

1890.
NEW ZEALAND.

THE DAIRY INDUSTRY OF NEW ZEALAND

(REPORT ON), BY MR. JOHN SAWERS, DAIRY INSTRUCTOR.

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

Mr. JOHN SAWERS, Government Dairy Instructor, to the Hon. the MINISTER of LANDS, Wellington.

SIR,—

I have the honour, in accordance with your desire, to submit the following report regarding the performance of my duties since I was appointed Dairy Instructor eight months ago. At the outset I should put in the foreground that it has no pretensions whatever as a literary production, but that it is the work of one who is more at home in a dairy factory than in drawing up a report of this kind, especially with no similar report to guide him either as to its matter, manner, or length.

My services having been granted to the Commissioners, my first duties were in connection with the New Zealand and South Seas Exhibition. On the 14th October, 1889, I began to superintend the placing of the necessary machinery and plant in the Exhibition buildings to enable me to carry on my work, which was to lecture and give practical demonstration in the art of cheese- and butter-making. Not being constantly engaged at the Exhibition, I during my spare time visited and gave practical instruction in the districts in the vicinity of Dunedin. The first district visited was the Peninsula. There being no factory system in that part, it was necessary, in order that settlers might get the greatest possible benefit from my instruction, to call them together at various centres. With this object in view, some of the leading farmers of the district took the matter up, giving notice at the various public schools, and by conspicuous posters, of days I would visit certain dairies in the neighbourhood, and requesting all interested to attend. By this means I came in contact with most of the producers of dairy-produce in the districts visited, who carefully watched my operations and attentively listened to my instructions, besides asking questions, of which there were usually a good many. The first of these meetings was held in the Highcliff Volunteer Hall, where milk and the necessary appliances were brought for the manufacture of both butter and cheese. After going through the practical part of my work, I here delivered my first lecture on the subject of butter-manufacture, to a company of about a hundred. Several other meetings were held in different parts of this district, all being well attended; indeed, wherever I went I observed there was a very keen interest taken in my proceedings, and a strong desire shown to learn everything pertaining to the manufacture of either cheese or butter. This method of imparting instruction, not only in this section of the colony, but in several other districts visited by me where no factory system prevailed, afforded me a continuous source of information as in the diversity of opinion existing in the minds of the rival makers regarding the manufacture of dairy-produce, and provided me with a good general view of the system of "Every man his own maker." It also convinced me of the benefits derivable from the adoption of a factory system; for, in a company of, say, thirty makers, I could reckon on at least as many different qualities of product being made, if each maker could have his own way. Here, in the Otago Peninsula district, dairying is made a specialty, and is the staple industry of the community. Being in such proximity to the City of Dunedin, naturally by far the greater portion of its products finds its way into that market; but during the flush of the season a glut always takes place, with a consequent heavy fall in the price. In order to keep a superabundance of that product from flooding the market and hence lowering the price, the farmers of this district have established a packing-house, the only one to my knowledge either in Otago or Southland. This institution is wrought on a purely co-operative basis, the products of only shareholders being admissible. Previously to my visit the practice in force was to receive butter only one day a week, the greater portion of the butter being brought not in its granulated state, but in lumps. However, upon my first visit I offered, and have since continued to offer, a constant complaint against the system, because I could learn from the individual makers that the general system in vogue was to churn weekly, a practice too common among the individual makers in New Zealand. In fact, I never yet saw a good sample of butter produced from such cream. Three days is long enough to keep cream before churning, and only then under a very low temperature. In order to insure a more systematic mode of manufacture, I recommended to the managing committee and shareholders that it be made compulsory for each

