

## Mother's Milk.

The third lecture of the extremely interesting course on "Babies," at the Infants' Hospital, Vincent Square, S.W., was given by Dr. Ralph Vincent on Tuesday, December 3rd, on Mother's Milk.

He contrasted Human Milk with Cow's Milk, and showed that, while the constituents are the same, the proportions in which they are combined are different, and that, therefore, it is useless to dilute cow's milk and regard it as a substitute food for infants. When cow's milk is used as a food for infants, Dr. Vincent maintained that pure, raw milk should be used for modification, as boiling alters its character.

The following tables show the relative proportions of the constituents of human milk and cow's milk:—

	Human Milk.	Cow's Milk.
Fat ... ..	4	4
Lactose ... ..	7	4.75
Whey. Proteids ... ..	1.00	1.00
Caseinogen ... ..	0.40	2.50
Nitrogenous extractives	0.60	0.50

The reaction of human milk is alkaline, of cow's milk slightly acid. The specific gravity of the former is 1030, of the latter 1032. Human milk contains a large amount of water, and infants need a plenitude of water.

The proteids in human milk are only present in half the quantity in which they are present in cow's milk. This is not the most distinguishing feature. In human milk, lactoalbumin is present in large proportions. When acetic acid is added to human milk, the caseinogen is precipitated in the form of a fine curd. When the same agent is added to cow's milk, the precipitation of a hard, curdy mass is the result. The same thing happens when rennet is added.

The proteid demonstrated by these experiments is the actual foundation of the tissues, the essential element of all elementary structure.

The milk sugar present in human milk has nothing in common with any other kind of sugar. It is the only form of carbo-hydrate in milk, and is suitable for young infants. It is somewhat unfortunate that the name of sugar has been given to this constituent of milk. For instance, cane sugar ferments in the stomach, lactose does not do so.

The chemical action of lactose is of great importance. There are many bacteria which

are essential to health—such a one is the lactic acid bacillus, which acts on the lactose. In a normal infant this bacillus causes the contents of the small intestine to have an acid reaction, that of the contents of the large intestine being alkaline. This degree of acidity is necessary to the proper digestion of the food. Many of the worst cases of malnutrition seen in the Infants' Hospital are those in which the acid in the small intestine is replaced by the alkalinity of the large one. There is so large an area to deal with in these cases that they are difficult and lengthy ones to treat.

To hurry on as much as possible the cure, the milk of these infants is sometimes taken from the ice boxes in which it is usually kept and put near the fire, and some degree of acidity is thus created artificially. It must be remembered that the "turning" of milk inside the body is a normal process, and the simple souring of pure milk is comparatively harmless; but if milk is decomposed, after it has been boiled, it may become a virulent poison.

The 4 per cent of fat in human milk is an important constituent, as to it is due the maintenance of animal heat. The fat contains the carbon and hydrogen which combine with oxygen, and in this way heat is maintained.

A great cause of rickets is a deficiency of fat in the diet, and if, in addition to a deficiency of fat, there is also a deficiency of proteids, one of the most severe forms of rickets occurs.

Calcium, combined with proteids, goes directly to the formation of bone. The condition of the teeth in pregnancy, and the trouble that often occurs then, is due largely to the fact that the calcium salts in the blood are largely drawn upon to make the bones of the growing child, and so there is a deficiency of these salts for the use of the mother herself.

Mother's milk, when normal, is a perfect food, specially adapted to the infant. The importance of this is evident when we think of the development of the infant. If the normal infant at birth is 8 lbs., and at 12 months old 24 lbs., then 16 lbs. of human material has to be manufactured by the baby from its food supply. A baby of 8 lbs. thus manufactures in 12 months twice its own birth weight.

### Points in Regard to Nursing.

A main object in the care of the mother is to enable her to provide milk of an efficient quality for a sufficient period. The mother, therefore, should take great care of her health, and rest for the first month after the child is born. She should then take gradual exercise,

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