MONDAY, 12TH SEPTEMBER, 1892.—(Mr. T. MACKENZIE, Chairman.)

Mr. M. MURPHY, F.L.S., in attendance and examined.

Dairy Industry Bill.

1. *The Chairman.*] The first evidence the Committee would like to obtain from you is that which relates to the Dairy Industry Bill, afterwards we could go into other matters?—I think there have been some amendments made in the Bill.

2. In clause 4, line 36, "farms, buildings" have been struck out; but before that I should say we have struck out "three" on the first line of page 2?—The first thing I would refer to is on the bottom line of the first page—that is, "Milk containing not less than 3½ per cent. of butter-fat." That is too high. A large number of tests made at Lincoln College during the summer months did not average more than 3 per cent. I think if you make it 3½ it will lead to trouble: 3 per cent. will be quite enough as a minimum.

3. *Mr. Wright.*] The Act is intended to govern the minimum?—Three per cent. is quite enough. Then with reference to cheese, I suggest that the words "full-milk cheese" should be used in the definition.

4. Instead of "full-cream cheese"?—Yes; I think this term "full milk" will be better understood. With reference to the other classes, they might all come under three headings—namely, "full-milk cheese," "part-skim cheese," and "skim cheese." I suggest this instead of three-quarter-, half-, and quarter-skim, because it would be utterly impossible to decide what is three-quarter-, what half-, and what quarter-skim. "Full-milk" cheese is intelligible by itself, "part-skim" would be that from which any portion of cream had been taken.

5. Then you would only have three divisions?—That is all.

6. "Skim cheese" means cheese made from milk from which the cream has been extracted. You would strike out the rest of the words—namely, "From milk containing less than 1½ per centum of butter-fat?"—Yes. A creamery is not a factory; a creamery should be defined as a place where new milk is received, and the cream extracted to be forwarded to the factory, and made into butter. The moment, however, you begin manufacturing butter or cheese in a creamery it becomes a factory. A creamery does not need the same supervision as a factory. It is, of course, possible that milk suppliers might wish to make skim cheese at a creamery. I do not advocate this course, because I believe that it will pay better to give the skim milk to calves and pigs. Experiment has shown that, with the addition of a little linseed mucilage, separated milk is almost if not quite equal to new milk for feeding young stock. A few lines further down "pure milk" means the "whole of the milk of the cow." I would stop there. In line 22, after the word "milk," I would add "the whole of the milk as it comes from the cow."

7. *The Chairman.*] You suggest that all the words after "milk" should be struck out?—Yes; also strike out the words ending "milking," and insert the words, "as it comes from the cow." Then, in clause 4, line 35, I would strike out all the words, "after ingress to all," letting only the word "factories" remain.

8. Would you make this clause to read, "to all factories, creameries, farms," &c.?—I would let them have power to enter all factories. I would strike out everything else in the clause after the word "all" in line 35. In clause 5 I would strike out the word "creamery;" the word "creamery" occurs twice there. In line 40, after the word "package," I would insert the words "at the port of shipment."

9. *Mr. Wright.*] In clause 6, would you not be inclined to allow any one to call his place of business "a factory?"—No, I would not; for I consider that such a concession would be detrimental to the development of the factory system on a large scale, and consequently the production of large quantities of butter of uniform quality.

10. I take it that this Bill is intended to encourage the factory system. Why should any one person, having fifty cows, say, not have a right to brand "Factory" when he uses factory appliances?—There are exceptions to all objections; but it would open the door to abuses, and would hinder the extension of the factory system, and would not be so good for the country. On the other hand, where the cream of a large number of cows—say, two or three thousand—was manipulated together, there would be a greater bulk of butter made of a uniform quality. Clause 6, after the words "not less than," I would add "750 gallons of pure milk," should be allowed to brand his butter "Private Factory."

11. *Mr. Lawry.*] Where there is a lot of creameries in one district do you think it is better to have the cream conveyed to one centre, or to have the butter manufactured at each creamery?—Creameries are only fitted up with separators, and therefore butter could not be manufactured by them. To establish a factory in every district would require an expenditure of not less than £2,000 in each; it is a question of expenditure. In Auckland they have adopted the practice of conveying

the cream from the different creameries to the factory. Where you have a large central factory it makes a greater bulk of butter of a uniform quality. In clause 7, line 23, I would strike out the words "New Zealand Creamery." Clauses 8, 9, and 10 I think are unnecessary. Factory managers are the people to take cognisance of the cases provided for; there are rules provided for such cases. As to clause 11, that might be left in the hands of the Inspector. Clause 12 I will pass. With regard to clause 13 I would ask whether that is not provided for by the Adulterations Prevention Act. As to clause 14, subsections (1) and (2), I think they are unnecessary. I do not think they would be workable. I would strike all out down to 17. At Taitapu, if the milk is not up to the mark, it is forfeited.