contributor to bring his butter twice a week in its granulated state, and that all butter not granulated, or of a secondary quality, should be refused at the packing-house, and should be returned to the producer or sold by the company at producer's risk, whichever might be desired. By this means all producers are made to exert themselves to manufacture an article of such a standard of quality as will be taken in at the packing-house. It thus becomes a matter of pecuniary interest to the settler to bring forward his butter in the best possible condition. This system of packing-houses has many advantages, and can be applied to many districts in New Zealand with, I believe, good results. The system is well worth attention in those parts of the colony where, on account of the ridgy and hilly nature of the land, the bad roads, and scattered population, the factory system is rendered impracticable. If practical lessons were given in those districts where those houses are established, and the directions presently to be given adhered to by the settler, together with strict attention on the part of those in charge, there is little doubt a good sample could be obtained. Of course, it cannot be expected that butter thus produced under such varying conditions can compare in quality with that manufactured in a creamery, to which milk is brought fresh from the cow, and where the best modern machinery is under control of a man of the highest skill, and possessing all the technical knowledge of his art. But by strict attention to the packing-house system in all its bearings a great advance would be made alike in the uniformity of the quality of the butter and in its marketable value. Having been repeatedly requested from various sources—principally from the North Island—to draw up a set of rules for the guidance of parties inaugurating this system, I cannot do better than give the following articles of association of the Pioneer Butter Company of Otago Peninsula, which were made up at the commencement of the present season, and which clearly bring out the manner I suggest those institutions should be conducted:—

“Articles of Association of the Pioneer Butter Company of Otago Peninsula.”

*“Article 1.—*This association shall be known as the Pioneer Butter Company of Otago Peninsula, and is formed for the purpose of leasing the premises known as the Pioneer Cheese-factory of Otago Peninsula for the term of seven years, and for purchasing the plant of the butter company of 1888-89, and for salting and packing for export the surplus summer butter of the shareholders.

*“Article 2.—*The business of this company shall be under the direction and control of a committee of not less than seven nor more than twelve, who shall appoint their own chairman, treasurer, and secretary, all of whom shall hold their respective offices one year, and until others are elected; three to form a quorum at any of their meetings.

*“Article 3.—*The annual meeting of this company shall be held at the packing-house in each year as soon as the returns of each season's business can be made up, due notice of the meeting to be given to the shareholders. At this meeting a committee, as authorised by Article No. 2, shall be elected, and all business connected with the company shall be lawfully transacted, each share being entitled to one vote.

*“Article 4.—*At said annual meeting the committee shall make a report in writing of the financial condition of the company, showing all moneys received and expended by said committee.

*“Article 5.—*The capital stock of this company shall be nominally £100, in shares of £1 10s. each, and one share only will be issued to each person joining this company; and during the working of this company in each year a sum equal to one-seventh of the paid-up capital stock of the company will be charged to general expenses and paid equally to the shares.

*“Article 6.—*All moneys paid by the treasurer shall be by the order of the committee, said order to be signed by the chairman.

*“Article 7.—*The secretary shall keep a record of all the meetings of the company for the examination of shareholders, also a list of shareholders, and of all transfers of shares.

*“Article 8.—*The committee of this company shall be empowered to sell the butter here, or to export it to England or elsewhere, as they may deem best in the interests of the subscribers.

*“Article 9.—*All moneys shall be divided as they come to hand in proportion to the amount of produce of the different subscribers, after the proper proportion of expenses is deducted.

*“Article 10.—*If, during any season, the committee are compelled to export the season's make to the English market or elsewhere, so that at least four months will elapse before any returns can be expected, to those who require it the committee will negotiate for an advance to the extent of 3d. or 4d. per pound on first-class butter, and the party or parties to whom such advance is made shall pay the interest and expenses incurred for such advance.

*“Article 11.—*All butter received by this company shall be on the premises on the Tuesday and Friday mornings respectively of each week, between the hours of 7.50 a.m. and 8.30 a.m., and shall be churned the previous afternoon or night.

*“Article 12.—*No butter shall be made for this company from the milk of any cow until fourteen days after she has calved.

*“Article 13.—*For the purpose of making butter for this company the cream shall not remain on the milk in ordinary weather more than thirty-six hours, and in hot weather not more than twenty-four hours before creaming, and no cream shall be kept after creaming more than three days before churning, and the cream of one churning shall be in the cream-dish and well mixed at least twelve hours before churning.

*“Article 14.—*All butter received by this company shall be brought in the granulated form. After it is churned and washed in this form, it shall be lifted on to a sheet of butter-muslin and spread thin on it to drain, the sheet of butter-muslin to be stretched across a grating or sheet of corrugated iron, to facilitate the draining.

