fairly constant, the butter gathering at about 58° to 60° F. As soon as the cows were put in the stable, however, a remarkable change took place. Although the cream had been handled practically the same as before, it would not gather until warmed to 70° F., and then very slowly. At this temperature the most of the buttermilk was run off (the butter having gathered somewhat), and with only five or six gallons in a sixty-gallon churn the churning was continued for several minutes and the butter rolled up into little pellets about the size of a red clover seed, and would not gather further.

I am rather at a loss in attempting to explain the cause of this sudden change in the churning temperature. It is by no means the first time I have had such an experience, though previously the change was less pronounced. Feed will effect such changes, as has been proven by the Texas Experiment Station, where by feeding cotton-seed meal the churning temperature was raised to 75° F. or over. But whether feed is the explanation of the above or not I cannot tell. The explanation may be a bacteriological one, as the flavor of the cream was somewhat different from what it had been, though not unpleasant; but from my reading I have seen very little enlightenment offered in this direction. Some light seems to be thrown upon the difficulty by a churning of Nov. 14th. We had been churning all fall, with a mild acid; a test of about 35 to 36 c.c. one-tenth normal alkali, with Mann's acid test, or about 65 per cent. of lactic acid. For the churning referred to we ripened the cream to 42 c.c., or about 76 per cent. lactic acid. The cream was also thicker, testing close to 39, 30 per cent. fat. The effect of these changes was to gather the butter at 63° F. in about 33 minutes.

The practical question is how to overcome the difficulty. On this point I can only talk to the thinking and intelligent dairyman, who does his work methodically, uses a thermometer, and is guided by what it teaches. Being directed by previous churnings, the cream is in the churn, and it is not noticed until twenty or forty minutes that the butter is not coming as usual; perhaps it may be broken, but the very fine particles refuse to gather. As soon as this condition is noticed warm the cream immediately. We do not wish to spoil the butter, so it is not advisable to raise the temperature too high at first. I have generally found, however, that the cream has to go up 5° to 10° F., and sometimes more above what had been our usual churning temperature. One of two ways may be used in warming the cream. If the churn is already full enough, run off half the cream or more, and warm it up 5° or 10° F., and then put back; if the churning yet goes slow this may have to be repeated. If there is only a small quantity of cream in the churn, it may be warmed by adding water 5° to 10° F. warmer than the cream. This warming with water, which also dilutes, I have found to be best, and if the churn is already full enough draw off half the cream and make a second churning. The method outlined, if carefully followed, will overcome the difficulty, and no person need take much over an hour at the hardest churning.—*F. B. Linfield, in Pacific Coast Dairyman.*

A Reply to Mr. Gillett.

Editor FARMING:

There appears in the January number of your valuable magazine an article entitled "Holstein-Friesian Tests," containing a list of twenty-five cows that have made tests during the past two years. The conclusions drawn by Mr. Gillett, and the comparisons made between the cows mentioned in the list and the Jerseys that so admirably upheld the dairy interests at the World's Fair, are very unfair and misleading, to say the least.

No doubt your readers are aware of the circumstances surrounding that test; how that after representatives of the various dairy breed associations met and made all necessary arrangements for that public test, the Holstein-Friesian men failed to come forward and "face the music"; and I have never yet been able to find out that any satisfactory reason has been given for thus withdrawing at the eleventh hour. Ever since that ever-memorable "battle of the breeds," some of our Holstein friends have been endeavoring to uphold the reputation of their cows by comparing their private tests with the public tests made at Chicago.

To make a direct and judicious comparison the circumstances should, as nearly as possible, be similar.

You know that the World's Fair tests were made in an almost tropical climate, away from home, among strange cows, attended by new "hands," confined continually in barns infested by flies, and annoyed by curious sightseers, not for seven days only, but for ninety.

On the other hand, Mr. Gillett's cows were prepared especially for these tests in their own homes, and surrounded by all the luxuries their enthusiastic owners could provide.

Again, Mr. Gillett's cows did not make actual butter; only the amount in the milk was estimated according to the Babcock test.

Hoard's Dairyman, commenting on Mr. Gil-