

fermentation known as decay, they also, more or less, prevent digestion after the food is swallowed. Consequently their use should be everywhere illegal, as it is in the United States and, to a partial extent, in England.

The employment of chemicals for the preservation of milk is particularly undesirable, as it enters so largely into the diet of infants and invalids. It is not generally known that the natural souring of milk is its own form of protection against putrefaction, for the germs of decay cannot grow in acid—i.e., in soured milk.

Now, sour milk is not unwholesome, *except for young children and the sick*. But the changes which take place in milk when, by the addition of chemicals, the normal formation of lactic acid is prevented are a source of grave risk to the consumers, specially so to babies.

(6.) *The Preservation of Food by chilling it to a Temperature below 40° Fahr.*—Taking everything into consideration, therefore, this is quite the most satisfactory method of rendering it unsuitable to the attack of any form of putrefactive germ, always supposing that the process be carried on under good conditions of care and cleanliness. No change in flavour, digestibility, or appearance ensues, but the food must be consumed almost immediately after its removal from cold-storage, for a tendency to rapid putrefaction develops when such food is brought back into warm, damp air. This tendency is probably the result of the moisture which at once condenses on its surface; but, whatever the cause, decay quickly ensues, whether it be in meat, fish, fruit, milk, or vegetables.

The Effect of a Low Temperature on Food

is to prevent the development of the germs of putrefaction, or to arrest their activity if already developed. None of the organisms responsible for decay in food can develop at a temperature so low as 40° Fahr. or less. Once again, however,

Two Cautions must be given.

Cold, even zero cold, does not destroy the source of decay if present in food. The seeds of putrefaction remain merely quiescent, to quicken into active life when temperature, moisture, and nutrition are once more favourable to their growth.

The temperature of the domestic refrigerator is rarely low enough or steady enough to be reliable as a certain means of food-preservation. Neither are conditions of cleanliness and ventilation sufficiently understood by the ordinary housewife to allow food materials to be safely stored for more than a few hours.

For commercial purposes, and under skilled supervision, this method is rightly superseding all others for the preservation of foods, whether during transport or while awaiting distribution from market or store.

(b.) MEANS BY WHICH FOOD MAY BE PRESERVED BY EXPOSURE TO CONDITIONS WHICH WILL DESTROY MICRO-ORGANISMS IF PRESENT.

Exposure to great heat, or sterilization, prolonged over a sufficient period, is the only means of food-preservation which comes under this head.

Moulds are usually destroyed by any temperature above 150° Fahr., but nothing less than boiling-point (212° Fahr.) can be relied on to destroy germs; and even higher temperatures, which cannot be secured in our kitchens, are necessary to kill the seeds from which these germs grow.

Two Great Drawbacks to Sterilization

exist as a domestic method of food-preservation:—

- (i.) All foods are bad conductors of heat, so that the deeper parts of a joint of meat, for instance, never reach a high enough temperature to ensure their protection from putrefaction: