SOME ASPECTS OF MANURING IN THE TROPICS.

Introduction.

As the population of tropical countries increases and land becomes scarcer, further developments will depend on the evolution of a system of permanent agriculture. This must be capable of replacing the system of shifting cultivation so generally practised, in which the nutrients of the soil are removed without any provision being made for maintaining the fertility of the soil.

The necessity for the maintenance of fertility in tropical soils cannot be stressed too much. This involves, among others, two very important problems. The first demands manure to maintain fertility; the second involves the production of manure, and includes the special object of preventing waste. The first is the evolution of a system of settled agriculture which will replace that of shifting cultivation and at the same time be an economic proposition: the second is the production of large quantities of organic manure either with the use of cattle or else "synthetically" and by this means divert the large quantities of organic matter and nutrients that are deliberately wasted in the world to-day to an economic use. Therefore, before proceeding to the main problem of this dissertation a short discussion of these points has been considered advisable. Certain aspects of these problems have been dealt with fully in recent years and special reference should be made to King (14), Faulkner and Mackie (6), Howard and Wad (11), Anstead (1) and to the dissertations of Gordon (8), Webster and Kettlewell (21), by those interested in the subject.

Although most books and journals on tropical agriculture point out the importance of organic manuring in maintaining and increasing crop yields, there is a remarkable dearth of field

experiments on the subject. This is the more surprising since every soil, climate and crop has its own particular requirements. In Trinidad the only investigations have been on the manurial requirements of sugar cane and cacao. An unsatisfactory experiment was carried out with tobacco on the farm of the Imperial College of Tropical Agriculture, which indicated a shortage of potash in the soil.

This year investigations have been carried out both with organic and artificial manures. It is very generally accepted that the addition of a dressing of artificial manure enhances the value of organic manure. This has been investigated and an attempt has been made to find out the best dressings of organic manure to apply to maize and sweet potatoes. These experiments are discussed in this dissertation. Another experiment, designed to determine the most suitable dressing and combination of nitrogen, phosphorous and potash for maize, has been carried out by Messrs. Gibbon and Momber (7), and for a critical discussion on the use of artificial manures in the tropics, reference should be made to their dissertations.