

milk arising either from injudicious feeding or the presence of certain kinds of bacteria that liberate volatile compounds are, for example, completely expelled by the process, while all disease-producing germs unable to form spores are also destroyed which is an additional and important fact from the consumer's point of view.

As might be expected, the pasteurised skim-milk (pasteurised either before or after separation) retained its sweetness for a longer period than that from untreated milk.

The report contains a good deal of other interesting reading for dairy farmers, and again demonstrates the activity of Guelph College staff. Bacteriology is usually well in evidence in the annual report, but last year the professors visited Europe and his deputy (Mr. Ross, so the President explains) "suddenly enlisted and left with the first second contingent for South Africa." We wish him luck and a safe return!

DAVID HOUSTON.

### WATER FOR THE COWS.

There is a class of dairymen whose cows are well cared for, as to water, but a few months of the year. The few months in the spring when water is plenty and not too cold, and an equal time in the fall before ice forms, is about the only time when the cows can obtain a satisfactory supply of water. The rest of the year the water is so cold that a cow in milk cannot use a sufficient amount without a serious likelihood of a chill, and in the drouth which usually comes on in summer, a sun-burnt pasture with a mud hole in one corner does not afford an ample supply of good water.

The consequence is, that the cow is obliged to go without water at a time when a good supply is absolutely necessary if the milk flow is to be kept up.

The cow needs water to digest her food, to keep the body in running order, to wash out the products of digestion, and for the milk supply, and if all these are to be kept in their normal condition water must be supplied or the milk flow suffers.

It takes 4 lbs. of water for every pound of dry matter in the food, or if the cow is on dry food it will require nearly 100 lbs. of water to enable the cow to work up her daily ration.

For every pound of milk given, the cow requires four and three-fifths pounds of water, or 115 lbs.

of water for 25 lbs. of milk. What between the food and the milk supply a cow needs an abundant supply of good, clean water, and if that cannot be obtained she will endeavor to make up the deficiency at the nearest mud hole—a place that is neither good for the health of the animal, her udder nor the cleanliness of the milk.

Mud holes for watering cows have been responsible for muchropy milk, gassy curd and poor flavored butter, to say nothing of the liability of disease bacteria invading the udder. Whether in summer or winter, water for the cows, clean and in the proper quantities and at the proper time, should be supplied. The want of it may cause a loss to the dairyman even if the animal is supplied with an abundance of proper food.—*Hoard*.

### AS TO PEA MEAL FOR DAIRY COWS.

*Ed. Hoard's Dairyman*:—Enclosed find clipping from weekly *Star*, published in Montreal, in regard to pea meal as a food for dairy cows. I have always considered pea meal as a first-class food for dairy cows and would like your opinion on the matter.

Barnston, Que.

J. F. P.

J. W. G., Ont.—Does pea meal tend to dry the milk of cows?

Ans.—Pea meal is not a good food for cows. As compared with corn meal it is quite a defective kind of food, as may be seen by these figures:

	Percentage composition of	
	Pea Meal.	Corn Meal.
Protein.....	18.0	7.1
Carbohydrate.....	56.1	62.7
Fats.....	0.9	5.8

For the production of milk the food should have a much larger proportion of the carbonaceous elements and fat in it, than of the protein, for it is reasonable, and indeed it is unavoidably necessary, that for a cow to make milk she must be fully supplied with the necessary substances for the milk and the butter as well in the food. Butter is fat, pure fat, and we see that there is so little fat in the pea meal that six times as much of it will be necessary as of corn meal. A cow, in fact cannot eat as much pea meal healthfully in a day, as will enable her to make butter. As a rule then pea meal is not a proper food for dairy cows, and so being we cannot expect a cow to give us anything that does not exist in the food. To feed