*“Article 15.—*The whole committee shall be inspectors to inspect all butter received by the company, and at least three of them shall be in attendance every time butter is received, the packer

to assist; but in all cases the inspectors shall be responsible for all the decisions; and any sample of butter found defective shall be salted and sold at owner's risk or returned to him at his option. All butter received by this company shall be without salt and of good quality, free from milk, water, or any other impurity.

"Article 16.—For the purpose of enabling the Committee to make the necessary arrangements for packing, every person sending butter to this company is required to furnish a statement of the quantity he is able to supply during the season as nearly as possible, and any person at any time during the season wishing to send more shall give notice of his intention to do so the week before to the packer at the packing-house.

"Article 17.—All persons sending butter to this company are required to find their own pass-book, and to bring it to the packing-house every time they bring butter, when the packer will enter the amount; and, in the event of any dispute arising from neglect of this rule, the books of the company shall be conclusive.

"Article 18.—All persons bringing butter to this company shall, in the management of their cattle, wash and clean the udders of their cows every time they milk, and all the vessels in use in their dairy. Buckets, milk-dishes, and all other utensils shall be properly washed and scalded every time they are used, and every other matter in connection with the dairy shall be conducted so that everything about the premises may be clean and sweet; and in the event of any defect arising in the butter of any person or persons the inspectors shall point it out to them, and also the way which, in their opinion, would remedy it.

"Article 19.—All questions as to the manner of conducting this business, and every matter of interest, of whatever nature, to the association, shall always, in case of dispute, be decided by a majority of subscribers.

"Article 20.—The foregoing rules, or any one of them, may be repealed, amended, or new ones may be added to them, by a majority of subscribers at any meeting called for that purpose."

Prior to commencing practical operations at the Exhibition, I visited the Brighton district and the Taiari, Henley, Maungatui, Bruce, Stirling, Inch Clutha, and Edendale dairy factories. Early in December, 1889, having been requested by the Chairman of the Agricultural and Pastoral Committee, I commenced my practical duties in connection with the Exhibition, giving demonstration daily in the arts of making butter and cheese. This I continued until the 15th January of the present year. During that time, in conjunction with my practical work, I delivered lectures on cheese- and butter-making respectively, always taking advantage of a day when a considerable number of persons interested were present. During the month of February my services were again engaged in connection with the Exhibition, and the same routine of work gone through as in December and January. These lectures, which appeared in the *Otago Daily Times* and *Witness*, I have since learned were widely read and commented on through various sources by parties directly interested in the dairying industry, and were, I trust, productive of much good. Altogether my services at this institution seem to have been appreciated, and I believe assisted in bringing about a more uniform and scientific system of manufacturing butter and cheese. I had also frequent inquiries for my services from many parts of the colony from persons engaged in the dairying industry, and serviceable interchange of opinion took place.

On the 1st March, as desired by you, I left the Exhibition to make a tour of the South Island dairy factories. I did not, however, take the factories in rotation, but went wherever I had reason to believe my services would be most beneficial, as many of the smaller factories at this date were almost closing operations for the season. The country over which I travelled comprised all the east coast of the Provinces of Southland, Otago, and Canterbury.

