

Milk—(Continued)

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Furthermore, when roasts, chops, steaks, fish, poultry, and other animal foods are purchased, we are obliged to pay for a large percentage of waste, such as the bones and sinews and other parts not used. Pure milk, from which nothing is removed and to which nothing is added, involves no waste. Every drop may be consumed. The other animal foods, too, contain large quantities of water and smaller quantities of the solids or valuable parts of the food. Milk is 12 per cent. solids. At 15 cents a quart, it costs 60 cents for 1 pound of milk solids. One pound of the nutritive solids in veal costs \$1.42, in steak \$1.12, in eggs \$1.53, in halibut \$2.22 and in lobsters \$5.65. Sixty cents spent on milk does the body more good than 60 cents spent on any other food.



Give the Children More Milk.—There is no substitute for milk in the diet of growing children. There are vital substances in milk that children must have. These are contained in other foods to a certain degree, but children can best be sure of getting enough of them by drinking milk. Milk is a guarantee for building strong bones, making firm flesh, and nourishing blood that puts a glow in youthful cheeks. The Division of Vital Statistics of the Census Bureau in Washington states that more than 85 per cent. of the school children of the United States are suffering from physical defects. Many of the defects are due to improper diet—too little food of the right kind or too much food of the wrong kind. Scientists declare that pure and wholesome milk can save many of these children from becoming chronic invalids or from going to untimely graves.

Mother's Milk Best for Baby.—Perhaps it would be well to stress at this point the fact that nature's intended diet for the baby is mother's milk. A bottle-fed baby has only one-sixth the chance in life that the baby fed in nature's way has. Cow's milk, even when handled under the most sanitary conditions, is never as fresh, clean, and pure as mother's milk. It is important to remember that all substances necessary for the baby's proper nourishment are contained in the mother's own milk in just the right proportion. Besides, mother's milk is also the simplest and safest as well as the cheapest method of feeding; it is far less troublesome than bottles and is best not only for the baby but for the mother as well.

Use Safe Milk for Baby's Bottle.—If it is necessary that a baby be raised by bottle-feeding, great care should be taken in selecting the best milk obtainable and in preparing the bottles carefully. Baby's milk should be certified or Grade "A" milk from cows tested for tuberculosis, or should be pasteurized when purchased or at home. The milk should be kept cold until feeding time and then warmed to blood heat, and the nursing bottle and nipple should be thoroughly cleaned and scalded before filling.

Community Responsibility for Milk Supervision.—With the great and all-around value of milk being constantly brought before us through the written page and from the lecture platform, it was natural that communities should start campaigns to encourage everyone, especially the child of school age, to

drink more milk. The children of practically every state had received this advice. Parents were asked to have their children drink milk at the family table. It was taken for granted that the milk the children were encouraged to drink was safe for drinking, but investigations now show very definitely that an unregulated milk supply may be exceedingly dangerous. "Clean Milk" campaigns are now preceding "Drink Milk" campaigns, for we cannot afford to encourage children and others to drink milk until we are sure that the milk they are asked to drink is free from filth and bacteria.

The American Child Health Association is doing a signal service in this connection. Several of their staff are giving a large part of their time to encouraging state, county and city health officials to investigate the condition of their milk supply. One staff member travels about in his automobile with a unique trunk strapped to the back. The trunk is unique because it is really his laboratory. It contains all the apparatus necessary for testing the milk of any town. In October of 1923 he visited North Dakota, South Dakota, and then travelled on to Kentucky and Florida. Many other states are asking the American Child Health Association to send their representative and his "magic trunk" to help them conduct their "Clean Milk" campaigns.

During these campaigns milk from each dairy receives three separate tests—one, a chemical analysis to show whether water has been used to adulterate the milk or whether the milk has been thinned by removing the cream; one to show the number of bacteria present, and a third test for visible dirt.

After North Dakota had finished its clean milk campaign a bulletin report was issued by R. O. Baird, Commissioner and Chemist of the State. This report gives an exceedingly interesting account of the survey. Some of the conditions actually discovered are described in one telling section from which we will quote. Commissioner Baird says, "One milk room was located in the barn, open to the atmosphere of the stable in which both cows and horses were kept. Needless to say, the bacterial count was very high and the sediment test very dirty. A certain dairy wagon was also used for hauling manure when it was not on the milk route. An instance where old dirty blankets were used for covering the bottles during delivery was also found. In one case the house, barn, milk room, toilet and well were all located within a radius of fifty feet from each other. The well was a shallow one, open to surface drainage; the stable was of poor construction without proper light, ventilation or drainage and adjoined the house."

