The Midwife.

An Inexpensive Home-Made Milk Refrigerator.

We commend to the attention of midwives and nurses the following article by Dr. Alfred F. Hess, of New York City, and published in the *Nurses' Journal of the Pacific Coast*. The simple contrivance herein described should be the means of preserving the lives of many infants in the hot weather.

Individuals and communities are now much interested in the question of pure milk for the infants of the poor. A more rigid supervision is gradually being enforced over all those who handle milk—the farmer, the dairyman, the wholesaler, and the retailer. Although these efforts cannot be too highly commended, too little stress has been laid on the importance of the care of the milk in the home of the consumer. No matter how carefully the milk has been obtained and guarded up to the time it is retailed, even if it is pasteurised or certified, it will be rendered unfit for food after standing in a room at summer heat for a few hours. That this is a real danger is known to all who have tended babies in the tenement houses in summer. Most of the people in poor circumstances have no ice or an insufficient supply, so that the milk is kept at a temperature of from 50 degs. to 70 degs. Fahr.

For some months I have been endeavouring to devise a simple and inexpensive means for keeping milk in summer—one that will be within the reach of the mother in the tenement house. After considerable experimenting. I can recommend the following box for this purpose:

An ordinary packing case was obtained; it had been made for bottled water, and measured on the inside 13 by 18 inches and was 11½ inches in depth. Sufficient sawdust was placed in this box to make a substantial layer on the bottom. On this was set a tin can, tall enough to hold a quart bottle of milk and 8 inches in diameter, and around this was placed a cylinder of tin a little larger in diameter than the can. The cylinder was then surrounded by sawdust. The lid of the can was, of course, left free. The ice box was completed by nailing about 50 layers of newspaper to the lid of the case. The total cost of such an apparatus is the cost of the tin can, which may be 25 or 50 cents, according to the quality. The box and sawdust can be obtained free from a grocer.

To test the value of the box, a quart of milk was placed in the can and surrounded by 6 or 7 pounds of ice; that is to say, less than 5 cents worth. The room temperature was 81 degs. Fahr. The efficacy of the refrigerator was demonstrated by the fact that twenty-four hours later the temperature of the water in the can was 33 degs. Fahr., the milk in the bottle 37 degs. Fahr., and that even after forty-five hours the temperature of the water had risen only to 50 degs. Fahr. and the milk to 52 degs. Fahr.

Numerous variations from this type of box were found to keep out the heat. A somewhat larger box was found more desirable. Excelsior may be substituted for sawdust. All that is necessary is that the can containing the ice be surrounded on all sides by a material which conducts heat poorly. Care should be taken that the can rests on sawdust and not directly on the wooden floor of the case. Should the case be rather shallow for the can newspapers should be laid between the two. To prevent rusting a little soda may be placed in the can every day.

The apparatus described above will keep two quart bottles of milk, or four eight-ounce feeding bottles. The great majority of mothers in the tenements keep the day's supply of milk in a quart bottle and possess but two or three nursing bottles. As the ideal method is to have as many bottles as there are feedings in the course of the day, it was determined to make such minor modifications in the ice box as would allow of this procedure. To this end a tin can was obtained which was 8¾ inches in diameter and cost 30 cents. It was sufficiently large to admit a wire bottle holder costing 45 cents and containing eight bottles. A case 18 inches square was employed to hold it. The ice was cracked into smaller pieces than before, 6 or 7 pounds being used, and the wire holder with its bottles (previously cooled in running water) was then set on the surface of the ice, or rather gently pressed down into the ice. Within one hour the temperature of the milk fell from 67 degs. to 55 degs. Fahr., and continued to fall. After twenty-four hours it was at 39 degs. Fahr.

The bacterial content of the milk was 7,000 bacteria to the c.c. when it was obtained. After twenty-four hours the milk in the refrigerator had risen to 42,000 to the c.c. A sample of the same milk left at a temperature of 73 degs. Fahr. showed 12,360,000 bacteria to the c.c.

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