Flavour is an important attribute in the judging of dairy products. Thermal processing viz. pasteurization, preheating, sterilization, condensing and drying are indispensable processes in the dairy industry. As a result of heat application, a distinct cooked flavour is developed and the nutritive value of the product may decrease because some essential nutrients are partly destroyed, the amount of destruction depending upon time and temperature of heat treatment.

Proteins are important constituents of milk and milk products and are extremely complex nitrogen containing organic compounds. They contain besides nitrogen other constituent elements as sulphur in the sulphur containing amino acids like cysteine, cystine and methionine. The most universal application of heat as a means of thermal processing and sometimes sterilization of milk has resulted in detailed investigation of the effect of such processing on the constituents of milk. Heat treatment brings about denaturation of proteins and "exposure" of sulphhydryl compounds which play different roles in different products. At the same time low molecular weight sulphur compounds are liberated from the protein structures which play a great role in flavour chemistry. Sulphur in the form
of disulphides or sulphydryl groups has unique and important roles in the properties and reactions of milk proteins. The sources of the sulphydryl groups and volatile sulphides in milk have been shown to be the serum material particularly, the 'Albumin and the proteinaceous material associated with the fat globule membrane'. Further, β-lactoglobulin has been shown to be the principal reducing fraction of milk proteins and the primary source of sulphydryl groups in milk. These sulphur compounds play an important role in the dairy industry.

In the thermal processing of milk changes that take place in milk proteins present a number of problems especially during the manufacture and storage of various products like concentrated and dried milk. Thermal processing produces distinct cooked flavour and increased oxidative stability in milk and its products and at the same time is accompanied by the "exposure" of the sulphydryl groups. The low molecular weight sulphydryls, sulphides and disulphide compounds in combination with hydrogen sulphide are believed to be responsible for the presence of cooked flavours in thermally processed milk products. It is further believed that these sulphydryl groups impart oxidative stability to the milk systems by themselves getting oxidized to disulphide compounds. The oxidative stability of milk products has often been correlated with
the free sulphhydryl groups present in them.

In the present study efforts were made to estimate quantitatively total reducing substances including sulphur compounds in sterilized milk, condensed milk and milk powder by simple and rapid methods. This information when correlated with the flavour and stability would help in establishing the role they play in these products both from cow and especially buffalo milks. The study on sulphur compounds (grossly reflected in the values for total reducing substances) at various stages of manufacture and storage of these milk products would provide useful information for improving their quality. The effect of added sulphhydryl groups to enhance the keeping quality of these products would also be of great significance. Very little work appears to have been done on buffalo milk although, in India, out of about 179 million cattle population, 58 million are buffaloes (Livestock census, 1972). Further, out of a total annual milk production of 24 million tonnes, buffaloes contribute nearly 60% and a large number of milk plants in the country are dependent on buffalo milk for processing. Therefore a general study of sulphur compounds formed during the manufacture and storage of sterilized milk, condensed milk and milk powder from buffalo milk would provide useful practical information.