The Dairy.

Gassey Curds.

BY PROF. JAS. W. ROBERTSON.

I write a brief account of a visit made to one of our leading cheese factories in the west. The first milk-waggon arrived soon after 6 a.m. Our first task was to test the quality of the milk delivered. Out of 71 lots we found only one of rather doubtful quality ; previously the milk of the same patrons had been examined and about one-half of the lots were held to be wanting in fat. Thanks to the beneficial influence and work of dairy inspectors, there is a general improvement in the quality and condition of the milk supplied to cheese factories. After the milk was all weighed, attention was turned to that in the vats, which meanwhile had been heated to 86° Fahr. By reason of the cold of the previous night, it was found to be in a condition too sweet for the immediate addition of rennet ; one vat was heated to 90°, the others to 86°, and left to mature for from one and a-half to three hours. The degree of ripeness, or maturity of milk, can best be ascertained by its odor. If a large dipperful be lifted from the vat and poured back into the bulk of the milk from the height of a foot or two, the odor given off by that method of disturbance, can easily be discerned. Gassey curds and porous cheese frequently result from the setting of immature milk. There is much advantage in properly ripening the milk, before the addition of rennet. Warmth and frequent stirring, or any other suitable method of aeration are the means best suited to bring about the required state. The use of sour whey is objectionable since it frequently introduces some sort of bad flavor. In the cold weather of fall, a quantity of old milk, kept in a pure atmosphere and not at all thickened will serve the purpose ; while during the summer months, heating in a vat and airing by stirring will suffice. Cheese makers have not paid enough attention to that matter. In point of the time required, it is better to wait for an hour or two on the ripening of the milk than twice as long at a later stage on the ripening of the curd. But to come back to my narrative. Coloring for each vat at the rate of 1¼ oz. per 1,000 lbs. of milk was first diluted in a pailful of water and then thoroughly mixed with the milk. Rennet extract at the rate of four ounces per 1,000 lbs. of milk was used in a similar way. There has been a good deal of timidity on the part of cheese-makers in the matter of using rennet. In hot weather and with tainted milk, or milk from which gassey curds are likely to come, a very liberal use of rennet leaves less risk of inferior quality. Tainted milk is always difficult of coagu'ation ; and cheese made from milk in which all the caseine has not been thickened will quickly go off flavor. Firm coagulation will cause the retention of more moisture in the curd. Moisture retained by such means will favor the mellowing of the curd and prevent the tendency to a "corky, pinholey," condition. With milk sufficiently ripened, as already recommended, enough rennet should be used to effect coagulation firm enough for cutting in at least forty minutes at a temperature of 86°. With tainted or "gassey" milk thirty minutes is a better limit. A larger yield and superior quality will be obtained by allowing the curd to become quite firm before commencing to cut it. For cutting, the horizontal knife should be used first and lengthwise. The perpendicular knife may then be used crosswise and afterwards lengthwise. With knives of ordinarily fine gauge between the blades, three cuttings are sufficient. In the case of a quick running curd, four cutting will promote the drying of the curd, while the heating up proceeds. The use of the horizontal knife first, leaves the curd in a state less likely to cause it to run into lumps during the heating. The cutting was carried on continuously until completed, and the stirring began immediately thereafter The hands were used for two rounds to free the curd from the sides and bottom of the vats. Then, to save the back, a common hay rake with its handle cut off short was used to continue the stirring ; when handled with care, the curd can be kept in motion and free from matting by the use of the rake, with less damage and waste than by using the hand. After ten minutes of steady slow stirring, steam was turned on ; the stirring was continued for fifteen minutes after the limit of heating (98°) was reached. About this time an odor threatening a "gassey" curd was detected from one of the vats. I will describe the treatment of it only. The milk had been set rather unripe, and a consequent delay of two hours or more was the penalty; the temperature was kept at 98°, and rather more than half of the whey was removed. The hot iron test was applied to the curd at intervals. As soon as five hairs over one-eighth of an inch long were discerned, the temperature was increased two degrees and the rest of the whey drawn off ; the curd was then dipped into a sink with racks and strainer cloth. It was stirred by hand until fairly free from whey. Rough stirring or bruising of the curd was not indulged in. Even in cases where the curd is unusually soft it had better be turned by gentle rolling of the pieces on the sink than by violent stirring or rubbing. When curds are inclined to be "gassey," it is not desirable to stir them so dry before the matting and packing as in other cases. The moisture favors the development of acid in opposition to the generation of gas, and any excess of it can easily be got rid of after the acid has mastered the cause of the gas formation. The curd was then covered with cloths and left at rest to mat into one mass. When it was firm enough to handle without separating again into particles, it was turned. The turnings were repeated every ten or twenty minutes, and every time the whole mass was packed closer and piled higher until the layers were five or six deep. There was no convenience attached to the sink for heating the curd. Its surface began to cool and present a rather corky and springy body. To prevent further cooling and to correct the other fault, a few pailfuls of water, heated to 125°, were poured over the covering cloths and allowed to percolate through them on to the curd. In every case where a curd becomes gassey it should be kept warm (above 94°) and moist. The use of hot water, poured or sprinkled on it, will be beneficial. A temperature above 94° favors the development of acid much more than the generation of gas, and in cheese-making these two are antagonistic. A temperature below 90° favors the generation of gas, more than souring, and so hinders the "coming on" of acid. With two and a-half hours of such treatment after the dipping the curd was found to be mellow, ripe, or sour enough for cutting That condition is judged (1) by the velvety, slippery feeling of the curd ; (2) by the change of the flakey texture into a stringy and fibrous one; (3) by an odor like that of freshly churned butter from slightly loppered cream ; (4) by the liberation of the butter-fat when a handful is tightly squeezed. After the use of the curd cutter or grinder, hand stirring to cool below 90° and to areate the curd will prepare it for the addition of salt. In the case of a very bad "gassey" curd it is beneficial to cut or grind it within an hour after dipping. It should then be areated by stirring for five or ten minutes. Hot water may be applied freely, warming the curd to 98° or 100°. It may then be allowed to mat again, and its management and treatment be proceeded with as in other cases. Salt was added at the rate of 2½ lbs. of Canadian salt per 1,000 lbs. of milk. When the curd is sloppy or wet, rather more salt should be used to make up for the waste that goes off with the whey. The curd was put to press within fifteen minutes after the salt was stirred in. A delay at that stage often injures the flavor and prevents the securing of a uniformly solid body. Too much care cannot be exercised in the matter of finishing the cheese with a symmetrical appearance. Edges or shoulders from careless pressing, bandaging or turning are a discredit to any maker's workmanship. The press cloths should be left on the ends of the cheese until within two or three days of the boxing. On the morning of our visit cheese were being shipped, and right tastefully and neatly were the boxes gotten up. It should be always so at all factories.