At this point it may be desirable to introduce a few remarks regarding my idea of the dairying capabilities of the colony, at least so far as my travelling up to the present has enabled me to judge. The above-mentioned section of country is probably the best portion of the South Island for general agricultural and pastoral pursuits, and in the main is well adapted for carrying on dairying operations. Indeed, during my residence in the colony, being entirely interested in the dairy industry, I have come to believe that New Zealand as a dairying country stands second to none. For such an industry to flourish in the midst of a scantily-populated country, where the production so much exceeds the demand, and where there is an absence of a reliable and profitable market, the natural adaptability of the country must be considered. New Zealand is naturally adapted for the successful conducting of the dairy industry. Here we have a country capable of maintaining all the known breeds of European cattle in perfection, and of growing every known crop. We have a temperate climate, pure atmosphere, abundance of water, a growth of grasses and cereals scarcely to be met with elsewhere, all of which are directly essential to the welfare of the dairy industry. The question has been repeatedly asked of me, whether I considered our remoteness from the Home market (deemed to be our most reliable market) did not handicap us too much in successfully competing with Canada and America, where the principal Home-supplies come from. I am of opinion that the natural advantages possessed by this colony over those of Canada, America, and Europe more than counterbalance any loss we suffer in being so far removed from the Home-country. If we fail to grasp that position in the London market we so justly are entitled to, the fault can only be ascribed to the neglect of proper management on the part of those engaged in the industry. In climate, water-supply, and pasturage we have a decided advantage. In Canada and elsewhere a comparatively long and severely cold winter necessitates more manual labour and painstaking care in the carrying of the herds through to the ensuing season. There they are compelled to resort to house-feeding for at least seven months of the year; hence more of the profits of the season are consumed by the additional labour and expense involved. As a contrast to this, in many parts of New Zealand a cow can go all the year and derive all she requires, so far as the production of milk for the manufacture of cheese is concerned, from the grass without its being supplemented with any

artificial food. Any practical dairyman will at once admit that for a milch-cow grass is the best food. Indeed, nothing is so healthful and beneficial for cow-life, or so good for enabling the animal to yield her maximum of milk, as a good variety of grasses. All these conditions, so needful for the welfare of the industry, are in abundance in New Zealand, and can, I think, be greatly added to at a nominal cost.

The factory buildings, on the whole, are perhaps not deserving of much praise. Nearly every one I have visited is out of proportion to its requirements, and a great deal of unnecessary expenditure at the outset of their business has been entailed on the various companies. Again, in their construction economical working of the factories has not been constantly kept in view. The unnecessary expenditure thus incurred in every instance (some of the buildings and plant having cost as much as £2,500) has prevented the dairy-factory system from taking root in many districts. Besides, it has seriously retarded the financial success of many in operation. The cost of constructing a cheese-factory with complete plant for the manipulation of, say, 1,400 gallons of milk daily, should not exceed £550 to £650, according to the facilities for obtaining the necessary building-material. In every district I have visited with the intention of starting the factory system, the complaint has been against the cost of buildings and the necessary plant. During the season I have succeeded in starting the factory method in the Owaka District, Catlin's River, from which I hope the farmers of that district may reap a rich harvest. This factory is now in course of construction on plans suggested by me. It is capable of manipulating from 1,400 to 1,600 gallons of milk daily. In this building a cheese-factory and creamery are combined. The estimated cost of the building, including both cheese and butter plant, is £800. Had a building and plant been erected for the manufacture of cheese only, the cost would not have exceeded £550. A common fault at the outset in construction of most of the dairy factories has been the selecting of an unsuitable site. Instead of their being set on high and dry ground, to insure purity of atmosphere and the conducting of all refuse matter to a safe distance, they are in general placed in low-lying, damp ground, with imperfect drainage. Around the buildings of many factories which I have visited it has been too common an occurrence in reaching the entrance-door to have to go through several inches of mire. Too much care cannot be taken in the drainage from factories. On several occasions, while standing at the door of these establishments, I have felt many objectionable odours arising from imperfect drainage, on account of coagulated milk and other matters settling in the open channels. Besides, in nearly every instance I found the piggeries in far too close proximity to the cheese-making department. It seems to have been forgotten that any harm could be done by the odour arising from them. To the internal construction of the factories visited I have one or two objections. The making-room and curing-room should always be on the same flat. Cheese cured in a room directly above the manufacturing-room are liable to suffer serious harm, on the one hand, from the heat, steam, and odour from below, and, on the other, from the excessive heat of the sun on the iron roof. Imperfect ventilation is far too common in most of the factories, and no provision has been made for the control of temperature. In fact, in several factories visited the walls in the making-room were so open that one could almost anywhere see through them. There may be days when cheese or butter of first-class quality can be made in such a building; but in nine cases out of ten the operation is a failure. This is a matter which struck me forcibly. When, however, I explained to the makers the difficulties under which they were labouring, they seemed not fully to appreciate the importance of a warm temperature in the making-room. I have seen many cheeses spoiled in the manufacture through draughts of cold air being caused by the imperfect construction of the buildings. A making-room should be well constructed. A temperature of at least 75° should be maintained during the process of manufacture, so as to protect the surface of the milk and curd from the influence of cold.

