

ish-yellow stools, the first 12 of which were alkaline in reaction, the remainder acid. The faeces contained 2.062 grams of fat, 14.496 grams of fatty acid, and 5.161 grams fatty acid present as soap (Table VII). The percentage relation to the intake of fat is shown in Table VIII. The infant gained 113 grams in the first five days of the experiment. One week after the conclusion of the experiment the child lost weight rapidly and died three weeks later.

Dr. McCrae's *post-mortem* report showed a hæmorrhage into the right ventricle, probably there from birth; acute left purulent otitis media, and fatty infiltration of the liver.

The interesting points in this experiment are that most of the fat was split up and appeared in the faeces as fatty acids and soaps, and while other clinical signs were favourable, the analysis of the faeces showed that the infant was losing by the bowel about 35 per cent. of the fat intake.

SUMMARY.

The stools of a normal breast-fed infant are acid to litmus. This acidity is due principally to the presence of volatile fatty acids. In Experiments 1 and 7, when the stools were strongly acid, the buttocks did not become excoriated. During Experiments 3 and 4 the stools were alkaline to litmus, and this was accompanied by excoriation of the buttocks. That the volatile fatty acids in the faeces are not dependent upon any one constituent of the food is evidenced by the irregularity in the quantity found during the experiments.

In the normal infant the amount of neutral fat in the faeces is very small—0.107 grams a day in the breast-fed infant and 0.179 gram in the bottle-fed infant. Most of this is fat that has escaped the action of the fat-splitting enzymes by being entangled in proteid curds—so-called fat curds on analysis were found to contain only 20 per cent. of fat.

In Experiment No. 1 the iodine number for the fat in the faeces was 67, or slightly above the iodine number for the fat of human milk. In Experiment No. 7 the number was 41, about the average of butter fat. In Experiments 3 and 4 the number rose to 62, indicating a change in the character of the fat excreted when the infant was on a low fat diet. In Experiments 5 and 6 the iodine number was 75, which would be accounted for by the increase of olein in the food.

The free fatty acids exceeded the amount of fat found in the faeces in every experiment where the fat in the food was over 0.5 per cent. Free fatty acids were found in alkaline stools in Experiments 2, 3, 4, and 6, confirming Pflüger's experiments that free fatty acids combine very slowly at 37° C. with weak alkalies. The fatty acids present as