

in the summer months. If the cream contains 27 per cent. or over of butter-fat, it will churn at lower temperatures than these; but if it contains only 18 to 20 per cent. it cannot be churned satisfactorily unless at higher temperatures.

The reasons for cream being difficult to churn in a creamery are:

1. The cream contains too much skim-milk and is churned at too low a temperature. Make richer cream.
2. Too much cream in the churn; it should be only one-third full.
3. The temperature is too low.
4. Adding too much cold water too soon after the butter begins to gather.

If the cream contains too much skim-milk or churned at too low a temperature, the butter forms into round, smooth granules, and considerable difficulty is sometimes experienced in gathering the butter properly. To overcome this difficulty, and when the same trouble results from adding too much cold water, draw off half the buttermilk, or a sufficient quantity to cause the butter to gather as desired in five minutes or less. Butter should always gather in less than ten minutes after it breaks.

When ready, strain the cream into the churn. Add butter coloring before starting, if the market demands it. Half an ounce of butter color per 1,000 lbs. of milk separated will be sufficient for the Canadian markets. Use one-eighth of an ounce or less for the British markets in the winter months. None should be used for either market in the summer months.

It should take 30 to 60 minutes to churn, according to the quantity of cream in the churn. The churn should run from 55 to 60 revolutions per minute.

If the cream thickens and concussion stops when churning (this will be known by sound of the churn) dilute it with some cold water, at about 55° temperature. Enough water should be added when the butter breaks, or when half gathered, to prevent the butter from gathering too soon or before the cream is properly churned.

The granules should be about the size of wheat grains, and not too small, or the butter will retain too much moisture.

If small particles of butter are seen on the first buttermilk drawn off the churning should be continued for a few turns.

#### *Washing the Butter.*

The volume of water used to wash the butter once should be equal to the amount of cream churned. A less amount may be used at each time when washing twice. The temperature of the water used should be at from 54° to 58° in the fall and winter months, and from 45° to 50° in the summer months. If the room is warm, and the water not cold enough, put some salt into the water and let the butter remain in it for 10 to 15 minutes to cool. If the butter is to be salted in the churn, it should be washed with water cold enough to prevent it from massing together too readily when the salt is being mixed in. Wash the butter twice when it is likely to be held in cold storage for some time. Wash once when it is known that the butter is to be consumed in less than two months. Use plenty of water; if the butter is forwarded weekly for immediate consumption it is not necessary to wash it. This method works well in the cold weather and where water is scarce or impure. When not intending to wash the butter