Too much care cannot be exercised in the use of rennet, the second natural agent employed in the conversion of milk into cheese. The reason for adding rennet to milk is not only to cause the coagulation of the caseine, but to carry forward the curd into that state which we call cheese. During my visit to the dairy factories of the South I found in many cases a lack of sufficient knowledge in the use of this essential agent in the manufacture. In six of the factories visited I found the rennet used in a complete state of putrefaction. In other bad cases sour whey was mixed with the rennet-extract—a highly injurious and unscientific practice. The fact that a larger quantity would hasten the cheese faster to maturity and decay than a less quantity seemed to be among the mysteries of the business. It is true that rennet creates texture in cheese, and that upon the quality and quantity of the rennet used greatly depend the flavour and keeping-qualities of the product. Considering these points, it cannot be expected, if a quantity of impure rennet is added to milk, and so carried forward into the body of the cheese to produce its illegitimate effects, that a fine-flavoured and good-keeping quality of product will be the result.

I might now introduce a few remarks on the general quality of New Zealand cheese as at present manufactured. In the keen fight for supremacy in the Home market, quality is the essential condition to success. At present it must be said that the New Zealand product in this respect is behind. As the quantity can be almost indefinitely increased, it is to the quality we must look to establish our name and market at Home and procure for us the payable price so much needed; for, unless prices are to rule higher than hitherto, milk must be brought to the factories at the utterly unpayable price to the settler of about 2½d. per gallon. No doubt, cheese of the finest quality has on occasions been produced at almost all the factories in the South Island, but for the most part this has been the exception, the generally poor quality of the product swallowing up all the good fortune of these successful occasions. There are, however, six factories in the South Island the products of which have on several occasions been pronounced first-class. In the Australian market the cheese of some of those mentioned have this very season, despite the dull market, commanded a price ranging from 4½d. to 5d. per pound f.o.b. Two of the factories mentioned have in quite recent years obtained for their cheese in the Home market the highly creditable price of £3 per

hundredweight for part of their season's output, and even during the present season one of them has realised the satisfactory figure of £2 14s. This affords a fair indication of what might be the rule rather than the exception were all the factories as successfully managed. In this connection I regret to say that in two factories visited I found the cheese in an unwholesome state, and quite unmarketable. No less than 70 tons of cheese, in the aggregate, were thus rendered unprofitable to the milk-suppliers, and great discouragement given to the dairy industry in the district. The keeping-qualities of the cheese of too many of the factories visited were very poor, besides which the cheese were deficient in that firmness of body and nutty, buttery quality so much desired in a good Cheddar cheese. These and other defects, their causes and remedy, I pointed out whenever I found it necessary. What is wanted is a close-cutting, firm-textured, finely-flavoured, and mild cheese, which will be ready for the market in from eight to ten weeks, and which may be kept for a year without injury. The present shape and style of a great portion of our New Zealand cheese do not put us on an equal footing for competing successfully with Canada and other countries. No Cheddar cheese under 60lb. weight should be sent Home. The measurement should be 12in. by 14in. The mouldy and badly-finished appearance of much of the New Zealand cheese has a damaging effect on its sale. Care in these apparently trivial points will be well rewarded by increased remuneration; for slight defects in appearance, not to mention in quality, are readily seized hold of by Home buyers in order to beat down prices.

Before concluding these remarks on the products themselves, I may add a word regarding the general cleanliness of the factories that have come under my notice. It hardly needs to be pointed out that cleanliness is an absolute essential to any attempt at cheese-making that is to have the smallest chance of success. The fact that milk is extremely liable to be injuriously affected by noxious odours seems to have been lost sight of in some cases that came under my notice. In the factories I have already alluded to as being most successful, it is worthy of note that scrupulous attention is paid to this matter of cleanliness. In fact, I might just say that extreme cleanliness is the cardinal virtue without which success in this industry is impossible.

