The Dairy.

Butter or Cheese—Which?

BY L. B. ARNOLD.

A Canadian correspondent asks, "Which would be most profitable to the proprietor, to establish a creamery or a cheese factory, both to be conducted on the principle of paying the market price for cheese and butter, say, for every 10 lbs. of milk the price of one pound of cheese, less 2½ cts per pound for manufacturing, or for every 25 lbs. of milk, the price of 1 lb. of butter, less 6½ cts. per pound for manufacturing, the milk to be hauled by and at the expense of the factory, the whey to be the property of the factory?"

As questions similar to the above are often raised by dairymen and factorymen who are contemplating the erection of new factories, or changing from cheese to butter, or the reverse, I send the answer to the ADVOCATE, thinking it might interest a good many others as well as the enquirer.

Whether butter making or cheese making will pay best depends something upon circumstances. Experience has settled some points, and we may use these in comparing results. The cost of manufacturing and fitting for market will be the same for a given quantity of milk, whether made into butter or cheese. The making, therefore, need not be taken into account so far as the above question is concerned. The same may be said in respect to the cost of factory and apparatus. They will cost, in either case, about the same. The hauling of the milk will cost more in the case of butter because it must be drawn twice a day, if the cream is raised at the factory. It will cost, at the very lowest estimate, 50 cts. per 1000 lbs. to haul milk for cheese, delivering once a day. To haul the same for butter, delivering twice a day, will cost one half more, say 75 cts. per 1000 lbs. It will cost more if the patrons have small herds and are much scattered.

The refuse of a butter factory is worth more than that of a cheese factory. Butter separated by cold setting, so that the skim milk will be sweet when used, is worth more than when fed sour. If used with some cheap solid food such as grass, clover, shorts, or roots, the sweet skim milk and buttermilk from 100 pounds of new milk will, if fed to thrifty pigs, make 5 to 6 lbs. of live weight. Fed to older animals it will make less. The whey from 100 lbs. of new milk fed in the same way will only produce about two pounds of live weight, or 2-5 what would be produced by skim milk. Whey, as usually fed without other food accompanying, will produce still less. The loss from feeding milk alone is less than the loss from whey fed alone. If the sweet skim milk and butter-milk are made into skim cheese by the most approved methods, a hundred pounds of new milk will make four pounds of butter and seven pounds of skim cheese, which sells from two to three cents below the price of full milk cheese. Great improvements have been made recently in skim cheese making. Formerly we could only calculate on getting the same number of pounds of product from a given quantity of milk, whether made into whole milk cheese, or into skim cheese and butter; but lately the total weight of product is increased, more and as well as better skim cheese being produced.

On a basis of allowing 25 lbs. of milk for one of butter, and 10 of milk for one of cheese, we may trace the results by taking a given quantity of milk and supposing it to be worked up in the different ways. Take, for example, 25,000 lbs. of milk; this will produce 1,000 lbs of butter and 1,250 lbs. increase in weight of pigs, or if made into both butter and cheese the productions would be 1,000 lbs. butter x 1,750 lbs. skim cheese x 500 lbs. increase in weight of pigs from the whey. If made into whole milk cheese the products will be 2,500 lbs. cheese x 500 lbs. of increase in weight of pigs. If prices were uniform, or varied alike on the different products, we could answer the question definitely which is the most profitable. But sometimes butter is up and cheese down, and the reverse. The price of pork also varies some, and the price of skim chesee fluctuates most of all.

The present value of the different products are about as follows, viz, butter, 25 cts., cheese 10 cts., skim cheese 6 or 7 cts.; pigs, live weight, 5 cts. a pound. With these products and prices the comparative results will be as follows:—

When made into whole milk cheese:

	CHEESE.	LIVE PIGS.	
25,000 lbs. of milk =	2,500 lbs. x	10 x 500 lbs. x 5 =	$275,00

Made into butter, and skim milk fed to pigs:

MILK.	BUTTER.	LIVE PIGS	
25,000 lbs. =	1,000 lbs. x	25 x 1,250 lbs. x 5 = ...	312 50
Deduct extra for hauling milk twice a day			6 25
Net			$306.25
Difference in favor of butter			31.25

Made into butter and skim cheese:

	BUTTER.	SKIM CHEESE.	LIVE PIGS.	
25,000 =	1,000 lbs. x	25 x 1,750 lbs. x	6 x 500 lbs x 5	380.00
Deduct extra for hauling milk twice a day				6 25
Net				$373.75
Butter & S. cheese over butter and feeding refuse.				67.50
Butter & S. cheese over whole milk cheese				98.75

The recent improvements in apparatus for raising cream now separates it so perfectly as well as quickly that factorymen are now able to make a pound of butter from less than 25 lbs. of milk of average quality.

Reports of factories from different localities concur in showing that butter is now paying better than cheese, but how long this state of things may remain nobody can tell. It will not be safe for everybody to rush from cheese to butter, or to butter and skim cheese because they are now paying best. Such a change would soon reverse the relation of prices. Taking one year with another, there is little or no difference in the net profits between making butter and cheese. Whenever a difference becomes apparent, dairymen soon gravitate toward the better paying side in such numbers as to quickly restore an equilibrium in profits.