12. *The Chairman.*] Have you anything to say generally as to the dairying industry?—The collapse of the potato and onion trade has almost ruined a number of small farmers, men who have not sufficient capital or sufficient land to keep sheep on. I feel quite certain that the adoption of the factory system will be a panacea for the evils that might be expected to arise from that cause. Land has fallen considerably in value. I feel confident that the general adoption of the factory system will restore the value of the land to what it was before the collapse of those crops. It is rapidly doing so now; farmers are even now netting from £10 to £13 a cow where factories have been established.

13. *Mr. Lawry.*] That is not including skim milk?—We may put that down at another £1 a cow. The Taitapu Factory is worked on the co-operative principle. Every man gets the full value of his milk. It is tested for cream four times a month, and oftener if thought necessary. At the end of the month the cream-averages are added together. As there is from 30 to 40 per cent. of butter-fat in the cream they take the mean—36—that is, the mean as near as practicable; they multiply the four tests by the fourth of 36—that is, 9—which gives the amount of butter-fat; a further test is to multiply the quantity of milk supplied during the month by the percentage of butter-fat, which should give the exact amount of butter they should receive. They have a further test still; they can test these figures with the churn, and if the churn-butter does not tally with them there is something wrong. I have seen some returns showing the amounts given for the same quantity of milk according to the greater or less percentage of butter-fat it contains. One man receives £49, another for an equal quantity receives £56, owing to the greater percentage of butter-fat; so that the farmer gets absolutely the exact value of his milk. One great value of the factory system is the encouragement it gives to the breeding of dairy cows, and better feeding. Another advantage is that you can generally get 1lb. of butter from 24lb. of milk, whereas under the old system it took 33lb. of milk, or three gallons. Then, factory butter invariably fetches 2d., sometimes 3d., more than dairy-made butter; thus you find that the factory system has an advantage of at least 30 per cent. over the old system.

14. The old system would be better for the calves?—Not a bit better; separated milk mixed with a little linseed mucilage is just as good.

15. Have you ever taken into consideration which is the best breed of cows to keep?—On good land there is no better breed than the ordinary best cows of the country with a good shorthorn bull from a milking strain—that is, for land like that of Canterbury. On lighter lands the Ayrshire and its crosses are best. Another advantage in the shorthorn is that the animals when not fit for the dairy make more for beef.

16. Then, your experience has led you to the belief that a man to be successful at dairying must breed his cattle?—He must breed them up. The ordinary common cows of the country will average about 400 gallons per annum. In the Old Country selected cows give as much as 700 gallons—600 gallons would be a very good yield.

17. *The Chairman.*] Do you think this Bill will help the industry?—Yes; so far as branding is concerned I think it will do good; but I think there is a great deal in the Bill that might be very well relegated to the factory owners themselves.

18. What is your opinion of the prospects of the Canterbury dairying?—I think, to use a common phrase, if we get our factory system completely developed it will make Canterbury "boom."

19. Has your experience of the factory system been such as to enable you to say whether they get sufficient milk to make their operations successful?—At first there might have been some little difficulty; but judging by the result of experience at Taitapu they get enough, and the quantity is increasing. They commenced with a moderate amount. People who opposed them at first are now joining them.

20. *Mr. Lawry.*] Have you experienced the difficulty of getting milkers?—If you have to employ milkers it is not easy to get good ones. Dairy farms succeed best where the milking is done by the members of the family.

21. That might have an important influence in the direction of keeping families together?—Yes, that is so.

22. Have you seen anything of milking machines?—I know of one that is said to work very well—the Nicholson and Gray, of Stranraer, Scotland. There is a set of these mechanical milkers at work at Bodalla, New South Wales. The manager, Mr. L. W. Grierson, speaks well of the machines, and thinks that they are destined to revolutionise the dairy industry in the colony. From what I have heard of this machine from other sources they are still capable of improvement.

