rapidly cooled, and then kept, without much agitation, at a temperature below 10° C., it will contain comparatively few bacteria. Milk obtained and kept under contrary conditions will not only contain bacteria, but spores and toxines as well, and these cannot be destroyed without, in some measure, destroying the quality of the milk as a food. Russell's experiments show that pasteurization at 70° C. destroys all pathologic and putrefactive germs, as well as the lactic acid producing bacteria; and if this pasteurized milk be placed on ice or kept at a temperature only slightly above 0° C., it will remain sweet and free from bacteria for many days. If, however, the milk is not kept very cool, other fermentations may occur, producing changes in the milk, in some cases recognized with difficulty, but liable to produce grave disturbances in the intestinal tract. The same can be said of milk sterilized at a temperature of 100° C.

Russell, finding that milk sterilized at 70° C. acquired a scalded taste, and underwent some chemical change, tried pasteurization for fifteen minutes at 60° C. (140° F.). This destroyed from 98 to 99 per cent. of the bacteria; the pathogenic germs of diphtheria and typhoid are killed, but there is a doubt as to whether the destruction of the tubercle bacillus is insured by this temperature, although Theobald Smith, after many carefully conducted experiments, found that tubercle bacilli, of bovine origin, were invariably killed by pasteurization for twenty minutes at 60°C. Milk raised to a temperature of 100°C is markedly altered in taste and smell. The lactalbumin and globulin are, to some extent, coagulated; lecithin, nuclein and caseinogen are altered; the lactose is partially changed and the organic phosphorus is converted into an inorganic phosphate. These changes interfere with the digestibility of Wroblewkski shows that certain of the calcium salts, necesthe milk. sary for the coagulation of the milk in the stomach, which in raw milk are in a soluble state, are made to enter into insoluble combinations by a high temperature. Other experiments show that it is probable that unheated milk contains ferment-like bodies which, when absorbed, are of distinct value to the economy. The investigations of Russell and Babcock prove that milk obtained in a condition of perfect sterility undergoes a self-digestion owing to the presence of a tryspine readily destroyed by Other observations point to the fact that immunity to disease heat may be conveyed through the mother's milk, and that such immunity conferring substances are destroyed by a heat of 60° C or over, thus rendering children fed exclusively on milk sterilized at a high temperature more liable to certain infections leading to disturbances in general nutrition. Alteration in the normal emulsion in the milk also takes place from heat, lessening its digestibility. Where fresh milk drawn with careful precautions can be obtained for infant feeding it is better used raw, but where there is any uncertainty as to the milk supply it is probably the lesser of two evils to have the milk sterilized at the lowest zfficient temperature, namely, 60° C., for about fifteen minutes.