# DISEASES AND PESTS OF TEA IN NYASALAND.

The section of the *Annual Report of the Department of Agriculture, Nyasaland*, for 1926, dealing with the pests and diseases of tea in that country, has been published as *Entomological Series, Bulletin No. 1, First Report on Pests and Diseases of Tea in Nyasaland*, by C. Smee.

Among the leaf diseases, Brown Blight and Grey Blight are said to be the most prevalent, but little damage is caused to the older bushes, though new clearings have suffered to some extent, owing in some cases to the heavy growth of a cover crop, which made conditions more favourable for the development of fungi. A fungus of the Phoma type was common, and is thought to be associated with damage caused by Helopeltis.

Abnormalities apparently not due to fungi are scabbed leaves; leaves with a scaly upper surface to the midrib, a brown appearance marked transversely; and a copper-coloured sheen in irregular blotches between the veins.

Blister-like swellings on the leaves occur in considerable quantity, and are usually most prevalent where Helopeltis damage is also present. The blisters are convex and pale green on the upper surface, the concave lower surface becoming brown and scaly. Ultimately the centre of the blister cracks, leaving an irregular perforation of the leaf. The cause of these is not yet known.

The most important disease of tea, other than root diseases, in Nyasaland, is Die-back, caused by *Macrophoma Theae* Spesch. (? *Macrophoma theicola* Petch). This causes Die-back of the shoots of the older bushes, and has seriously attacked young plants and seedlings in nurseries.

A few cases of Armillaria root disease have been found on older bushes, and the ordinary treatment of removing tree stumps and applying lime has been adopted.

By far the most important and difficult trouble which tea planters in Nyasaland have to contend with appears to be the Botryodiplodia root disease. Of a large collection of diseased tea plants, 66 per cent. were found to be attacked by this disease, the plants ranging from full-grown bushes to plants one year old. Apparently it is the custom in Nyasaland to bury prunings, and the pruning is annual.

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From this report it appears that entomological problems in connection with tea in Nyasaland resemble much more nearly those of North-East India than those of our own island. The practice of annual pruning which is carried out in Nyasaland should also allow

of the Indian methods of control, especially as regards chemical treatment. The chief pests of tea are Helopeltis and Red Spider, both of considerable importance in India, but of little consequence to Ceylon tea, while Tea Tortrix, Shot-hole Borer and the tea termites are not even represented in the list of pests in Nyasaland.

Undoubtedly the most serious of the Nyasaland pests is a species of Helopeltis (Mosquito Bug). *Helopeltis bergrothi* Reut., which is larger than the Indian species, is a native of West and Central Africa, and has been recorded as feeding on a variety of crops, including cotton and native gourds.

Attack is directed chiefly on young plants in nurseries and clearings, on which the bugs persist during the annual pruning. As affecting the older plants, Helopeltis becomes most abundant in February or March, while the maximum flushing period occurs during the preceding two months, so that at present it would appear that the main yield of flush escapes the chief insect attack. Yet too much stress must not be laid on this, since a re-adjustment of conditions in favour of the insect may occur.

Rainfall appears to exercise a certain influence on the insects. They begin to increase in number with the advent of the rains in December, but from May to December the numbers fall off, a period occurring between October and December when Helopeltis is practically absent from the fields. Thus hand-collection is advised, as soon as the rains appear.

Red Spider is another pest of some consequence, occurring annually in certain areas where the soil conditions require attention. The planting of Grevilleas and other trees, accompanied by improvement in drainage, has proved effective in one area.

Other pests, of lesser importance, include a species of weevil attacking the leaves of young plants, various plant-sucking bugs that cause slight damage to the flush, and grasshoppers that feed on the older leaves.

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