

extensively, and has been found to be practically exact. But, then, in Denmark there exists no such great variety in the milk as here, the latter due to the great variety of breeds of cows, the feed, treatment, and management. This is only a compressed cream-test, and like all cream-tests (although not applying to Fjord's method to anything like such an extent), where a great variety exists in the milk, it is not a thoroughly exact criterion of butter-value. It consists of glass tubes holding the milk, which are then placed in a specially-constructed apparatus, holding from 70 to 196 samples. This apparatus is made so as to screw on the cone of the drum of the 'H. C. Petersen and Co.'s Danish Cream Separator.' Independent machines are also made in which to revolve the apparatus containing the glasses holding the milk. In these machines, the apparatus containing the glasses holding the milk to be tested is set revolving at a great speed, and thus the milk in the test-glasses is submitted to centrifugal force, the cream being thrown in a compact mass to the top of the test-glass, where it is measured by means of a graduated scale supplied for the purpose. The percentage of cream being ascertained, by applying the graduated scale, the percentage of churnable butter in the milk is got from a 'Ready Reckoner' supplied with the machine. This, I believe, was the first test practically applied in factories to pay for milk according to its butter-producing value, and I think I am safe in saying it is more extensively used than any other test for that purpose at the present day. This test will shortly be used at the Tai-Tapu Co-operative Factory, Canterbury. The directors are awaiting arrival of a 'Ready Reckoner' published in English, the one they have at present being in Danish, and consequently of no value to them in appropriating milk-payments.

"I expect one of these testers to come to hand at an early date, having ordered one nearly three months ago. I intend demonstrating the practical utility of the test at various factories throughout the colony. Dr. Storch, of Copenhagen, Denmark, one of the world's best dairy chemists, says of Fjord's test: 'It is hard to conceive a simpler or better test for practical use in factories.'

"With the exception of the 'Beimling' and the 'Babcock test,' 'Fjord's Controller' is the best practical test in the market. It possesses one obvious advantage over the 'Beimling' or 'Babcock' in the reading of the test being easier, but it is not so accurate as either of the former. Special breeds of cows, or the influence of individuality, feed, treatment, or management of herds has no effect on the results given by these tests. The 'Beimling' test, although indorsed by many leading dairy chemists as being thoroughly correct, nevertheless seems to cause trouble if the chemicals used are not perfectly pure. But for this, the test is perhaps the most accurate and efficient known, but I cannot recommend it on this score.

"I would strongly advise the company to procure a 24-bottle Babcock tester. This is now the leading milk-tester in the American and Canadian factories, used for apportioning the dividends according to the relative value of the milk. Having worked and experimented with this test for nearly a year, and under very varied circumstances, I have every confidence in recommending its use in factories for apportioning milk-payments. I am firmly of opinion it will be hard to get a better, for simplicity, cheapness, quickness, and efficiency. I have gone so far as to have duplicate samples submitted to chemical analysis, and I must say the results throughout the experiment have been uniformly close, and proving beyond a doubt the Babcock test for practical purposes to be correct. Not only so, but the reliability of the system has been proved by actual results elsewhere.

"A very simple method can be devised for paying on the fat basis, at both cheese- and butter-factories, by the use of the 'Babcock tester.'

"Should you deem necessary, I will furnish you with more detailed information concerning this important matter of milk-payments at any time.

"When purchasing a Babcock Tester, get one run with cog gearing. With cog gearing there is no possibility of loss of motion. See also that the machine is fitted with 'swing pockets,' and thus increase the centrifugal force. The Babcock process is not patented, and so different machines are constructed by different manufacturers. One machine is now being made in the colony. It has 'cog gearing' and 'swing pockets,' and is of stronger and more durable construction than any of the American machines I have yet seen.

"Yours truly,

"Mr. J. Kelly, Chairman, Lepperton Dairy Company.

"JOHN SAWERS."

Mr. JOHN SAWERS to Mr. NEWTON KING, New Plymouth.

"DEAR SIR,—

"Department of Agriculture, Wellington, 3rd March, 1893.

"I have the honour to acknowledge the receipt of your letter, under date of 29th April, concerning the temperature of steamers' cool-chambers for the transit of butter.

"In reply, I may state that my opinion in a great measure exactly coincides with your own, and from what I can gather from correspondence received from many of our leading dairy-produce brokers in London and Glasgow, the same opinion seems to be rapidly gaining ground there—viz., that butter has been carried at too high a temperature in the cool-chambers. So strongly have I felt on this point, that I have deemed it advisable during the past exporting season to recommend consignors to ship their butter in freezing-chambers rather than run the risk of too high a temperature, and consequent deterioration. At the same time, I must say that provided the butter is of first-class quality (free from moisture and other superfluous foreign matter) such as much of our factory-butter is at the present time, actual freezing will do it no harm. The only objection to freezing in that case is that neither the brokers, retailers, or consumers like butter as hard as a stone when being examined, for cutting on the counter, or on the table. All that is wanted on the part of the shipping companies to insure safe transit, is to keep the butter-chamber as near freezing-point (freezing-point of butter) as possible, without being actually frozen. Or, in other words, as a means of making myself more explicit, from repeated experiments during 1891, and from strict observation and attention to the point since, I have arrived at the conclusion that the lower the temperature of the room in which butter is kept—if that be above the actual freezing-