

PASTEURIZED AND STERILIZED MILK AS A CAUSE OF RICKETS AND SCURVY.

To the Medical Record Sill contributes a valuable practical paper on this most important subject, and takes excellent ground in urging the proper use of cow's milk. He thinks that as comparatively little has been written on this subject, it may be of interest to the profession to hear the results obtained from feeding infants on the heretofore much-lauded sterilized and pasteurized milk.

The author has taken a hundred and seventy-nine consecutive cases which have been fed during a period of from three to eighteen months, pasteurized milk being given for nine months of the year, while during the three summer months sterilized milk was given.

These observations have been made in a large dispensary where there is a well equipped milk laboratory, and where, during nine months of the year, the milk has been pasteurized, and during the three summer months sterilized. It is all carefully modified to suit the age and condition of each child, and every precaution has been taken to make the bottles absolutely clean and sterile before using. These bottles with pasteurized milk are given out each day by competent nurses.

The author has examined the children so fed with the utmost care, and has found in 97 per cent. of the cases unmistakable signs of rickets or scurvy, most of the cases being rickets or a combination of rickets and scurvy, the one merging into the other. About forty of these children had from five to seven feedings of the sterilized or pasteurized milk, according to the time of year, each day, supplemented by breast feedings. These all had signs and symptoms of rickets, although not so marked as in those who were fed exclusively on pasteurized or sterilized milk.

The changes which were most frequent were beading of the ribs, pot belly, sweating about the head, flabby muscles, craniotabes, and restlessness at night. The later changes were, in addition to those already enumerated, large, square head, enlarged epiphyses, delay in the eruption of the teeth, constipation or diarrhoea, malnutrition, bow-legs, kyphoses, chicken-breast, horizontal ring, and open fontanels.

An infant food must take the place of and simulate mother's milk to be an ideal food, and in order to do this it must be of animal origin; it must not be heated above blood heat, as a temperature much above that disorganizes the albuminoids and the mineral constituents; it must contain all the in-

gredients of mother's milk in the same proportions; it must contain no ingredients not found in mother's milk.

The aim of sterilization and pasteurization of milk has been to destroy disease germs, and preserve it—that is, to keep it from turning sour.

Uncontaminated milk is necessary, we admit, for successful infant feeding, but contaminated milk, no matter how carefully modified and pasteurized, will cause disordered digestion and improper assimilation in the young child.

Sterilization or pasteurization of milk makes it a dead, preserved food. Mother's milk, on the contrary, is a live, fresh food.

Winters says: "I have seen scurvy where pasteurized, modified milk had been the only food. Recovery was rapid with the continued use of the same food raw." Again he says: "Fresh, pure milk is not improved by pasteurization; it is not more digestible, and it is in no way a better food for an infant."

Sterilized or pasteurized milk is to the infant what canned or salt food is to the sailor.

It is unnecessary to pasteurize milk to destroy disease germs when a pure milk supply is provided for, and this can be practically done by having the herd frequently subjected to the tuberculin test to exclude tuberculous cows. The cows must be groomed, the teats and udders and the milkman's hands thoroughly washed and dried before milking. The milkman should wear clean, washable clothes, and the milking should be done in a building away from the stables.

The milk should be received into sterilized quart bottles, which are then tightly sealed, labeled with the dairyman's name, and the date, and cooled immediately to a temperature of 40 degrees Fahrenheit.

Experiments which have been made at the Yale University Agricultural Experiment Station show that when milk is cooled to 40 degrees F. all bacterial growth is at once arrested, and continues so long as the milk is kept at that temperature. Milk has been kept sweet in this way for several weeks.

In conclusion the author states that cow's milk is generally acknowledged to be the best substitute for mother's milk, when properly prepared, but cow's milk is not bettered by sterilization or pasteurization; on the contrary, this treatment undoubtedly makes it the direct cause of rickets and scurvy and kindred diseases in children.

The object of pasteurization can be safely accomplished, in the opinion of