

162° to 170° F., stirring constantly to prevent burning, it is then put quickly in iced water.

In large creameries, the heating is best and more cheaply done by the pasteurising apparatus of Dr. Bjord, which is filled with cream before the steam is introduced.

Cooling is best managed by letting the hot cream from the pasteuriser run directly over the Schmidt's refrigerator, in which the cold water is pumped from a reservoir and, if necessary, cooled with ice before using.

The froth or foam of the cream should be pasteurised and cooled by itself, and then mixed with the rest of the cream.

In many factories, where both skim-milk and cream used to be pasteurised immediately after operation, Dr. Lund tried the effect of pasteurising the whole milk before separation, and of cooling the skim-milk and the cream immediately after separation. This plan, replacing the two successive pasteurisations, was found to be excellent: the skimming was as well done, and the quality of the butter compared advantageously with the quality of the butter from pasteurised cream. There was less butter, however, and in this case as well as in the case cited above, there was more fat in the buttermilk and less water in the butter.

As average results of the analysis made in different creameries where the experiments took place, Dr. Lund gives the following figures.—

	Percent- age of fat in the butter milk.	Percent- age of water in the butter.
Cream unwarmed....	0.37	14.37
Cream pasteurised....	0.45	13.77
Whole milk pasteurised.....	0.63	12.85

It is to be feared that this loss of butter will, in future, prevent this method from becoming general, although it is worthy of attention from the superior quality of the butter it gives. It is also probable that the great consumption of water and ice demanded by pasteurisation will prevent, in many places, the process being carried on throughout the year.

At starting, it is impossible to decide how low the cooling must be always carried, neither can the proper temperature for pasteurising be determined. All this seems to depend upon local peculiarities.

In small creameries, where there is not a large supply of water and ice, very satisfactory results have been obtained by working the cream down to 41° to 46° F. and putting it into the cream-ask into which the ferment has previously been introduced. In other establishments, it has been necessary to cool the cream much lower, and afterwards to raise it to the proper point of ripening. Dr. Lund says it ought to be cooled down to 41° to 46° F., or rather as low as possible; moreover, he says it is very important that the cooling should be done as quickly as possible, as this has a double result: first, of removing the flavor of boiled cream pasteurised at 167° to 176°; secondly, of ensuring the increase of the keeping quality of the butter from, probably, the onfeebing of the microorganisms and the prevention of the development of the spores that were not destroyed by the heating. It may be said that in creameries where the quality of the butter was more or less faulty, when pasteurisation had been introduced, a very great improvement was speedily detected, when the pasteurisation and

the cooling were carefully done, and when a good ferment was used, especially if this ferment was of butter-milk from a creamery in which a superior butter was being made.

Pastourisation, in some places, may have given results hardly satisfactory, but this may have been the effect of the want of skill of the maker, or of various other reasons.

(To be continued.)

Swine.

SWEET AND SOUR MILK FOR PIGS.

Prof. Henry, of Wisconsin, says in the Breeders Gazette:—We have conducted a good many experiments here at the station with milk singly and in combination with other food articles for pigs, and have always found skim milk a most valuable article, especially for young pigs. Unfortunately there is most always an overplus or a lack of this product. Frequently just when there are nice litters of pigs, all with huge appetites, the milk supply is most limited, and then the opposite condition occurs. I have read much pro and con about sweet skim milk and sour skim milk for pigs. We have done no experimenting directly on this point, important as it is. After listening to both sides of the controversy I have rather sided with those favoring sour milk. (1) By sour of course I do not mean rank sour, but that first acid which comes from the turning. In the first place very little of the food value is lost in such milk compared to what some suppose. Only a little of the sour sugar has turned to lactic acid, the rest remaining yet as sugar. We all know how healthful butter-milk is in summer time, and sour skim milk is practically the same substance. So long as sour milk makes such splendid pigs I should not worry to keep it sweet. (2)

In these experiments bones from milk fed pigs were the strongest we made. To the breeder of pigs for sale let me urge dairying as an adjunct. Skim milk from every good dairy cow should be worth \$20 a year to the breeder of fine pigs, and this added to what the butter brings will make the cow generally quite profitable. It is not at all strange that milk should be so effective when we reflect on its character. It is nature's food for a young animal, the growing calf, and when we have extracted the fat we have still left all of the mineral matter for the bones, as well as the protein—that which goes to make up most of the hair, hide, horns, &c.

- (1) The great Arthur Young soured food on purpose for pigs, having ten tanks on purpose.—Ed.
- (2) Neither should we.—Ed.

NOTES AND NOTICES.

GRIMM'S EVAPORATORS.—At the recent exhibitions all over the country, great interest was manifested in the Evaporators manufactured by the G. H. Grimm Manufacturing Co., of Montreal. These Evaporators are now so well-known and appreciated that the demand is greater than ever and persons thinking of purchasing an Evaporator should write for full information and place their order early. Address G. H. Grimm, Mfg. Co., Montreal.

THE FAMOUS ONTARIO BUSINESS COLLEGE.

We would draw the attention of our readers to the advertisement of the famous Ontario Business College of Belleville, Ont., now in its 27th year. This institution is the most widely attended business college in America and has the highest reputation for thorough teaching and general efficiency. There are constantly in attendance a large number of students from the province of Quebec. We would advise young men and parents desiring to give their sons a start in life, to send for the catalogue of Ontario Business College to Messrs. Robinson & Johnson, the principals, Belleville, Ont.

We take pleasure in calling the attention of our readers to the advertisement in another column of THE BAIN BROS. MANUFACTURING Co., Ltd., of Brantford. This firm is one of the most prominent and successful concerns in Canada engaged in the manufacture of farm and freight wagons and sleighs. Their goods are well and favorably known throughout the Dominion, from the Atlantic to the Pacific, and their largely increased output each succeeding year is one of the evidences that their goods are popular with the Canadian farmer. They are built of the best grade of material, neatly finished, and give the best satisfaction to those who use them. At the latest improved machinery specially adapted to wagon building is to be found in their extensive factory. Note but the most skilled workmen are employed. As a result, the "Bain" goods have made their way and won universal recognition as being the best of their kind to be found anywhere.

It might also be added that this concern has recently acquired the business of the Bain Wagon Co., Ltd., of Woodstock, and with this valuable addition to their own plant, they are now better equipped than ever before to turn out first-class goods in the shortest possible time. Their goods were on exhibit at all the principal fairs and they presented some entirely new features in the art of wagon building, in the Bain-Haley Patent low down wagon, which attracted so much attention at the fairs last year. Farmers and others will do well to see what is called *The Great Success of the Century in Wagon Building: THE BAIN WAGON.* The Massey-Harris Co., are agents for the Province of Quebec.

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