

prepared food which conformed to the needs of the infant. By far the best of the artificial foods has been a split-proteid modification of cows' milk prepared in a milk laboratory. The chief trouble with this food is the difficulty of obtaining it except in large centres; the necessity of obtaining it with great frequency to have it always fresh; the difficulty of keeping it in proper condition, and the price which makes it entirely beyond the reach of any except the wealthy classes. The so-called home modifications of milk are almost always unsatisfactory as they not only have all the drawbacks incident to the use of the ordinary milk obtainable by the ordinary householder, but also are usually thoroughly unscientific. The modification usually consists in decreasing the casein content by dilution with water and then building up the sugar content by the addition either of cane sugar or commercial sugar of milk and the addition of cream to increase the fat content. This, however, not only does not increase the important albumen content in the cows' milk, already deficient by one-half as compared with mothers' milk, but even further decreases it by the dilution with water. It is also deficient in ash. The only correct modification is by whey, whereby the lact-albumen content is increased, the casein diminished, and the ash maintained. But even this may contain too small a total solid content for an advanced infant owing to the large amount of water in the whey. The total solid content cannot be varied at will.

It is hardly necessary to speak of the unsuitability of the ordinary prepared infants' foods. Practically all of them have a cereal base, and contain a considerable quantity of starch. In some the starch has been altered to maltose, dextrose, or some similar starch derivative, but this does not and cannot take the place of lactose, which is the natural carbohydrate for the infant. The continued use of a food containing a predigesting agent such as pepsin or pancreatin endangers the ability of the child to assimilate unpredigested foods when their use becomes necessary. Again, these foods without exception have been sterilized and lack the antiscorbutic properties of a fresh food. Even those which are known as milk foods and which contain a greater or less quantity of the solids of milk have in all cases been sterilized, the

result being that the natural enzymes of milk have been destroyed, a certain part of the salts has been rendered insoluble and unassimilable, and the milk albumen has been coagulated and rendered insoluble. Where commercial sugar of milk has been added, the process of refining has unquestionably destroyed some of the natural qualities of lactose present in fresh milk and the food value of a synthetic combination of commercial sugar of milk with other food values does not produce the same results as the natural lactose in the fresh milk.

Recently a process has been perfected of reducing milk to powder by spraying the milk in a spray so fine as to be practically a fog into currents of heated filtered air. The latent heat required for the rapid evaporation which takes place is supplied both from the surrounding air and from the solid content of the minute particles of milk suspended in the air, so that the milk is actually cooled by this drying process. Every other system of drying milk depends upon bringing the milk into contact with heated metal surfaces, and in every case results in raising the temperature to a point where the milk enzymes are destroyed, the milk salts—especially the bone-making calcium compounds—altered, and the milk albumen coagulated and rendered insoluble. Under the spraying process, however, none of the above objectionable features exist.

During the past year several hundred cases of infant feeding with modified milk powder made by the above process have come under the writer's supervision, and the results obtained have been such as to lead to the belief that a radical advance in infant feeding has been made. The milk has been obtained from inspected dairies in one of the best milk-producing sections in Canada and the modification has been made under laboratory conditions with a rennet-precipitated whey made from sweet milk to give the proportion of about three parts of whey solids to two parts of milk solids. This makes a modification approaching nearly to mothers' milk, as it contains slightly less than one-half of the normal casein present in cows' milk and more than twice the milk albumen. The modified milk has been lightly pasteurized to a point sufficient to destroy all pathogens but not to a temperature