REVIEW OF LITERATURE

There were no bovines in the West Indies prior to the arrival of the Spanish Colonists in the 15th and 16th centuries. These Colonists brought cattle with them from Spain, Portugal and their West African Colonies. It is now known that the cattle of Spain and Portugal have a good deal of African 'blood' in them - e.g. the Raza de Barroza, Raza Alentijana, Raza Minhota & the Andaluzian cattle. This African 'blood' is considered to have been taken into the Iberian Peninsular during migrations of human populations with their cattle. Thus the Hamitic Longhorn can be traced from N.E. Africa along the shores of the Mediterranean, thence across the Straits of Gibraltar about 2,000 B.C. Another migration route extended round to the West Coast of Africa, extending as far south as the French West African Colonies, Liberia & Nigeria, according to Curson & Thornton (1936).

The Franqueiro breed in Brazil was introduced from West Africa; it is representative of the Hamitic Longhorn and it is believed that the original stock brought to Trinidad by the Spanish were similar to this breed, having a common origin. Whilst these animals would be adapted to tropical conditions they would not be regarded as particularly desirable from the production point of view today.

Also of more importance are the other Bos indicus cattle imported from India for draft purposes. The strains are basically Mysore but also included Guzerat, Hissar and especially Nellore (Ongole). The local descendants of these Indian cattle yielded only sufficient milk for the rearing of their calves. Although the milk was typically high in butter fat these animals were not of the desirable dairy temperament.

It has been local policy to bring in Bos taurus breeds such as Holstein, Channel Islands breeds and Ayrshires

from the U.K. & N. America in an attempt to combine by cross breeding the higher performance and dairy temperament of the European breeds with the characteristic heat tolerance and resistance to (endemic) diseases of the B. indicus breeds.

There are two alternatives to this cross breeding; being either to select and improve the indigenous cattle or to import cattle.

The former is only feasible if the indigenous cattle are relatively good. This is particularly so as the estimated rate of gain of milk due to genetic improvement of Sinhala cattle in Ceylon was only 0.64% per year according to Mahadevan (1951), and Robertson (1950) showed that the progress of genetic improvement in Nigeria with the Fulani cattle was only $2\frac{1}{2}$ gals. per cow per annum. These rates are far too slow for the urgent needs of Trinidad, especially so as the cattle previously introduced into Trinidad are of little value from the production point of view.

This leaves the importation of a new breed. The best method of choosing cattle for this is by the comparison of climographs; for where the climographs of territories overlap indicate suitable areas as a possible source of importation, thus avoiding climatic adaption complications. There would therefore by none of the strain imposed on the Bos taurus breeds obtained from temperate regions. The most obvious source is Fiji, where there are a considerable number of Friesians well adapted to the hot humid climate common to both Fiji and Trinidad. However such a venture would be extremely costly and slow, for even with A.I a large basic multiplying herd would first have to be built up.

Hence the present policy of cross breeding. There are of course various methods of cross breeding, which may be summarised as:-

i) Interbreeding the F1 generation to obtain the F2.

ii) Backcrossing to Bulls of B. taurus origin.

iii) " " " " B. indicus " .

iv) Criss-cross breeding or Up and Down grading; involving the alternative use of B. taurus and B. indicus bulls on cross bred cows, in an attempt to balance milk yield and constitution.

v) Development of new types containing intermediate proportions of B. taurus and B. indicus breeds, often resulting from the use of mixed foundation stock.

The preference for the Friesian in most cross breeding work and grading up is no doubt due to the higher yields obtained in comparison with other breeds and its adaptability, borne out by Government policy. An attempt to compare the main cross breeding experiments and reports involving the Zebu and Holstein cross is made below.

Unfortunately most of the work on cross breeding has neither been carefully planned nor carried out efficiently enough for proper reliance to be placed on the results obtained.

Howe (1949) in Jamaica and French (1940) in Tanganyika made comparisons with several B. taurus breeds and concluded that the Friesian crosses were superior to other crosses in respect to total milk yield. On the other hand, Lecky (1951) was of the opinion that the Channel Island cross was the most suitable for Jamaica. However Lecky made his judgement on the basis of F.C.M.-for total yield, the Holstein is superior.

An outline of the various work with Friesian crossed to B. indicus is therefore of particular interest, especially in Trinidad.