23. *Mr. Wright.*] Have you any suggestions to offer in connection with the transport of butter from the factory or dairy to the ship, and the necessary means to keep it from being spoilt in transit?—In our central factory we propose to have a cool chamber, so that we shall be able to run the butter from the factory on board ship. The Harbour Board has a cool chamber at Lyttelton, but it does not seem to be used as much as it might be. Every large factory ought to have the means for cooling; that is why we are so anxious to get large factories with all the best appliances.

24. You stated that the establishment of these dairy factories would go a long way towards a remedy for the loss occasioned to small farmers by the collapse of the potato and onion markets. This is to some extent due to heavy import duties levied in the colonies. Have you considered whether the establishment of starch factories would pay where the potatoes are produced?—I have written Home for information on the subject. My own opinion is that we can hardly produce farina, &c., cheap enough to make such an undertaking profitable; in Germany and elsewhere there is less to pay for labour, and less expense all round. I am not prepared as yet to offer any definite information on that subject.

Manure Adulteration Prevention Bill.

25. *The Chairman.*] What have you to say, Mr. Murphy, on the subject of this Bill?—In line 10, in the interpretation clause, I would advise, after “farmyard and stable manure,” “lime refuse from gasworks, fellmongeries, tanneries, wool-scourers, and breweries.” My reason for this is that a considerable quantity of refuse from these industries is obtained by Chinese gardeners and others. I am, of course, now speaking of Christchurch. If these words be not inserted, I take it it would be against the law to sell them without an analysis. As to clause 3, I have nothing to say about that. In subsection (5), clause 3, I would strike out the words after “boiled bones,” and add “should not contain less than 42 per cent. of phosphate of lime, and 2 per cent. of ammonia;” anything under this would indicate fraud. If the Bill remains as it is the result would be to shut up all small bonedust makers, who sell their bonedust for about £5 10s. per ton. Calcutta and other bones cost £7 10s.

26. *Mr. Wright.*] What percentage of phosphate of lime does the best bonedust contain?—A superior sample may contain 50 per cent. and upwards; anything under 42 per cent. would indicate an adulterated sample. In subsection (10), the words “other guanos” ought to be added. In clause 14, page 4, there is no protection for the farmer. I think the agents or vendors should be responsible, otherwise how can the farmer get redress in the case of fraud. We know that imported manures sometimes deteriorate in value during transit. In would be no hardship to the vendor, as he could have it analysed here at the manufacturers expense.

27. Your objection would go to striking out the clause?—Yes; I would make it read so that the vendor must be entirely responsible. I feel very strongly on this point, for I know that the farmers of Great Britain have in the past suffered incalculable loss from the operations of fraudulent manure manufacturers, and are still greatly imposed upon, notwithstanding the constant vigilance of the agricultural societies’ paid analytical chemists.

28. *Mr. Ritchie.* How would that do in reference to small establishments such as you have referred to?—I do not say that the Bill ought to compel the manufacturers of bonedust to supply an analysis with every lot sold; it should compel them to sell pure bonedust, guaranteed percentage of phosphate of lime and ammonia. If you do not make some provision of this kind in the Bill the door will be left open to a great deal of fraudulent proceeding. Legislation in the above direction is as much in the interest of the honest manufacturer and vendor as it is for the farmer. The manure trade is rapidly becoming a most important one; therefore wise legislation at this juncture will save much trouble in the future.

Fruit Industry.

29. *Mr. Wright.*] In your opinion has the fruit industry in Canterbury been a success hitherto; and if not, what has been the difficulty in its way?—I cannot say it has been a success—it is in its infancy as yet; there are one or two things, however, that will prevent it being a success unless they are seen to; the principal one relates to the method of carrying the fruit to the Old Country. In the report of the Agricultural Council, which recently sat in Hobart, there is a good article by the chairman, Mr. Shoebridge, showing why it was that some of the shipments from Tasmania have been a failure. If you look to the report of prices which have recently been received you will see that they are below anything that would pay; you will at the same time see in the margin the words “bad,” “rotten,” &c., showing the reason why only those low prices could be obtained.

30. *The Chairman.*] Are they sweated going Home?—Mr. Shoebridge is a very old expert. He is of opinion that the only method by which fruit can be conveyed Home successfully is by introducing a current of air amongst the cases. Under the present system they are put into the chamber where there is not a sufficient current of air—the air is introduced very often from the top. There is a large amount of carbonic-acid gas generated where there is a large amount of apples packed together. Being heavier than the atmosphere, it lies among the fruit. Unless there is a constant current of air kept up to remove it, it is the opinion of Mr. Shoebridge that the fruit will never get Home in a satisfactory condition until some provision is made for a constant current of cool air among the cases. Then, again, the cost of freight must be reduced—the expenses are too heavy.

