

LIGHTNING STRIKE OF CACAO IN NEW BRITAIN.

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ABSTRACT.

*The external symptoms following lightning strike of cacao and *Leucaena leucocephala* are described. Six cacao trees died and four *L. leucocephala* lost their crowns in the eight months following a single blast.*

LOCATION.

During a severe thunderstorm at a plantation near Keravat, New Britain, on 15th March, 1967, a severe blast was heard at 1900 hours at the homestead. On 18th March a foreman noticed several dying trees nearby.

All trees in the vicinity were closely inspected by the author on 19th March, 19th April, 9th May and 17th July, and again on 8th November, by which time the symptoms were indistinguishable from those resulting from other causes.

The homestead and affected area are situated on a hilltop on about the same level as the surrounding hills, which are divided by gullies up to 100 metres (300 ft.) deep. The alternate *Leucaena leucocephala* and cacao trees were planted about 1960 on a 4 x 2.3 metre (13 x 7.5 ft.) rectangular design and some of the *L. leucocephala* had been removed (Figure 1). At the time of the strike the cacao was about five metres (16 ft.) high and the *L. leucocephala* about seven metres (22 ft.).

SYMPTOMS.

The most frequent early indication of the strike of cacao was drooping of leaves which became chocolate-brown in colour and persisted on the tree. On 19th March it was apparent that some green leaves had been shed but this was not noted at the later inspections. Scolytid borers sometimes invaded the trunk before any obvious foliar symptoms appeared, but in other cases the tree was almost dead before scolytid invasion. Some trees did not develop definite symptoms until several weeks after the strike and then developed severe symptoms but others declined immediately. There appeared to be no consistent relationship between location, tree

height or tree size and symptom pattern. Trunk bark immediately below badly affected limbs died, in most cases, to ground level.

Leucaena leucocephala showed wilting of leaflets without immediate collapse of whole leaves. Fresh symptoms were noted on some trees several weeks after the strike. As with the cacao, severe foliar symptoms were sometimes preceded by scolytid invasion. Several trees died back to about one-half of their original height and then produced several shoots which formed a crown lower than the original. Bark low on the tree rarely died in large patches unless the whole tree died.

An unidentified forest tree about 150 metres (500 ft.) east of the cacao strike, on the edge of the hilltop had partly wilted the day after the blast.

SEVERITY.

The affect of the blast on the remaining *L. leucocephala* and cacao trees is indicated in Figure 1.

Six cacao trees, marked A to F, died as a result of the blast. Four *Leucaena* trees died back below the original crown. *Leucaena* I was forked near ground level, one branch dying completely, the other losing about 10 per cent. of its leaves; J died and K and L died back to form a new crown four metres (13 ft.) from the ground.

The numbers represent the estimated percentage leaf losses sustained by *Leucaena* and cacao which finally recovered without the whole crown dying.

CONCLUSION.

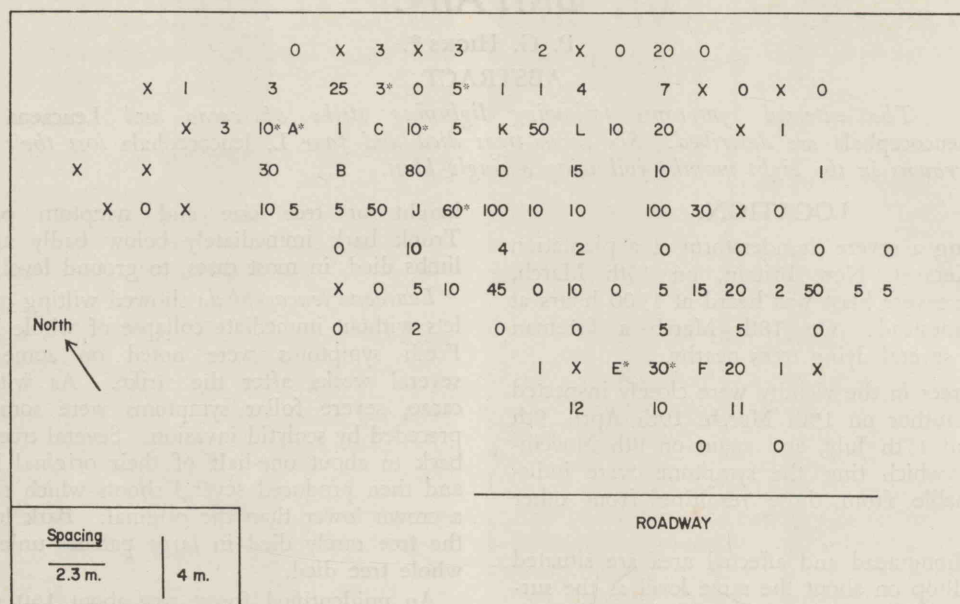
The concurrence in time and place of the strike and death of trees leads the author to conclude that the damage described was the result of lightning.

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Area affected by lightning strike.

FIG. 1



O = Unaffected cacao

X = Unaffected *Leucaena** Scolytid borers invaded stems. The area is surrounded by cacao and *Leucaena* except for the roadway. Figures indicate per cent. leaf loss, final recovery of tree.

A-I. See text.