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with 300 c.c. of milk, as a result of which it was found that at least 70 c.c. of concentrated sulphuric acid are necessary; the large amount of water in the milk decomposes the tri-methyl compound into borie acid and alcohol. In this case the boric acid will distil over only at a very high temperature. The sulphuric acid appears to prevent this decomposition. After distilling for half an hour, the distillate was treated with a few drops of a concentrated solution of barium chloride. At this stage a slight precipitate sometimes occurred. The fats in the milk contain three esters, those of palmitie, stearic, and oleie acids. These all form compounds with barium chloride which arc insoluble in water and in cold dilute hydrochloric acid. It was found that if the tem-peraturo in the distilling flask rose about 80° C., a small portion of these (probably oleic acid) was carried over. Therefore, on the addition of barium chloride, a flocculent precipitate of barium oleate appeared. This had to be removed by filtration before the experiment could be proceeded with. The distillate was now titrated against a freshly prepared concentrated sodium hydroxide solution, prepared, as before described, by dissolving nowly cut pieces of sodium in water in a silver dish; phenolphthalein was used as indicator. Care had to be taken to guard against overstepping the neutral point, as the excess of the alkali united with the barium chloride to form the hydroxide. The precipitate of barium borate was now filtered off on a tared filter paper, washed carefully with alcohol, dried at 110° C., and weighed.

First of all a test series was made in order to see how small a quantity of boric acid would, on neutralisation of the distillate, give a precipitate distinctly seen by the naked eye. To this end, 50, 40, 30, 20, 10 parts boric acid were introduced into 10,000 parts of milk. The precipitate of 50 parts boric acid in 10,000 parts milk was quite heavy, the 40 less so. In this manner a gradation was obtained until when 10 parts in 10,000 was reached only a faint milkiness was obtained. This last was repeated several times with precisely the same result. Below this point traces of precipitate became untrustworthy, especially as a trace of boron compounds could be obtained from impure methylated spirits. This, however, will be dealt with later.

The results obtained from weighed precipitates were :--

	1
grms. 2.6890	Per cent. 99.5
2.6830	99-3 99-25
0.2649	98.0
0.1970 0.1414	87.2
0.0879	81.3
	grms. 2-6890 2-6830 0-8841 0-2849 0-1970 0-1414 0-0879 0-0340