31. What is the cost?—At present it costs 8s. a case from Canterbury; the freight is 4s. 4d.

32. *Mr. Laury.*] Does the 8s. cost include cost of case?—It includes everything.

33. *Mr. Wright.*] You are aware that some cases of apples sent from Canterbury sold as high as 20s. a case?—When small lots have been sent carefully packed, they have reached Home in good condition. The reason is that they had plenty of air, and were not confined as larger quantities would be. The Styx Company have sent Home early apples (Alexandras), which fetched from 18s. to 25s. a case; these were also exposed to plenty of air. I induced Mr. Withell, of Brookside, Canterbury, to pack fifty cases. I knew they would do well if he undertook it. He sent them Home; they were packed so that nothing better in the way of packing could be desired. He had a letter from his agent after they were sold stating that they realised an average all round of 13s. a case. There are other instances of small lots. Dr. Lemon’s may be added, which reached Home in splendid order, and realised good prices.

34. *Mr. Laury.*] Would 13s. a case pay?—Yes, very well.

35. *Mr. Wright.*] Could the difficulty on board ship be overcome by a current of cool air?—Yes; that would be the best solution.

36. Has not the low price obtained been due to the fact that inferior fruit was sent?—Yes, to a considerable extent. Some fruit went from the North last season and sold for 2s. a case; but the apples had been previously bored by the codlin-moth grub. Mr. Shoebridge, to whom I have referred, proposes that the Governments of Tasmania, Victoria, and New South Wales should charter a vessel and have a portion of the hold fitted up in her as suggested; the fruitgrowers to guarantee 20,000 cases. If the fruit went Home safe, the shippers to pay the freight on them. According to this proposal, the Government of each colony is to bear the first cost, for, as a rule, fruitgrowers are not in a position to run any great risk.

37. According to Mr. Shoebridge, the remedy is to send the fruit in a wind chamber as against a cool air chamber?—Yes, that is it. Seeing that the fruit industry is likely to become of great value to New Zealand, I do not think it would be too much to ask our Government to undertake an experiment of the same kind. I have no doubt but that 5,000 cases would be sent from Canterbury on the same conditions. If the Government will interest themselves in the industry to the extent of paying for the first experiment on the same conditions as that proposed by the other colonies—which, if successful, would reduce the freight by at least 1s. 6d. to 2s. a case—this would be a great boon.

38. *The Chairman.*] How many pounds' weight of apples in a case?—There are 40lbs. It costs more in freight to send them Home than frozen meat, because the shipping companies say it is not a regular trade. If the Government would undertake the experiment as indicated, I do not know of anything that would lead so materially to the success of this fruit trade. I do not know of anything that would encourage the industry so much as a reduction of freight.

39. Can you give us any information as to the success of the Agricultural Department in Victoria? How it has operated; whether the results have helped the industry?—The Victorian Government gave considerable encouragement to the planting of orchards in the way of bonuses, &c; this remark applies also to vineyards. Of course, you know what they have done there in regard to the dairy industry; but I think they have been too lavish in their monetary contributions towards developing it by bonus and subsidy, and which have been much abused. We do not want anything of that kind in New Zealand. What we want is protection against false trading; we also want some further expert information.

40. We have an Agricultural Department here; if information is to be beneficially circulated, should there be a journal issued, say, once a month?—Yes, all the other colonies have their Bulletins and Gazettes issued at regular intervals. I do not know of any better way of disseminating information.

41. How would such a publication reach the public?—Through the public reading-rooms and libraries throughout the colony.

42. Let me ask you, has the California market been tried?—I saw a statement last night to the effect that something could be done there.

43. Is it nearer?—Yes, it is nearer. The small shipments have been made with some success—at least I have been informed so. It is said that all the best fruit there is sent on to the eastern coast, and that at seasons there would be a fairly good demand. The matter, however, is one worth investigating.

44. Has the cultivation of olives been tried in New Zealand?—Yes, in the North Island the olive flourishes and produces abundance of fruit.

45. *Mr. Wright.*] Have you any experience of distilleries established to distil the essential oils from flowers for perfumes? It appears to me that the climate of New Zealand is good enough to grow any flowers that might be wanted for that purpose?—Such an industry might be made to pay under very favourable circumstances—that is, if the people would gather flowers and prepare them themselves; but under ordinary circumstances it would not pay. Britishers do not take kindly to those kind of industries.