Depends on the Man.

It is interesting to ask say fifty dairy farmers the following question :

"Have you made any money in dairying during the past season of high priced feed ?" A majority, say three-fourths, will declare in the negative. The balance will answer in the affirmative. Of the latter it will be found, on close inquiry that some have made double the money that the rest have, and the reason will be invariably found to be due to their intelligence.

(1) They were intelligent enough years ago to put themselves in possession of a dairy cow, by buying a thorough-bred bull of some one of the dairy breeds, and crossing him upon their native cows they have built up a herd that *with the same food* will produce fifty to seventy-five per cent. more butter than did the old herd.

(2) They have been intelligent enough to make a study of what constitute real dairy conditions. They have learned that cold stables are very costly in extra feed ; cold water the same way. They have learned that they must surround a herd of mothers with true maternal conditions, if they expect from them a profitable maternity.

(3) They being intelligent enough to see that it is the liberal, and not the stingy feeder, that makes money.

And so starting with the proper foundation—the true dairy cow—they have gone along in obedience to the dictates of intelligence at every step, and they are the ones that report that they have made money, even with high prices of feed. One question seems pertinent just here. How did they become intelligent ? The answer is a very simple one. They became intelligent just as a lawyer, doctor, preacher, banker or mechanic does. They expended, at least, an ounce of brains to every ten pounds of hard work. They were not conceited nor ignorant enough to suppose that the garnered experience of others such as they could find in papers was of no benefit to them. So they read and studied, and made money. The others have the comfort at least of knowing that somebody made money the past year.—[Hoard's Dairyman.