

Tests of the methods described were conducted, using known quantities of fat, fatty acids, and soap, and found accurate.

Blanks were conducted with all materials used, and the ether and alcohol were redistilled before using. Experiments were conducted in duplicate when possible.

Experiment No. 1.

Male infant, 17 days old. Weight at birth, 3,125 grams; weight at the beginning of the experiment, 3,170 grams; weight at the end of experiment, 3,230 grams. This infant was fed on human milk obtained as already described. The mother was a primipara, 26 years of age. She had been detained in the hospital to have a repair of the perineum performed, and was confined to bed during the time of the experiment. The results of the analyses of the milk are shown in Table I. Chart I is a copy of the nurse's report showing the amount of milk obtained in pumping the breasts, amount fed to the infant, amount saved for analysis, temperature and weight.

In seven days the baby received 2,261 grams of milk containing 72.7 grams of fat; 2.127 grams of fat were regurgitated, leaving 70.59 grams in the stomach to be digested. During this period the infant had ten stools, containing 0.748 gram of fat, 2.123 grams of fatty acid, and 0.630 gram of fatty acid present as soaps. Volatile fatty acids given off during the process of drying the faeces neutralized on a daily average 16.8 c.c.m. decinormal KOH solution.

Leaving out of consideration for the present the volatile fatty acids, and calculating the other constituents as fat, we have a total of 3.501 grams, or 4.95 per cent. of the total intake.

In Table VIII we have tabulated the percentage relation to intake of the fats, fatty acids, and fatty acids present as soaps.

Experiment No. 2.

Male infant, 85 days old, who had come to the Foundling Hospital four days before the commencement of the experiment. He was well nourished and appeared healthy. The stools contained some casein curds and were slightly alkaline in reaction. During a period of two days we observed the intake and output of fat. The infant was on a modified whey mixture, giving an analysis as follows: Fat, 2.32 per cent.; proteid, 96 per cent., sugar, 5.25; the reaction slightly acid, although supposed to have 5 per cent. of alkalinity.

The total fat in the faeces, calculated the same as in the previous experiment, was 5.4 per cent. of the fat intake, the three constituents being absorbed in about the same proportion as in Experiment 1.