

to a dairy farm, and within two yards of the dairy itself," the teats being washed simply by milking her a time before taking the sample. He then, with precautions, divided the milk in a room in the farmhouse into twenty-four sterilised glasses, which he covered securely, and watched. Every one showed signs of alteration from the development of organisms, chiefly those which produce various colouring matters, but *not one turned sour*. Even in the cow-house itself, "the teats of the cow and the milk-maid's hands having been washed with strong watery solution of carbolic acid," milk was drawn and distributed into twelve glasses as before, and while all underwent changes and developed organisms, none soured or showed the *bacterium lactis*. Finally, with still more rigid precautions to prevent organisms reaching the milk from the air or the surface of the teat, he obtained twelve samples, of which two remained perfectly unchanged in aspect six weeks after the performance of the experiment; and, on examining the milk from one of these, he found it fluid, perfectly natural in reaction and in taste, and free from any organisms that could be discovered by the microscope. Thus showing clearly that milk as it comes direct from the healthy cow, contains nothing that will give rise to change in it; and that, if kept clean and from contact with the air it will keep a long time without being even boiled. Keeping it cool, below a temperature of 60° F., will of course much favor its preservation,

The path to what is attainable in practice is the same as that which leads to the ideal, only not pursued so far. The way to avoid loss from souring and other deteriorations in milk is to remember the conditions of Lister's experiments with his little glasses, and get as near to them as we can—"the pure fresh air of the orchard, the clean hands of the dairymaid, the carefully washed teats of the cow, and the pure surfaces of the milk dishes."

Milk in small quantities, as in that purchased from the dairyman from day to day by many families for family use, is well preserved when closely covered with

several layers of clean cotton batting. In the writer's family he has had used for many years a few layers of old but unbroken cotton cloth kept scrupulously clean for covering the jar of milk for family consumption, with most gratifying results. This covering is used even in the refrigerator. It is much better than a tight impervious cover. It may be adjusted to fit closer to the jar than most covers, while it excludes the bacteria but admits the pure air. We would advise our readers to try this method of keeping milk pure and sweet. For those who do not object to the taste of boiled milk, it is well to boil the day's allowance when obtained, and cover it closely with cotton. If heated by steam (as in a double vessel such as porridge is usually made in, or in a "steamer") to a temperature a little short of boiling for half an hour, this will completely sterilize it without much changing its taste.

ON BACTERIA.—Although we seldom hear of bacteria except as the cause or associate of disease and mischief, microscopic organisms resemble the larger growths of vegetation in this as in other respects: although some are hurtful and poisonous, others, and those the majority, are beneficent, or at least harmless. There are bacteria which can live and grow in the tissues of living animals: those are they which cause disease, which we have, therefore, good reason to fear. There are bacteria which only act on dead organic matter, which are the cause of putrefaction or decay, and so far are useful in their right place. Others are the active agents in fermentive processes, such as "souring;" or cause that rarer form of physical change—viscid, stringy milk. Many more are simply regarded as interesting little organisms, which, in growing, produce beautiful pigments—red, yellow, blue, orange, &c.—and of which the most that can be said is that their part in the economy of the world is not precisely known, although they in all likelihood lead innocent, if not positively useful lives. All these latter bacteria agree in this: that they cannot live in the tissues of vital fluids of a healthy living animal.