Having said this much regarding the factory and its surroundings, I shall now insert a few remarks regarding that source of the factory's strength or weakness, the milk-supplier. It is not sufficiently kept in view by most suppliers and many factory-managers that their interests are identical. The making of a good cheese does not begin at the factory—the operation starts with the milk-supplier. Hence it should be the object of the supplier to bring the milk in a perfectly sound state to the factory; for, unless it is in that condition, the manufacture of a first-class product is impossible. Great care should be taken to keep the cow-shed clean and free from odours by daily cleansing and periodical washings. As milk is a substance so ready to absorb odours, it should be taken from the cow-shed immediately on being drawn from the cow. If at all possible it should then be delivered at the factory. This will prevent any chance of injury being done to it by its being left standing in close cans all night. It is the exception rather than the rule for makers to insist on the milk being brought at once, either to save themselves or their suppliers trouble. But this method greatly increases the maker's risks, for he is at the mercy of the supplier's ideas of cleanliness. I have made it my business, when taking in the milk at the various factories visited, to observe carefully the state in which the milk was brought. If it was defective in quality or was contaminated by noxious odours, I advocated its rejection by the manager. As an instance in point I may mention one that came under my notice during my round of the factories. When receiving it in at a certain factory, I discovered that the milk of one of the suppliers had an offensive odour. I had it rejected, and promised to the supplier that I should go to his place and endeavour to find out the cause, particularly as he alleged that it was in the condition in which it had come from the cow. I found that he was in the habit of cooling his milk overnight by leaving the cans standing in a tub of stagnant water which gave off an abominable stench. As this tub stood amidst the noxious odour of the cow-shed, the milk was contaminated by the odour from two sources, and was thus rendered quite unfit for factory purposes. The settler at once rectified the matter. But it is obvious that the manager should have been on the alert for anything so likely to injure, if not ruin, the whole day's manufacture. In many instances where unsound milk is taken into a factory it is not due so much to the want of observation on the part of the manager, but to the fear on his part that he may give serious offence to his milk-suppliers, who are also, it may be, his employers. I will mention only to condemn a detestable practice in vogue in some places, where the sour whey is taken home from the factory in the milk-cans. The chances are that in some instances the cans may be imperfectly cleansed, and thus a new risk is added to the already too many that the manager has to contend with.

Being strongly convinced that more combined effort amongst those interested or engaged in the dairy industry would result in much good, I took the initiative during the currency of the New Zealand and South Seas Exhibition in calling a meeting of representatives of the South Island dairy factories. At this meeting, which was very fairly attended, a committee was appointed to carry out details in forming an association for the desired object. This committee have issued a circular (a copy of which is hereto appended) setting forth the name and objects of the association, together with the terms of membership, &c. I trust that no feeling of local jealousy will be allowed to interfere with the carrying-out of the project. As the scheme is of considerable importance to farmers, and is one from which they are likely to derive substantial benefits, it is to be hoped that the Government will deem it proper to afford them all possible assistance. Following is the circular referred to:—

“DEAR SIR,—

“Dunedin.

“On the invitation of the Government Dairy Expert, a meeting of representatives from most of the dairy factories in the South Island was held in Dunedin on the 23rd April, and, after a full discussion, it was unanimously resolved that it would be most desirable, and to the advantage

of the dairying industry, that an association should be formed for advancing and conserving the interests of dairy-farming in New Zealand, and a committee was appointed to construct rules and take the necessary steps towards the formation of such an association, which they have now the pleasure of submitting herewith, in the earnest hope that you will approve of the movement and give it your hearty support.

"It is proposed that, as the bulk of the dairy-produce of the South Island is shipped from Dunedin, the head-quarters of the association should be there, with a branch in Invercargill.

"The proposed rules of the association set forth the objects desired to be attained; and should these be effected even in a very small degree they should recompense the individual members greatly. Beyond the small cost of conducting the association, the only outlay will be towards paying a secretary and office-expenses, the committee being honorary.

