

## REFRIGERATION AND CHEDDAR CHEESE.

### CURING, STORAGE, AND TRANSPORT.

Paper read by WALTER WRIGHT, Inspector of New Zealand Dairy Products, London, at the International Congress of Refrigeration, London, 1924.

I DESIRE it to be understood that the matter contained in this paper deals only with cheese of the Cheddar variety, and has been based upon methods adopted in the export trade of cheese from New Zealand. It will be readily understood that owing to the geographical position of New Zealand such development of trade could not have been made possible without the aid of mechanical refrigeration.

One of the most important factors in the production of Cheddar cheese of a good sound commercial quality is that of adequate control of temperature, not only as applied to the manufacturing and storage branch of the business, but also in the care of the raw material which the cheesemaker has to handle in the production of such cheese. Probably one of the weakest points in the cheesemaking industry to-day is the lack of this most essential feature in the handling of milk at the source of production—that is, the dairy farm. To enable farmers to deliver their milk to the cheese-factory in the best possible condition they must have at their command some effective system of cooling the milk, at all times having in view the desirability of reducing temperatures from blood-heat in the shortest possible time after the milk is drawn from the cow. With regard to this phase of the industry I feel that there is the need of some small but efficient type of refrigerating-machine, obtainable at a reasonably low cost to farmers, that could be run in conjunction with a direct-expansion cooler for the purpose of cooling the milk immediately it is drawn from the cow. I suggest that this is a matter worthy of the consideration of not only dairy-farmers but also of manufacturing engineers. Undoubtedly in some countries, where large quantities of milk are handled by individual farmers, there should be a market available for small machines of this type.

#### COLD CURING.

Although it is some twenty years since experiments were carried out at the Wisconsin Experimental Station by Babcock, Russell, Vivian, Barr, and others, the full application of the principles of cold curing of cheese is far from being a general dairy practice so far as Cheddar-cheese production to-day is concerned. This is somewhat surprising, because the initial cost of installation of mechanical refrigeration is not great, and such costs are rapidly obliterated by the saving in the loss of weight and the improved quality of the cheese so treated during the process of curing. As is well known, cheese loses considerable weight after being manufactured, but such loss is governed in extent largely by the temperature of the atmosphere to which the cheese has been submitted. It therefore follows that the lower the temperature consistent with safety and a normal ripening of cheese, the lower will be the loss caused through the evaporation of moisture.