46. But it is a business that scarcely entails any labour; and such labour as it does require is of a pleasing kind; it should be specially attractive to females and children. Have you any knowledge of the cost of plant that would be required?—No; I know that an expert in that business came to Christchurch some few years ago. He tried to interest people in the matter, but he could not succeed. He was a man who had worked in France in the business, and knew all about it, but he could not get anyone to take him up. With reference to fruit for the local market, one thing is troubling us very much. I refer to the importation of apples from Tasmania. There are large quantities of locally-grown apples lying in Christchurch for which the growers cannot get a sale.

47. *The Chairman.*] At this time of year?—Yes; the Tasmanian apples come in by thousands of cases, completely swamping the local markets, which after all is but limited.

48. *Mr. Lawry.*] Are the Tasmanian apples better than yours?—The Tasmanians grow larger quantities of the finer kinds than are as yet produced by ourselves; but there are no finer apples in the world than those grown in Canterbury.

49. *The Chairman.*] What price is given for Tasmanian apples?—They vary in price—from 6s. to 7s. a case; Canterbury apples average from 5s. to 6s. per case.

50. How do you account for that?—The Tasmanian cases contain from 45lb. to 50lb., while the Canterbury cases do not contain more than 38lb. to 40lb.

51. *Mr. Wright.*] What remedy would you suggest?—The only remedy I can see is a further import duty. The whole of our industry is languishing. People are not planting, as they see no prospect before them. Just a day before I left Christchurch a fruit grower told me that he had received a telegram from his agent in Wellington advising him not to ship any more apples, as the market there was glutted with Tasmanian fruit, and likely to be so for a considerable time.

52. *Mr. Lawry.*] What is the charge for the case?—We have to pay 10d. for our cases. The price in Tasmania is, I understand, about 6d.

53. *The Chairman.*] What is the duty now?—A halfpenny. It appears to be a question whether the trade is to be cramped or protected.

54. *Mr. Wright.*] It seems to me that, with the advantage of a halfpenny duty, that fact should greatly encourage the local grower?—Tasmania has made the cases bigger, and the shipping companies have reduced the freight, so that the Tasmanian people are almost in the same position now that they were when they were sending their apples free of duty. If you were to put on an extra duty it would not increase the price of fruit to the public; on the contrary, it would tend to reduce prices all round, and it would enable us to sell our fruit, which we cannot do at present in any quantity.

55. *The Chairman.*] Suppose a fruit grower calling on a fruit seller with ten cases, say, at 5s. a case, would not the shopkeeper rather pay that to the local grower than for the imported article?—That is not so; it is stated as a reason that the shopkeeper gets more accommodation in some way from the dealer than the local producer is prepared to accept. There is another matter to which I would ask the attention of the Committee as being connected with the fruit industry—that is the manufacture of jam; tons of pulp are imported into Dunedin every year; it kills the jam trade with us completely. The growers of plums in Canterbury had to rail them to Dunedin because they could not manufacture them and compete with the pulp-jam. I know of one grower of plums in Canterbury who paid £17 railage on his plums last season to Dunedin. If pulp were shut out we could get capital at once to establish canning, preserving, and bottling fruit in connection with a jam factory. This would encourage the growth of large areas of small fruits, which is a very important point, as employment would be provided for scores of young and old people. Then again, there is another point—namely, the manufacture of fruit-wines and cider. If the manufacturer were allowed to sell it in small quantities, that would also give an impetus to the growth of small fruits. It would tend to make men temperate. On the Continent it is shown that the light wine drinker is less given to intemperance than the people of other countries where light wines are not in general use. Fruit wines should be sold by the single bottle, or in smaller quantities by confectioners and others. Scores of acres of small fruit would be planted for making jam and fruit wine if the present restrictions upon the manufacture and sale were removed. The subject opens up the all-important question—namely, that of finding employment for the people.

56. *The Chairman.*] Do you think it would be possible to modify the regulations and at the same time remove the risk of distilling wines and whiskeys?—That is a question, I take it, for the Customhouse authorities to see to. But it would supply a wholesome and cheap beverage for the people, and it would, as I have before stated, employ hundreds of people. People in Christchurch are waiting to see what the Government may do in respect of this foreign pulp before investing their money in a factory.

57. *Mr. Wright.*] Is the jam made from this pulp as wholesome and good as that which would be made from fresh fruit?—I do not see how it can be. According to newspaper reports rotten apples are utilised for jam, and doubtless for making pulp for New Zealand.