"In the past great difficulty has been experienced in obtaining shipping facilities for the Home market, suitable space being very scarce and the charges exorbitant; but by combined action on the part of the shippers it is hoped that these difficulties will be overcome in a great measure, as, instead of each factory arranging for its own output, the combined product of the association will be contracted for, and it is well known that better terms can be secured for a thousand tons than for fifty. The secretary of the association will be a man who has a good knowledge of shipping, and one of his principal duties will be to see that the produce is carefully handled during transit to the ship, and then placed where agreed upon in the ship—both of which are very important factors in the transit of cheese and butter. A main feature of the association will be to advise its members of the best agents for the disposal of the produce, and, as far as practicable, to put it through one channel, thereby saving expenses.

"The association will also obtain the very latest information on all points connected with the industry—current and prospective prices in the colonial and Home markets, and any matters likely to benefit producers, all which will be conveyed to members periodically by circular, when occasion arises.

"The committee have every confidence in placing the scheme before you, knowing that you will see the advantages to be derived from combined action such as is proposed, and they request that you will intimate to Mr. J. R. Scott (the interim secretary), Dunedin, on or before the 30th of this month, your intention to join the association.

"Yours faithfully,

"THOMAS BRYDONE, Chairman of Committee.

"Rules of the New Zealand Dairy Association."

"1. The name of this association shall be 'The New Zealand Dairy Association.'

"2. The objects for which this association is established are—viz., to disseminate practical information with a view to improving the manufacture of dairy-produce so as to procure a uniformly good article; to obtain the best means of transit and disposal of dairy-produce; and, generally, to forward the interests of the dairy industry.

"3. The payment of £5 sterling by any dairy-produce manufacturer or company shall qualify for a membership of this association for one year. Subscriptions payable on the first day of August in each year.

"4. Members only shall be entitled to the privileges of this association.

"5. The annual meeting of the association shall be held on the first Wednesday of August in each year for the purpose of electing office-bearers for the ensuing year, and for transacting such other business as may be brought forward.

"6. All voting for election of office-bearers shall be done by ballot personally or by proxy.

"7. The association shall be managed by a committee of seven members, who shall elect a president from their number at their first meeting.

"8. At the three first annual meetings of the association two members of the managing committee shall retire by ballot, but after the third annual meeting members of committee shall retire in rotation, all such members being eligible for re-election.

"9. At meetings of committee three members shall form a quorum.

"10. No business shall be transacted unless a quorum of committee be present at ordinary meetings.

"11. The committee shall issue, through their secretary, tickets of membership, collect subscriptions, and have the general supervision of the association.

"12. At least seven days' notice shall be given by the secretary for all ordinary meetings of committee; but the secretary and the president, or, failing the president, such member or members as may be available, may hold emergency meetings for conducting special business, which shall be reported to next ordinary meeting of committee for confirmation.

"13. The committee shall be empowered to make by-laws for the guidance of the association from time to time as they may deem expedient."

I have given considerable attention to the conditions of shipment necessary on account of the varying temperature through which dairy-produce has to pass. If the cool chambers were properly constructed so as to allow of ventilation for the egress of bad odours and also for the free admission and circulation of pure dry air, with, at the same time, easy control of temperature, they would be of essential service; but, so far as I have seen, the cool chambers at present in use are defective in respect both to ventilation and control of temperature. It is a matter of the first importance to the dairy industry. And, if desired, I should be glad to offer a few suggestions, which, if applied, I think would produce a more uniform temperature. Another disadvantage under which the industry labours is the at present excessive rates charged for the cool chambers; but I think this difficulty will shortly be overcome by combined effort on the part of producers. I may also observe that, as

butter and cheese have to be forwarded long distances in railway-trucks, it would be of great advantage if these trucks were covered and specially ventilated, so as to protect the produce from the influence of the outside atmosphere. At present it occurs that after a long railway journey the produce arrives at the port of shipment in a more or less heated condition.

