precaution was taken to get as good a separation of the cream as possible. The shallow pans were set in a cool cellar having a cement floor and the milk skimmed carefully at the end of thirty-six hours. Plenty of ice was used at all times to cool the milk in the deep cans below 45° F., and it was let stand twenty four hours before skimming. The portion of milk to be run through the separator was separated while the animal heat was in the milk.

The following table will show the loss of butter-fat in the skim-milk by each method of separating the cream :

No of tests.	Lbs. of milk skimmed.	Method of skimming.	Average of butter-fat lost in skim-milk.
150	7,600	Shallow pans.	.38 p. c.
150	7,600	Deep setting.	.31 p. c.
150	7,600	Separator.	.10 p. c.

Investigations were also made to determine the loss of butter-fat in skim-milk at thirty-six farm dairies. Ninety-six samples were tested, and we found an average loss of .90 per cent. of butter-fat in the skim-milk, which was equal to one-quarter of the total fat in the milk before being skimmed. I have tested a great many samples of skim-milk for farmers, at different times, that were not included in these experiments, and found the loss averaging about the same. If this is a true indication of the loss of butter-fat in skim-milk at farm dairies, then throughout the country the cream or butter-fat in every one-fourth of the milk is wasted, because one-quarter of the butter fat in the milk of all the cows is lost in the skim-milk.

Average normal milk contains about 3.6 per cent. of butter-fat, and 100 lbs. of such milk will make 4 lbs. of butter. If the butter is valued at 15 cents per lb., the butter-fat would be worth 16.66 cents per lb. If we value the butter-fat lost in the skim-milk according to its value for making butter sold at 15 cents per lb., the loss of butter-fat from the separator method would be 1.66 cents ; deep-setting, 5.14 cents ; shallow pans, 6.3 cents ; and from the farm dairies 14.9 cents per 100 lbs. of skim-milk.

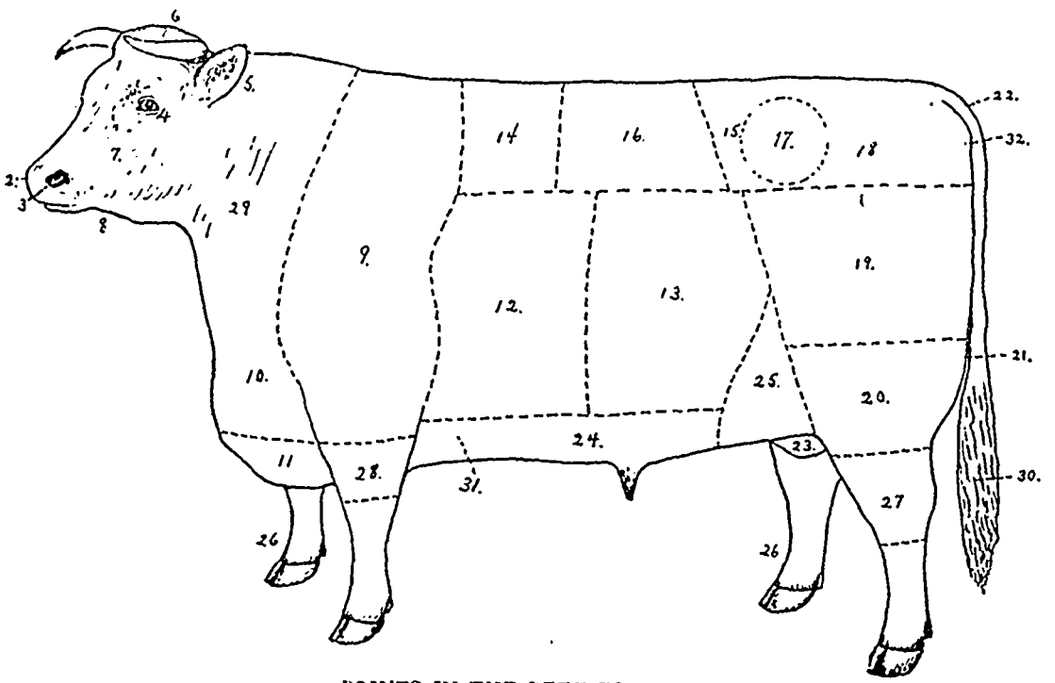
The butter-fat lost in the skim-milk has a feeding value, but it is doubtful if it is worth more than good linseed or oatmeal that may be bought for 2 or 3 cts. per lb. It is certainly more economical to recover or separate all of the cream or butter-fat from the milk to make butter, and use good meal as a substitute to feed the young stock.

The following table will show how the leading separators will recover the butter-fat :

No. 1	19 tests	.055 %	butter-fat left in the skim-milk.
" 2	40 "	.072	" "
" 3	31 "	.025	" "
" 4	16 "	.030	" "
" 5	14 "	.068	" "
" 6	19 "	.05	" "
" 7	17 "	.056	" "
" 8	15 "	.057	" "

This shows that the average leading cream separators, properly handled, will skim very close. A separator that will not skim down to less than one-tenth of one per cent. is not considered by separator men nowadays to be a good skimmer.

Another experiment was conducted to test the merits of the Hydro-Lactic Cream Separator for raising the cream. This separator, as it is called, is simply a small well-constructed vat, into which the milk is poured, and an equal quantity of well water is mixed and allowed to set three or four hours to raise the cream. We made thirteen trials and allowed the diluted milk to set from six to twelve hours before skimming it. The average loss of butter-fat was .6 per cent. Another lot of the same milk was diluted in the same way and set in ordinary cooling cans, but not set in water, the loss being .62 per cent of the butter-fat ; and in a third lot, not diluted with water, but set in water and ice, we found the loss to be .68 of one per cent. of butter-fat.



POINTS IN THE BEEF FORM.

1. Forehead and face. 2 Muzzle. 3. Nostrils 4. Eyes. 5 Ears. 6 Poll. 7. Jaws. 8 Throat. 9. Shoulders. 10. Chest. 11. Brisket. 12. Fore ribs. 13. Back ribs. 14 Crops. 15 Loins. 16. Back. 17. Hooks. 18. Rumps. 19. Hind quarters. 20. Thighs. 21. Twist. 22. Baseof Tail. 23. Cod Purse. 24. Underline. 25. Flanks. 26. Legs and Bone. 27. Hocks or gambrels. 28. Forearms. 29. Neck vein. 30. Bush of tail. 31. Heart Girth. 32. Pin bones.

This experiment shows that there is no advantage to be gained by using this separator, or vat, but that it is a disadvantage because the skim-milk is inferior for feeding purposes, especially for young animals. The young animal that should have a gallon of pure milk at one drink would have to drink two gallons of diluted milk to receive the necessary nourishment. Then there are bacteria in some waters which produce very bad flavors, and the flavor of the cream and the butter would be injured just in proportion as the water added to the milk was pure.

These experiments will show your readers that there is a great loss of butter-fat when any kind of method is adopted to raise the cream by gravitation, and that by the use of the centrifugal cream separator there is practically no loss.

Persons using the shallow pans must provide a cool, clean place in which to set the milk. Many have not such a place. With the deep setting method, an abundance of ice must be used to cool the milk below 45° F., other-