

pounds, it was difficult to maintain the milk at 185 to 195 degrees, without reducing the feed. It is evident that, if pasteurizing at 185 degrees is practised, a large boiler and steady steam pressure will be required.

During the year nearly 100,000 lbs. of milk were used in the experiments. For April and May milk was received four times a week. The average percentage of fat in the milk of the first four series ranged from 3.64 to 3.69. The temperature of the milk when received was 40 to 60 degrees in March and April. In May it was about 59 degrees, June 60 degrees, July and August 65 degrees. The average acidity in the first four series, when the milk was delivered, was .17 to .18 per cent. The average acidity of the cream at the time the culture for ripening was added, varied from .088 per cent for the lots heated to 160 degrees to .118 for the lots heated to 140 degrees. Those heated to 185 degrees had an average acidity of .114; and those lots of cream from milk heated to 195 degrees before separating had an average of .104 per cent. of acidity at the time the culture was added. At the time of churning, there was very little difference in the acidity of the different lots—being from .5 to .6 per cent.

The percentage of fat in the cream in the first four series varied from an average of 32.7 in the lots separated at 140 degrees to 28.6 in the lots separated at 195 degrees. There was practically no difference in the fat lost in the skim-milk and buttermilk, whether the milk was separated at 140, 160 185, or 195 degrees. The skim milk averaged one-tenth of one per cent. fat, and the buttermilk averaged about .15 per cent. fat. The temperature of the cream at the time the culture was added varied from 66 to 68 degrees. The average temperature for ripening the cream was about 65 degrees for all the lots. The average churning temperature was 49 degrees for all lots. The average time required to churn the cream was 41 minutes for the lots separated at 140 degrees, 39 minutes for the lots separated at 160 degrees, 38 minutes for the lots separated at 185 degrees, and 36 minutes for the lots separated at 195 degrees.

The percentage of moisture and salt in the butter were: Unpasteurized, 13.690 per cent. moisture and 2.15 per cent. salt. Pasteurized at 140 degrees, the moisture and salt were, respectively, 13.128 and 2.57; at 160 degrees, 13.224 and 2.85; at 185 degrees, 13.994 and 2.55; at 195 degrees, 13.561 and 2.62. All the butter was salted at the rate of one ounce of salt per pound of butter.

After working, the butter in the first four series was put into pound prints and wrapped in parchment butter paper. One print of each lot was numbered by the buttermaker, when it was placed in cold storage at an average temperature of 40 degrees. The prints were scored by numbers, so that the scorer did not know what kind of butter he was scoring. Nearly all of the butter was scored twice—once when made about two weeks, and again when one month to six weeks old.