SWEET-CREAM BUTTER.

PART I.--A CRITICAL STUDY OF THE SWEET-CREAM BUTTERMAKING PROCESS.

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The claims for this process are, briefly, the avoidance of all foreign and bad flavors that might arise naturally in using cream from various sources; the production of an excellent butter, constant from day to day as regards flavour and aroma; a marked improvement in the keeping qualities of the butter; a considerable saving in the time of buttermaking; and that there is no greater loss of butter fat than by the ordinary method.

Manufacture of butter by the 'sweet-cream' method, may be described shortly as follows: The cream on being obtained from the separator is at once pasteurized (*) and then cooled. A certain quantity of ferment made with a pure culture is then added and the churning proceeded with. It will be seen that this process differs chiefly from that ordinarily in use in that spontaneous fermentation or ripening of the cream is not allowed, and that the butter can be made immediately after the separation of the cream, provided the necessary apparatus is available for the continuous working of the process.

The pasteurization of the cream arrests the development of all germs or microbes that may have found their way into the milk or cream, and which might impart a bad flavour to the butter and impair its keeping qualities. The subsequent sudden cooling of the cream with agitation effects the aggregation of the fat globules—thus facilitating the churning process—and gets rid of any foul odours that may be present, and which would taint the butter. (*) Finally, the introduction of the ferment made with a pure culture tends to ensure from day to day a butter of excellent and uniform quality, constant as regards flavour and aroma, and one which has a much longer 'keeping' period than butter ordinarily made.

Pasteurization.—This consists in raising the freshly separated cream to a temperature between 160° and 175° F. and maintaining it at that temperature for 20 minutes. If higher temperatures are employed there is danger of the cream taking a 'cooked' taste. The temperature and period of pasteurization here given are quite sufficient to effect the purpose in view—a cream free from active germ life.

Cooling.—This must follow the pasteurization immediately and is effected by placing the vessel containing the cream in cold or iced water, stirring the cream constantly until it has reached a temperature of 40° F. It is now ready for the addition of the ferment and churning.

Preparation of the ferment.—For this purpose a 'pure culture,' as made and generally guaranteed by a reputable firm, is to be preferred to a culture prepared by the dairyman, for the reason that the latter is not able to exercise the same skill and care as the expert, nor has he at his command the bacteriological appliances so essential to the production of a culture containing only the desired bacteria.

The first step consists in the pasteurization of a quantity of freshly separated skim-milk. This is effected by 'thoroughly heating the milk to a temperature between 180° F. and 200° F. and keeping it at that temperature for at least one hour, preferably two hours; it is then cooled as rapidly as possible to 75° F. The pure culture

* In some dairies, where the the milk is obtined under the best sanitary conditions, the pasteurization is omitted.

* When a "cooler" is used no subsequent agitation is necessary and the process is practically continuous.