Regarding the classification of dairy-produce, it has been suggested that it might be branded according to quality at the port of shipment. There are, however, many insuperable difficulties, especially in connection with butter, in the way of doing so, for butter should never be opened after it is packed until it is opened for consumption. On several occasions, on behalf of the dairy industry, I have visited various ports of shipment when dairy-produce was being put on board, in order to learn what was being done, and whether classification at the port is advisable. The many objections in the way of classification at the port forced me to conclude that for the present it is impracticable. It is very desirable that products like cheese and butter, when of first-class quality, should, on being shipped to the Home-country, be marked with some authoritative brand, so as to give the product a standing and the sale a stimulus in that market. This would insure that the article be sold at its legitimate price. While this necessary branding is impracticable at the port, it is able to be accomplished at the various factories. And I would suggest that it might be one of the Dairy Instructor's duties, a certain standard of excellence being established, to affix an authoritative and distinctive brand. This would not only foster the factory system, but greatly facilitate the sale of the produce in the London market. As this branding can only be applied when an article of uniform excellence is produced in large quantities, so this excellence can be obtained in adequate quantities only by the establishment of the factory system. Hence it is desirable that the factory system should receive all possible encouragement. So long as we have the present individual system so extensively in use the want of uniformity will be apparent. It is this want of uniformity that has hitherto operated against New Zealand butter in the Home market. At present the surplus is largely exported by storekeepers and others, who, during the flush of the season here, pack it up and send it Home. Indeed, instances have come under my notice in which an inferior article, collected from all sources, has been branded as "the finest New Zealand creamery butter." This needs only to be mentioned for it to be apparent the injury done to the sale of New Zealand produce, and steps ought to be taken to make such a practice penal. By the employment of one or two persons instead of fifty or sixty, the factory effects a great saving in labour and expense: not only so, but by better skill and machinery used in manufacture a greater yield is derived from a given quantity of milk. I am of opinion that dairy factories, as they are established primarily in the interests of settlers, should be worked on the co-operative basis, all shareholders being milk-suppliers.

As the success of the dairy industry must to a very large extent depend on the skill of the men in charge of the factories, I would suggest to the consideration of the Government the desirableness of instituting some authoritative standard to guide proprietors of factories in the selection of makers. At present directors are often in a difficulty as to which man to choose, and an appointment is frequently made at hazard. The certificates of applicants testify that the applicant is of experience in the business; but too often the knowledge possessed is of an empirical kind. The whole season's make is thus placed in danger of being rendered unmarketable; while, if the district be a new dairying one, the industry may receive an injury from which it may take years to recover. For, if in a new district a man be appointed on untrustworthy recommendations, the settlers may come to the conclusion that the district, and not the maker, is to blame for the poor quality of the products of their factory. I have found in my intercourse with dairy-factory proprietors an urgent necessity expressed for some scheme being devised for their assistance in this matter. It might perhaps be made one of the functions of an agricultural college to investigate the nature of the certificates held by applicants to manage dairy factories. In time examinations might come to be held by the college, and certificates granted accordingly. The Government Dairy Instructor for the time being might be a useful auxiliary in this matter, by acting as inspector of the practical part of a candidate's examination.

In concluding this report, I may say that the dairy industry is not on such a satisfactory basis as might be expected, resulting chiefly from the want of knowledge of many of those engaged in the manufacture and from the want of co-operation in the interest of the factory on the part of the settlers and milk-suppliers. In this report I have in a general way treated of the present condition of the industry, so far as it has come under my notice. I have not gone into details as to the process of manufacture, it being my principal duty to enter fully into such at the different factories visited. I may also say that, as it is likewise part of my duty to criticize, in presence of the directors, the buildings, milk-supply, rennet, cleanliness, and methods pursued in the manufacture, it is hardly to be expected that on every occasion I should avoid giving offence to certain persons, though it is my constant desire to avoid doing so on all occasions. I am aware that I have been subjected to some criticism for making a free use in the course of my lectures of the writings of Mr. J. B. Harris, the instructor to the Dairymen's Association of Canada. As I was a pupil of Mr. Harris's, I think the criticisms are not deserving of much notice. Mr. Harris is the chief authority for the system of manufacture advocated by me, and it is largely due to him that the Canadian product takes such a high place in the London market. When I say that he was engaged by the Scottish Dairy Association to give instruction in practical dairying at a salary of £3 per day, it will be seen the high value placed on his instruction. As I have always fully acknowledged whatever use I have made of his writings, I do not think I need take any further notice of the matter.

I have, &c.,
JOHN SAWERS.

The Hon. the Minister of Lands, Wellington.

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