

COCONUT BUD-ROT IN TRINIDAD.

MR. W. NOWELL.

About fifteen years ago the U. S. Department of Agriculture issued a bulletin describing at considerable length the researches of Dr. J.R. Johnston into the nature and origin of coconut bud-rot as it had appeared in severely epidemic form in Cuba. The disease was attributed to infection of the crown with *Bacillus coli* or an organism closely resembling it. This conclusion has been generally accepted as applicable to losses of the general type described by Johnston taking place in other parts of Tropical America and the West Indies.

The position in Trinidad in recent years has been that after removing from the category of bud-rot the cases of the now well defined red-ring disease due to a nematode, there remains a very considerable amount of disease of which the symptoms have a strong resemblance to those described by Johnston. Loss of this kind has a scattered general incidence and in several areas has an intense local incidence amounting to an epidemic. Experience so far goes to show that with most of the scattered cases the usual remedy of cutting out the affected trees as soon as they appear is effective, but, in the special areas mentioned, has no visible effect on the steady march of the disease.

It is more than probable that the difference in incidence is associated with differences in causation, and it is in the scattered type that evidence, as yet indefinite, has been seen of the occurrence of *Phytophthora* bud-rot as described by Ashby in Jamaica. It is more or less characteristic of this type that rotting of the bud occurs before the outer leaves are visibly affected.

The epidemic form has been subjected to careful investigation for the last three or four years, with results almost entirely negative. All attempts at artificial transmission have failed, whether made by means of cultures of bacteria taken from freshly invaded bud material or by the application of small or large amounts of the affected tissues. These have been made on trees under varying conditions, including sections of the same plantation not reached by the disease but certain to be involved later. Transfer of decaying roots has similarly failed.

It has been established by cutting trees not visibly affected but near the margin of advance that the first visible symptom is the browning of the unopened inflorescence, followed by the shedding of young nuts and the yellowing of the outer leaves. In these early stages the central bud is found to be still quite sound and showing no sign of infection, although the tree is already certainly doomed. As the yellowing of the leaves progresses the bud is invaded by bacterial rot and death ensues.

Our researches so far have brought us to the conclusion that in this type of failure, as has been shown conclusively in red-ring disease, the failure of the bud is secondary and the term bud-rot a misnomer.

There is so close a resemblance in the incidence and symptoms of this affection to those of the Panama disease of bananas that of late I have been led to use for it the term coconut wilt to get away from the implications of the use of the word bud-rot. It is exceedingly interesting that as a result of Mr. Dowson's investigations in East Africa he has anticipated me by a few minutes in introducing the term to this conference. The conclusions so far reached by Mr. Dowson, by Mr. Sharples in Malaya, and by my colleague Mr. Snell and myself in Trinidad will be seen to have a very considerable and probably significant degree of similarity.