

cream right to the top, and within a period of from eight to ten hours the whole of the cream has risen. That is the Cooley system. That is the system which received the first prize at the Paris Exhibition—a prize in value equal to £200 in English money.

558. Do I understand you to say there must be a constant flow of water?—Suppose this table to be a tank full of water, or a vat having a pipe at each end, one to admit the water and the other for an outlet, that is all that is required. Other means are used in some places to lower the temperature still further. In Canada they use ice. I know that is not possible in this country; but if our country farmers were to adopt the Cooley system they would find it greatly to their advantage. The point to be observed is the temperature. It is all a question of temperature. If the milk were allowed to stand for half an hour until there should be a fall of temperature to 65°, the thing would not work. It is the instantaneous dropping of the hot milk into the cold water that throws up the cream. From 45° to 50° should be, at least, the temperature of the water.

559. *The Chairman.*] Would the same action take place if the water were, say, 50° and the milk 75°?—No, sir; that is exactly why the whole thing is simply a matter of temperature.

560. Then there must be a difference of at least 35° of temperature between the milk and the water?—Yes, that is what is required.

561. *Mr. Hamlin.*] Suppose the water were drawn out of a well?—That would not do. The water must be running, even through the tank; in fact, this is the system used in Canada. Mr. Hulke, of Taranaki, one of the best dairy-farmers in the colony, has been carrying on this process for some years.

562. Would it not do to have a tank of three or four hundred gallons of water?—No, the water would not be cold enough.

563. *Mr. Dodson.*] In Canada the climate is cold. It is only where the water flows from the mountain-sides that you could get it cold enough in this colony. Do you know what is the source of Mr. Hulke's supply?—The mountain.

564. *The Chairman.*] How long do you say it takes the cream to rise by the Cooley process?—From eight to twelve hours. The important thing to observe is that, when the milk is submerged in this cold water, at this low temperature the milk does not thicken. That is true even in New Zealand in the middle of summer. When in shallow pans it thickens in a few hours, and sometimes almost at once. Once the milk thickens no more cream rises, and a considerable portion of the butter is lost. I would suggest to farmers in out-of-the-way places, where they cannot reach a factory, that they should adopt the Cooley system where they have not a cream-separator.

565. Is there any skimming to be done?—There is no skimming. There is a tap to the can by which the skim-milk is run off, but none of the cream escapes. The Cooley system is a patented one. The can must be imported, or permission be obtained to make it in the colony. When it was exhibited in the Paris Exhibition the man who patented it obtained the first prize, valued in English money at £200. Mr. Hulke can forward to you any information about it that you may require. He is the best authority that I know in the colony on the subject of dairying by this process.

566. *Mr. Hamlin.*] What is the cost of these cans?—That would depend on whether they were imported or made locally. They are not expensive. They could be made by an ordinary tinsmith.

567. Is the mouth of the tap covered with a gauze or strainer of any kind?—Yes, it is perforated; like a beer tap. None of the cream escapes. The cream rises to the top, but the milk goes to the bottom.

568. *The Chairman.*] What is the Schwartz system?—The Schwartz system is a modification of the Cooley system, in which the patent can is done away with.

569. Will you explain that system?—The cans may be about the same shape and form, but without the patent lid. In this system they are submerged to within about an inch of the top; the water is not allowed to rise further than an inch from the top of the can. In that system also the whole thing depends upon the difference of temperature of the milk and the water. It is a modified adaptation of the Cooley system.

570. From what you have said to us, are we to assume that the Cooley system is aided by the creation of a vacuum?—Yes.

571. *Mr. Dodson.*] Have you seen these cans? What is the principle on which they work? Is it a flange?—It is a flange; it allows the hot air from the milk to escape.

572. Do you pump it?—No; there is no vacuum made by pumping; the hot air from the milk prevents the water getting in.

573. *The Chairman.*] But, in your opinion, the Schwartz system is not so perfect as the Cooley system?—No; but the Schwartz system is still better than the shallow-pan system followed in this colony.

574. The same amount of cold water would be required?—Yes.

575. In the same way?—Yes.

576. Can you give the Committee any information as to the factory system of butter-making? Yes; I think the factory system will solve the question of the dairying industry in this colony. A butter-factory necessarily means cream-separators; cream-separators mean from 15 to 20 per cent. additional butter from the milk. I have here a number of testimonials to show the results that have already been obtained. It will be the simplest way to hand them in to the Chairman of the Committee.

577. What is the purport of these testimonials?—They are testimonials as to the effects of the cream-separators. One is from Mr. Reuben Withell, and is dated from "White House, Brookside, Canterbury." That gentleman has made experiments which show a clean gain of 32 per cent. of butter in favour of the separator. The reason why I think the factory system is the true system for the butter-making industry, apart from the increased percentage obtained by the cream-separator, is the fact that most of the home-dairying is done by women, and a sufficient amount of