Codlin-moth Bill.

58. *Mr. Wright.*] You know that in the North some of the orchards are almost useless for fruit growing owing to the ravages of this pest?—I saw a letter from Wairarapa in which a protest was made against this Bill not being passed. I believe that three-fourths of the fruit growers of New Zealand are in favour of this Bill. That is one reason why it should be passed. In Tasmania, when they found their fruit was unsaleable, they brought the Act into force, so that they are now able to control the moth. They find they have a market for their fruit, so that it was well worth their while to bring the Act into operation.

59. *The Chairman.*] You have not got it in Canterbury yet?—No, we have not; but I believe that if we had that Act in operation every intelligent fruit grower in New Zealand would be able to cope with the foreign market.

60. *Mr. Wright.*] If that Bill were passed it would give a decided impetus to jam making?—Yes; undoubtedly, with some restriction to be put on this unwholesome pulp. I would impress upon the Committee this: that in questions of this kind relating to the encouragement of industries you must keep in mind the employment such encouragement would be likely to give to young people. It is a question of some importance whether you should allow foreign-manufactured pulp to hinder the development of your fruit industries.

Mr. Ritchie informed the Committee that *Mr. Hanlon*, the Government fruit expert, has already entered on this subject, and has made inquiries as to shipping facilities. There will be this season a thoroughly practical attempt made to procure all the information that can be had on the subjects connected with agricultural and pastoral industries. Something will be done.

Mr. JAMES R. SCOTT in attendance and examined.

Dairy Industry Bill.

61. *The Chairman.*] You have had considerable experience in connection with the dairy industry?—Yes, it is my business. I have read this Bill. The most important thing in the Bill is the question of branding. There are some alterations which, I think, are needful. I think some of the descriptions and definitions require to be altered. I am of opinion that all this inspectorship provided for in the Bill must lead to friction and unpleasantness. I think there should be a sort of dairy Board or association, something on the lines of acclimatisation societies, but not to represent any commercial element or concern. I should have no official inspectors. There would be plenty of inspection without that.

62. What are the clauses which you think objectionable?—What I said in my letter to the Minister was this: That the great importance of the matter lay wholly in the branding clauses. If that were satisfactorily provided for it would be a good thing for the dairy industry. As to the rest, I consider it is a matter for law makers and lawyers. At the present moment factories are going in for buying their milk on the productive value. Every factory manager, when milk is

brought to him, if he does not like it, and if he knows his duty, he puts his nose into the can and he judges of the milk in his own way. If he considers it bad, or that there is anything wrong about it, he would order it to be taken away. I am not very well acquainted with the law, but under the Adulterations Prevention Act, any man exposing or offering adulterated milk for sale, or bringing adulterated milk or offering it to any person for sale, is liable to be taken up. There is one recommendation in this connection which our association has made to the Government and got its assent—namely, that factories should have power, in case of any dispute arising, to cause the milk to be sealed up in the presence of both parties and sent to the Government Analyst for analysis. That was our recommendation made two years ago. I do not consider myself an authority upon matters of law, but, so far as I can see, there is no necessity for all this inspectorship which is provided by the Bill.

63. *Mr. Wright.*] You have suggested that some of the descriptions and definitions contained in the clauses require alteration: would you be good enough to indicate what they are?—In the first page, line 23, “full-cream cheese;” that, I think, should be “full-milk cheese.” There is such a thing as “crean cheese” already made in the colony. The term, “full-cream cheese,” I do not think a correct definition; it is likely to mislead. If you commence in that way you will probably defeat some of the other clauses. In line 1, page 2, the word “three” should be struck out; the word “pure” should also be struck out in line 9. Cheese is spoken of in the trade as three-quarter skim, half skim, or skim. I do not see why you should insert the word “pure.” You put it “pure milk” in all the clauses. I think it should be struck out.

64. Then, in branding, you think it should be described as “full-milk cheese”?—Yes, full milk; or skim milk, according to what it is.

65. You have said that all the inspectorship provided would lead to friction and unpleasantness: what particular clause of the Act do you refer to?—There is one section—section 10.

66. That is struck out.—It seems to me that a man can bring his milk along in the morning, and put it into the factory if it is accepted by the factory manager. The factory manager is there for the purpose of rejecting any milk that comes to him for reasons which he may think sufficient. There is such a thing as milk going sour or going to curds without any apparent reason for such thickening. The most important thing is to determine whether the milk should be rejected or received. That is what the factory manager is for.

