STORED MAIZE PESTS ON THE COLLEGE FARM AND SOME EXPERIMENTS ON FUMIGATION WITH CARBON BISULPHIDE

I N T R O D U C T I O N.

At the end of February it was noticed that considerable damage was being done in the Maize Drying Floors by insects. The problem was taken up on purely economic lines, and an attempt was made to devise some method of treatment which would be applicable here. Gaddum and Linton (1) had attempted to solve the problem the previous year, but had attacked it purely from the point of view of the peasant cultivation, and had ruled out fumigation from the start. They came to no useful conclusions, but recommended thorough drying, covering the grains with a layer of sand against Sitotroga and storing in the husk where these are long, close-fitting and undamaged. The number of cobs with long, close-fitting undamaged husks would seem to be small, and the presence of the husk would in any case make thorough drying far more difficult, whilst the sand covering, though effective against Sitotroga seemed to encourage Calandra, and also to cause decomposition of the grain through lack of ventilation and consequent heating. The actual drying of the cob is practised on the Farm as far as is practicable, and still does not seem to check the invasion of insects even in the dry season.

Since these methods seemed worthless, some experiments with fumigation were projected. Carbon bisulphide suggested itself as the most likely substance, and though it is objected to by some on the grounds that it is a dangerous substance likely to explode, yet it is used on the Farm already as an ant killer, and seems certainly less dangerous, on account of its strong odour, than hydrocyanic acid gas which is the only other fumigant in

common use about the Farm. Also though it may evaporate, it does not deteriorate, and the dosage can be very much more easily gauged. These considerations allied to its high toxicity in the Writers' opinions far outweigh the drawback of its inflammable nature, and it may be pointed out that as far as the Writers are aware only two explosions of this nature have occurred, neither involving loss of life. The most use possible on the other hand has been made of these explosions by advocates of non-explosives compounds which are dearer and less easy to obtain.

The programme of work was as follows:

First the insects causing the damage were identified, and as far as possible their separate damage was estimated, together with an estimate of the total loss.

Secondly, fumigation tests were carried out:

(a) to find the least dose which would result in the death of an adult

(b) to find the maximum dose which could be given without causing a loss in the germinating power of the grain

(c) to find what dosage was necessary to kill larvae and eggs.