

PASTEURISATION

Two things, in the making of butter in winter, demand consideration: Pasteurisation and the preparation of ferments. These two operations are, so to speak, the pivot on which success depends, and in the following chapters we shall inquire into their nature and how they are to be conducted.

In dairying, Pasteurisation may be defined as the application of a moderate degree of heat (140° to 155° F.) to milk, either whole or skimmed, and cream, with a view to the prevention or the arresting of the development of injurious germs that may have been pre-existent in them or may have been introduced at the time of milking, or afterwards, owing to the accidents or to the operations to which they have been subjected. Heated up from 220° to 230° F., the milk or cream would be *sterilised*, i. e., the very spores having been destroyed, they would be safe from any multiplication of these germs, unless affected by a subsequent inoculation. As sterilisation is not practised in ordinary butter and cheese factories, we shall not enlarge upon it here.

Milk, when being pasteurised, should not be heated above 155° F., lest it acquire a burnt or cooked taste. Skimmilk, never being pasteurised except for the preparation of ferments, or for the prevention of the spread of some contagious disease among the cattle, is to be heated up to 175° F., and kept at that temperature for 20 minutes. As to cream, it is only necessary to raise its temperature to 140° F. for 20 minutes, bacteriological experiments having proved that to be sufficient to effect our purpose.

It is *absolutely necessary* that when milk or cream are pasteurised, they should be thoroughly and immediately cooled after the operation. Whole milk may be cooled down as low as 32° F., if it is desired; skimmilk, to 70° F., or 60° if required for ferments; and for butter, cream may be cooled to 50° or even 40°.

During the heating of cream or milk, as well as during their cooling, they should be kept in motion to prevent them from sticking to the side of the vessel containing them.