67. He should test every can and see it weighed. You would have him inspect every can?—Yes. With regard to the definition “pure milk,” I am not perhaps sufficient of an expert to give the Committee a definition of my own, but I am told on good authority that pure milk has been known to go as low as 3 per cent. of butter-fat. [Page 1, line 24.]

68. *Mr. Lawry.*] That would only be in exceptional cases?—That refers to the spring of the year—in wet weather.

69. *Mr. Wright.*] Then do you suggest that “three and a-half” should be altered to “three?”—I will not make any suggestion on the point. I merely mention it as exceptional; that it has been known to be so. The great point to be remembered is that the factories are getting to the habit of paying for milk according to its productive value. It is tested once a month through the directors in company with the manager; they do not tell the day they are coming. They test for productive value. The test now coming into vogue is almost equal to chemical analysis. I think if that is retained it would shut out milk of inferior quality being worked at all.

70. *The Chairman.*] As a matter of fact it would be ignored?—Yes, but the factory manager would be responsible in every case. The directors would take the average all through the month.

71. *Mr. Wright.*] What do you suggest instead of a Government Inspector?—I suggest that there should be a Board.

72. What would be the functions of that Board, and how would it be composed: you would want a Board in each district?—At the present time our association has six members in the North Island; they have appointed a secretary in Wellington. In the South we have twenty-five factories. We have nearly all Otago and Southland with us. There is an annual meeting at which a committee is elected. This committee deals with all matters connected with the association, and work up all matters for the general benefit of the industry. Our attention at present is directed to shipping.

73. Will you state on what basis this committee is elected? Has it one representative for each factory?—All the members send two delegates from each factory. These annually elect their committee; they do not always elect a man in the district, or in their own district, for that would involve travelling. They frequently elect a man in town in whom they have confidence. The Inspector has always access to our meetings.

74. These different interests are represented by the several factories?—Yes; they are represented on this Board.

75. It is a voluntary system?—Yes; a voluntary representation for mutual protection. We have now in view getting together all we can, so as to lower freight rates. We can give a guarantee of 1,200 tons from the ports of Otago alone. We think we are entitled to some reduction.

76. Your Committee exercises to a limited degree the function of a board of directors?—We are not a commercial association. We do not deal in cheese, or buy or sell, or anything of that sort.

77. Have you any suggestion to make as to how such Boards may be appointed under this Act, or whether you prefer to leave the working of them exactly as they are now?—I think I would prefer to leave them exactly as they are now. Government has given us some support from time to time; if they continued that, and did away altogether with the present system of inspection, letting us have our own Inspectors, one or two for the North Island, we should be able to carry the thing out

very satisfactorily. There is an acclimatisation society in Otago; that society is under Government to some extent, but they manage their own affairs.

78. But still you recognise the necessity of inspection either under the Government or some other authority?—Of course if you make an Act like this you must carry it out. The difficulty is who is to carry it out. It would always cause more or less dissatisfaction to be mixed up with Government inspection.

79. You have mentioned that milk condemned should be sealed up and sent to an analyst?—Yes.

80. Where would the analyst reside?—We have one in Dunedin and one in Christchurch. I suppose there is one in each large centre—not necessarily a Government analyst. Besides Professor Black in Dunedin, there are one or two others—men who would be perfectly independent and unbiassed.

81. *Mr. Lawry.*] What is your opinion of clause 11?—I do not see what particular harm a man would do in bringing milk from an infected cow. It would be bad milk. The Inspector or factory manager would discover that it was bad, and it would be rejected.

82. Suppose the milk from a cow suffering from tuberculosis?—That ought to be stopped. I think that that could be stopped.

83. Do you not think the clause would have a wonderful effect in showing the consumer that there could not be bad milk used?—In that way I think it would have a good effect. Of course every factory existing at present has something to the same effect in their rules and regulations.

84. *Mr. Wright.*] The difficulty would be to ascertain the cause of the mischief when it is done?—Yes; I think it would be a good thing to put that in.

85. *The Chairman.*] You think that the most important part of this Bill is that which relates to branding produce for what it really is?—Yes.

86. Do you think it would assist the industry more if we confined our legislation this session to that extent?—That is a matter for lawyers; at present I cannot see the necessity for all these provisions, except the clause pointed out to let the public know what we are doing.