The conditions found in North Dakota may without question be duplicated in numberless other communities. Even the layman who is most superficially informed must appreciate the grave danger in which a community is continually placed when its milk supply is not regularly and systematically investigated. Such diseases as tuberculosis, typhoid fever, scarlet fever, diphtheria, septic sore throat, etc., are very often disseminated through infected milk. Every year an appalling number of infant deaths are due to diarrhoeal diseases caused from impurities in milk. No community can afford to have dirty or unhealthy cows, open unsterilized milk pails and cans, dirty barnyards or stables, unsanitary methods in handling the milk. Bacteria in milk multiply at a tremendous rate and any one of these conditions may actually infect the milk with more bacteria than are to be found in sewage water.

The wide-awake progressive community is the one that has written on its statute books a milk ordinance which, if thoroughly enforced, will minimize the chances of danger from the milk supply. Every citizen should make it a part of his own particular responsibility to see that his community is protected in

this way. "The Elements of Public Health Administration" by Dr. Lockett and Mr. Gray, both officers of the Department of Health of the State of New Mexico, contains the fundamentals of sanitation in the production of milk. They outline these fundamentals as follows:

1. Healthy, clean dairy cows. Semi-annual or more frequent physical examinations should be made by a competent veterinarian. If the milk is not pasteurized, the tuberculin test should be required at least annually. The udders should be washed in clean water before milking, and the flanks curried and brushed free from coarse dirt and loose hairs.
2. Clean, healthy milkers, who milk with clean, dry hands, and who wear clean outer garments.
3. The small-top milking pail.
4. Clean utensils and delivery containers, which must be thoroughly sterilized.
5. Immediate cooling of the milk, after drawing from the cow, to 50 degrees F. or lower.
6. Keeping the milk at or below 50 degrees F., until delivered to the consumer.
7. Prompt delivery of milk after milking.
8. A separate, clean, screened and well-ventilated milk-house.

Pasteurization.—Fortunately, milk may be purified by the easy and reliable method of pasteurization. This is a process of heating the milk to 145 degrees for a period of thirty minutes, and then quickly chilling it. Pasteurization destroys the harmful bacteria without destroying the nutritive values of the milk. When pasteurized milk cannot be bought, this simple process may be accomplished in the home, by using a double boiler or the Straus pasteurizer. Often it is necessary to use milk which cannot be relied upon to be absolutely pure, and then this process of pasteurization should always be used as a safeguard to health.

The practice of pasteurization has begun to yield fruits, and according to Prof. C. E. A. Winslow and Cora E. Grey of Yale, these may be statistically demonstrated. For example, they point out that the death rate from non-pulmonary tuberculosis in children between one and four years of age in cities which have a thoroughly pasteurized milk supply is about seventy-five per 100,000 population, while in cities which have not effectively pasteurized their milk supply, the non-pulmonary rate rises to about 100 per 100,000. They conclude that "an excess of twenty-five deaths per 100,000 indicates the approximate danger from bovine tuberculosis at this age."

Care of Milk.—There are many precautions that are important after the milk has been delivered to the home. It should not be allowed to stand outdoors but should be put in the refrigerator as soon as delivered. Before the paper stopper has been removed the top of the bottle should be washed. After the milk has been poured it should be re-covered with an inverted tumbler. If the milk is emptied from the bottle, it should still be kept covered, as it is readily tainted and absorbs odors and flavors.

Care of Bottles.—The care of milk bottles is highly important and the housewife should feel a responsibility about this as well as the dairyman. The bottles should be thoroughly washed and scalded after they are emptied. They should never be used for any other purpose and should on no condition be taken into the sick-room.

Grades of Milk.—A study was recently made by the Committee on Municipal Health Department Practice of the American Public Health Association in co-operation with the United States Public Health Service and with the financial aid of the Metropolitan Life Insurance Company. A part of the work of the Committee was to inspect the milk supply of all American cities over 100,000 population. It was found that there was some measure of control of the sanitary quality of the milk supply, that pasteurization was not yet general except in the larger cities and that only thirty-one out of eighty-three cities studied have a graded milk system.

