

THE SOUR CREAM METHOD OF MAKING CLARIFIED BUTTER (GHEE)*

THE principle underlying all methods of butter clarification is the removal of moisture, protein, and other milk solids so as to facilitate the preservation of the butter-fat. In the older methods, part of the moisture and salts and a large proportion of the proteins were removed during the making of butter prior to clarification. In order to eliminate the work of making butter, a method was developed to make the clarified butter directly from cream and this was described in a previous article in this BULLETIN (1936, 34, 32). I stated there that the direct boiling of untreated fresh cream was not a success because the large amount of protein curd stuck to the pan and charred. This difficulty was overcome by mixing the fresh cream with water and reseparatoring to reduce the protein content, and then this washed fresh cream was boiled.

This method of boiling washed cream has been in use in the Government supervised creameries for the past 18 months and very good results have been obtained. One drawback, however, to this method is the frequent shortage of clean water at outlying creameries. It has also happened that cream from a small collecting centre has started to sour before it has reached the central creamery and difficulty has then been found in reseparatoring the cream and water mixture. In order to reduce the creamery working hours and to overcome these difficulties experiments have been made to bring about the protein separation without it sticking to the pan and burning.

The method now adopted is to allow the fresh cream to ripen until the next day (about 20 hours) and then to boil this sour cream directly without further treatment or washing. The boiling proceeds evenly and the last traces of water boil off smoothly without the spitting usually encountered when boiling washed fresh cream. The protein separates completely and so long as the contents of the boiling pan are stirred gently in the later stages, no charring takes place.

The keeping qualities of clarified butter made from sour cream are quite as good as those of any other type, whilst the product is quite as solid and attractive as the best made in this Territory. Clarified butter made from soured cream can be quite free from any trace of rancidity provided the boiling is done completely and not stopped before the stage described in the earlier article. The acidity compares very well with that of the best quality clarified butter. In the last 20 samples analysed the free fatty acid content of clarified butter made from sour cream ranged from 0.18 to 0.34 per cent. (as oleic acid). These very low values are extremely satisfactory.

*By M. H. French, M.A., Ph.D., of the Veterinary Laboratory, Mpwapwa, Tanganyika Territory, in the *Bulletin of the Imperial Institute*, Vol. XXXVI., No. 3, July-September, 1938.