87. Do you think the passing the whole Bill, or passing those parts in reference to branding, is most in the interest of industry?—I think the parts relating to branding are most in the interest of the industry decidedly.

88. You have said you thought the inspection should be under the dairying associations?—Yes.

89. You think that those people most directly interested in the industry would be best able to select the export butter?—Yes.

90. Is it not the fact, just now, that the difficulty with dairy factories is to secure a sufficient supply of milk?—Yes; that is so with some of them.

91. If this Bill should pass in its entirety, do you think that would secure a better supply of milk, or would it rather tend to diminish the supply of milk?—In some districts it would cause irritation among the farmers, and prevent them sending in their milk. I should think if this Bill were brought into full force against them they would not risk it.

92. You think that dairy factories in the South have much benefitted by Government inspection?—No; I do not think they have; not to any great extent. They are all very good cheese makers. They are all first-class men.

93. Do you think that the enterprise of the people down there has had a good deal to do with the success?—Certainly it has.

94. Exception has been taken to the word “blended” for mixed lots?—I may explain that some people gather up the lots which farmers or storekeepers have on hand; they work it altogether. According to the Act, they have to mark it “blended.”

95. Is there any other brand that would be sufficiently distinctive?—Yes; I think the word “packed” (packed butter) would be better. “Blended” butter would indicate—at all events, people would say so—“mixed” butter. Looking under that head people might assume that it was mixed or “blended” with margarine, or oleo, or other matter. “Packed butter” is mostly known as collectors’ butter—that is, distinguishable from the ordinary cottage-made butter.

96. *Mr. Wright.*] Do you think the public would prefer the title of Instructor to that of Inspector?—In a Bill like this it would have to be Inspector.

97. *Mr. Lawry.*] Do you consider that this Bill, if passed in its entirety, will prove more oppressive to the suppliers of milk than to those who buy it and manufacture it afterwards?—Yes; it is more vexatious to the farmers than to the man who is getting the milk. No honest man has anything to fear from this Bill, except clause 10, which you say is taken out.

98. Do you know of a case where a man has erected machinery, bought butter from neighbours, and then made it into one blend or quality?—That there are cases of that sort I do not doubt, but I do not know that the butter so treated would be of the one quality; it might come near to it in some cases.

99. *Mr. Wright.*] If butter from various makers is “mixed,” why not designate it “mixed butter”?—I think “packed” is the best word—“packed butter.”

100. Would not “pure mixed” or “pure blended butter” do?—Yes; if you put in the word “pure.” The objection is to the word “blended.” Some people would say that is simply a “mixture.” There is an article known as mixed butter at Home. A man might sell margarine or oleo under that name. If you use the word “pure” it might do, but I would prefer the words “packed butter”—pure packed butter—if putting in the word “pure” were thought desirable. No good maker has anything to fear from this brand, for the article will sell for what it really is. There are cases where dairy butter will fetch more than factory butter. There is plenty of dairy butter of first-class quality. You want protection not from the skilful, but from the careless and unscrupulous. To show you what can be done in the way of imposition, I may state that there was a man in Dunedin who sold skim-milk cheese, which he said came from a factory in the North

Island. He was asked the name of the factory. He said it was the Pueroa Factory. There was no such factory. It was this very skim-milk cheese from Dunedin, which he branded as "Pueroa Factory cheese." That skim-milk cheese has been sold all over the colony. It did a lot of harm. Of course a business of that kind is not a good one. There is one point which I might mention to the Committee. I think the proposed large central factory would do good. They are proposing to separate the cream and give the skim milk back to the farmers. At present the farmers get none of the skim milk at all; but it will be useful, with a little bruised mucilage, for cattle; they like it as well. As to the question of grading in London, our association would like, if it were possible, to see a large store erected in London where all produce from the colony could be placed on being landed. Hitherto produce from the colony has been placed in a shed, where it had to remain until it was more or less damaged. Our idea is to have a large store in London for New Zealand produce. It would be properly cared for, and the produce could be received direct by the consignees. The shippers could get an independent report as to whether it was landed in good order or bad order.

Mr. Ritchie informed the Committee that the difficulty in that matter had been that shippers would not all send it there. Some like to send to a particular place—to other ports. I think that cool stores should be erected at all the ports of shipment, to which farmers might send their butter in small lots as they had it ready for transmission. The Railway Commissioners might have a properly-fitted van attached to the trains coming down on certain days. The farmers could leave their butter at the station, so that it would be easily picked up and brought to the port of shipment.

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