In connection with the grading of milk it should be stated that every city has its own grades of milk, as well as its own interpretation for these various grades. The State of Delaware prescribes that the various grades of milk shall meet the following requirements:

1. "Grade A" milk shall contain less than 50,000 bacteria per cubic centimeter previous to delivery to the consumer. A minimum score of eighty must be made on the score card adopted by the Health and Welfare Commission. Each employee handling milk must undergo a physical examination in so far as to detect whether he is a carrier of disease, such as typhoid fever and diphtheria. Cows must be tuberculin tested semi-annually.

2. "Grade B" milk shall contain less than 100,000 bacteria per cubic centimeter previous to delivery to the consumer. Cows must be tuberculin tested annually.

3. Pasteurized milk shall contain less than 50,000 bacteria per cubic centimeter, from the time of pasteurization until delivery to the consumer.

Most states provide for certified milk which is the very best and purest raw milk that it is possible to produce. It is more expensive than other grades and is used mostly for babies and invalids.

The most inferior kind of milk is that sold in grocery stores and shops "in bulk." This is a dangerous practice as milk always should be bottled to insure cleanliness.

Canned Milk.—There is still the question of canned milk to be considered. In many parts of the United States, particularly the South, fresh milk cannot be obtained and therefore canned milk must be relied upon. There are two kinds of canned milk—"condensed" and "evaporated." Condensed milk contains 30 per cent. milk solids, 30 per cent. water and 40 per cent. cane sugar. It is not advocated for babies or small children by leading pediatricians. Evaporated milk is, on the other hand, unsweetened milk, the reduction in bulk being obtained by the elimination of the original water content. It is considered better for children than condensed milk, but no baby should be raised on evaporated milk without the advice of a physician.

Prof. E. V. McCollum of Johns Hopkins University was asked his opinion of dried milk and he said, "So far as I have been able to determine by experiment on animals, the milk powders which I have employed have essentially the same dietary properties as fresh milk." Since giving his conviction, however, Prof. McCollum has himself discovered that the watery part of milk contains a vitamine which he calls Vitamine X. It is evident that the dried milk would be without this ingredient.

Summary.—The average intelligent citizen must appreciate the value of milk as a food and as a result must use it to the extent of getting the utmost value from it. At the same time, however, he must understand the need for adequate

supervision of the milk supply and must, therefore, demand that his city be safeguarded against the possibility of unclean milk. Here is an opportunity for the close working together of the local health officer and the women's club as well as other civic groups that are eager for their community to enjoy all the benefits which a pure milk supply may bring them.

Dr. Haven Emerson, one of our leading public health physicians, is responsible for this challenging statement—"A city without sanitary control of its milk supply is taking quite as great risks with its citizens as if there were no fire or police protection provided."

MIDWIVES' UNION SECTION

Management of Normal Labour and the Puerperium*

I think the midwife is handicapped in some ways in the management of normal labour, especially in not being able to use anæsthetic measures as a doctor can. The ideal arrangement is to have both doctor and midwife each with their own function. I do not for a moment depreciate the splendid work you do alone, but I believe two people better than one, though I know your patients cannot always have two people.

Now about the general conditions of labour. I think it very important to tell the patient beforehand to send as soon as labour starts, and to tell her how labour does start. Most women are very frightened with their first baby, they fear the unknown, so tell them what to expect—breaking of the water, pain, a little blood.

Among important early preparations we have the patient's bath and the enema, for a loaded rectum delays labour. Then you must clip the hair short and thoroughly wash the parts with soap and water and dry them. On no account give a douche unless instructed by a doctor to do so. The room must be clean and should be dusted with a damp cloth, all curtains and ornaments should be removed, and the floor protected. Bowls should be well scrubbed and cleaned with methylated spirit. You will need separate bowls for hands, lysol, perchloride of mercury, placenta, and gloves, and a dish containing 2 pairs of Spencer Wells forceps, scissors and thread in methylated spirit. Of course, the ideal thing is a sterilised drum with towels, swabs and gauze, but as you are not usually able to have that you must insist upon perfectly clean towels and boiled wool swabs. Everyone who takes on maternity work should be in perfect health, and you should never go to a case if you are not in good health, especially if you have septic teeth, or tonsils or anything like that. Another thing is that you should never get your hands really messy. We all have to do dirty jobs sometimes, but when you have to touch anything that is not clean you should put on rubber gloves so that your hands will never be contaminated with septic organisms. Then about gloves worn during the delivery, you must remember that, though they have been boiled before putting them on, they do not remain sterile after they have touched anything, and that after you have examined the patient with them on they must be washed and boiled again.

* Notes of a lecture given by Miss Gertrude Dearnley, M.D., B.S., at the Post-Certificate Course for Midwives at Maidstone.