A Travelling Dairy School.

The Royal Agricultural Society of Ireland has devised a novel plan of teaching the art of dairying, quite in advance of the dairy station—it has organized a travelling dairy school, which brings knowledge to the dairymen, instead of his going in search of it. And then it is highly probable that the dairyman will consider that he is conferring a favor upon somebody by receiving it; such is the indifference of the great agricultural class to improvement in most countries. But this travelling exhibition of the dairy art is worthy of a Yankee origin, so completely does it take in the whole sitaation and combat all the difficulties of the case. This travelling dairy school has a complete apparatus, with all the most modern improvements, and these dairy appliances are made to suit the requirements of 8 to 10 cows. Starting in a dairy district, it accepts an invitation from any proprietor for an exhibition on the farm for a few days, aud notice is given to all the surrounding dairymen that they may avail themselves of this practical instruction. A small admission fee of 6, 11, and 22 cents is charged on different days, to suit the means of the learners, which is devoted to paying the expenses of those who operate it. It is accompanied by an expert butter maker and operator of the apparatus. This plan has many good points. 1st. The dairyman where it is operated can compare the result with his own previous method of butter making, as the milk of the herd to which he has been accustomed is used. This, then, will enable him to compare the quantity and quality of butter under the two systems. 2dly. This exhibition on his own farm, will enable him to fully understand all the minutiæ of operating the new system, and give a valuable practical insight, which no amount of reading would accomplish. 3dly. It affords the same opportunity to a large number of dairy operatives employed upon the neighboring farms. Many of these could not avail themselves of these instructions in print, and would profit but little from a verbal lecture by an expert, but yet may be quite apt at understanding a practical illustration, and would be quite able to repeat the process they see practically exhibited.

This working dairy was on exhibition at the recent Birmingham Dairy Show, and was watched by large numbers with much interest. This dairy school has been in operation all the season, and reports say with much success.

Tuberculosis

TRANSMISSIBLE THROUGH THE MEAT AND MILK OF THE ANIMALS AFFECTED WITH IT, WHEN CONSUMED BY YOUNG CHILDREN AND ANIMALS.

In 1865, Villemin proved by repeated experiments that it was possible to produce consumption in previously healthy animals. He found that finely divided tuberculous matter when introduced upon the skin of rabbits and Guinea pigs produced tubercles, in three weeks, in their lungs, thus proving, from these experiments, that tuberculosis should be classed as a specific infective disease, capable of being conveyed by inoculation, like small-pox. Numerous pathologists have verified Villemin's experiments. It was also found by Dr. Wilson Fox and Dr. Saunderson that pneumonic matter, pus, putrid matter, etc., would produce disease in healty animals, and transmit it, through their meat and milk, to dogs, cats, hogs, and through milk, to young children and animals to whom it had been fed.

Cows living under bad hygienic conditions, predispose to tuberculosis in themselves, and render their milk poisonous to children. The milk from diseased cows poisons thousands of city children, who are supposed to die from cholera infantum, when, in fact, they die from tubercles of the intestines resulting in wasting diarrhœa. Consump ion is infinitely more common in city kept cows than it is believed to be, even by physicians.

Tuberculosis prevails extensively among domestic animals over the entire globe, and especially in populous end crowded localities. In Mexico thirty-four per cent. of slaughtered animals supply tuberculous meat, and it is probable that the milk cows are affected to the extent of fifty per cent. in the large towns.

Van Hertsen, of Belgium, found tubercles in all the tissues of an apparently healthy bull, seven years old. From these facts it is apparent that there is great danger in eating uncooked beef for fear of contracting consumption. The sources from which consumption is derived are now known to be infinitely more numerous than former pathologists supposed.

It is more dangerous to eat the milk of tuberculous animals than to eat the meat; for the milk is seldom cooked, while the meat is almost always cooked. Cooking is a most valuable sanitary measure. Cows confined in dark, damp, unventilated stables become tuberculous eventually to the extent of seventy-five per cent. Fleming says: "For it must be borne in mind that there are few animals which have been kept for any length of of time in cow sheds, and fed and milked in the usual manner, which are not more or less phthisical; more particularly is this the case if the dwellings are bad."

The milk of tuberculous cows is of a poor quality, besides being liable to produce the disease.

Klebs has produced tubercles in rabbits, Guinea pigs, and dogs, by giving them the milk of diseased cows.

This milk given to young children produces catarrh of the intestines before the tubercles are deposited in the lungs. It is not often that the intestines of young children who die from what is supposed to have been cholera infantum are examined after death, but doubtless the lesion of tubercle of the intestines would be frequently found.

Garlach and others have demonstrated that the milk of tuberculous cattle will produce phthisis in creatures fed with it. Fleming says: "It is certain that tuberculosis is a somewhat common and a very destructive disease, among dairy cattle especially, and more especially those of towns." And consumption is one of the most fatal diseases of large cities, and doubtless from this cause. Marasmus is undoubtedly largely attributable to