

# A LEAF DISEASE OF TEA NEW TO CEYLON

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[Text of a lecture delivered to the Pussellawa Planters' Association on 11th November, 1946. Advice subsequently modified is marked with an asterisk. The paper is published to illustrate, by comparison with other articles in this number of the *Tea Quarterly*, the refinement in the application of agricultural control measures that has resulted from experience. Only by continued careful adaptation, of the field programme to local conditions will still further progress be made, except in so far as fundamental research may open up hitherto unsuspected lines of attack upon the fungus.]

## INTRODUCTION

With your Chairman's permission, I am taking this opportunity to describe to you a leaf disease of tea that has recently occurred in the Dolosbage and Pussellawa areas and which is new to Ceylon. I wish to emphasise that much of the available information upon the disease is derived

from experience in other countries. In other words we are as yet necessarily ignorant of the details of the behaviour to be expected from it under Ceylon conditions.

## NORTH INDIAN BLISTER BLIGHT

Some of you may be acquainted with the so-called "Blister Blight" of tea in North India. This disease has been known on tea since 1858 and, though at times it has caused alarm and consternation, it may be noted that the Assam and Darjeeling tea industries still survive. The causal fungus in North India is *Exobasidium vexans*. Until this year, this disease had not been reported from either South India or Ceylon. In the last fortnight, however, we have received information of its presence in the Annamallai district of S. India, while specimens exhibiting typical symptoms have been received from one estate in the Dolosbage area, and one in the Pussellawa area. It is not, as yet, certain whether the causal fungus is identical with the North Indian species.\*

## SYMPTOMS

The symptoms referred to render affected bushes very conspicuous in the

later stages of the disease. The spores are airborne and very small. On germination, penetration of the leaf tissues is affected, and growth proceeds in and between the cells of the leaf. This stage may be detected by the existence of small translucent patches, visible when the leaf is held up to the light.

As growth proceeds, these patches normally develop a concavity on the upper side of the leaf, and a swelling on the lower side, though these positions may be reversed. The swelling is the 'blister' from which the disease obtains its name. The swelling develops and assumes the appearance of a small piece of white or brownish dough affixed to the leaf, from  $\frac{1}{4}$  in. to  $\frac{1}{2}$  in. in diameter. Red blisters are sometimes found due to pigment developing as a wound reaction in certain types of bushes. Numerous patches develop on the younger leaves and, less frequently, on the young green stem. In the latter case the whole shoot above the part of infection may blacken and die. Where the attack has been severe, a group of such bushes may present an alarming appearance.

#### OCCURRENCE

The disease has so far been reported from two neighbouring districts in Ceylon, and it is not possible to say whether it will spread, remain local, or die out. It appears to affect tipping fields the worst. The two cases in Ceylon have been 1st-year fields and in South India the disease is reported as inflicting the greatest damage in young fields and the least in four-year-old fields. In North India it is reported as being worst in fields recovering from pruning, appearing erratically in a field and not forming a continuous patch spreading from a common origin. It is not continuously severe; if it were, the industry would not have survived. The fungus appears to survive on bushes growing under local favourable conditions, major infection of the tea taking place by

wind-blown spores only when humidity and temperature are favourable.

#### PLANT RESISTANCE

It is said that jats vary in resistance to the disease. Assam indigenous is generally agreed to be the most susceptible, China, Manipuri and Hybrid being, at least under some conditions, less susceptible. Since we are permanently blessed with the jats our predecessors have left us, it is of more practical interest to note that individual bushes may be found that remain healthy when surrounding bushes are badly affected. If this is true under Ceylon conditions, it provides another pointer to the value of mother bush selection and of the vegetative propagation of resistant types for supplying.

#### SOUTH INDIA

Some details of its occurrence as a new pest in South India may be of interest. It was apparently first reported in the Annamallias on the 23rd September and has since been found over a large part of the district.\* Climatic conditions there appear to have been similar to those experienced in Ceylon, the South West rains running on rather longer than usual. The damage anticipated is loss of crop, but up to the date of our information (28th October, 1946) serious damage had not apparently occurred. (Note:—Later reports, of course, gave instances of damage inflicted in widely dispersed districts in South India).

#### ACTION

It is natural that any new leaf disease in a crop such as tea and especially one confined to young growth, should cause uneasiness. I would, however, suggest a sense of proportion. Every leaf disease of tea appears at sometime or other to have been described as disastrous, but to use such terms before we have any knowledge of how it will behave in Ceylon is merely alarmist, and serves no useful purpose

whatever. It is obvious that two things are required: The collection and examination of information concerning the disease in Ceylon, and the use of such reasonable and practical methods of control as are possible.

#### A. Information

Will you please keep a lookout for plants, tea or other, which exhibit the symptoms I have described and supply the Institute periodically with full details of your observations.\*

1. Severity of attack on different jats of approximately the same age from pruning.
2. Resistance of individual bushes.
3. Elevation and aspect of affected fields.
4. Variations in severity with age from pruning.
5. Rates of spread and notes on any observations as to its mode of occurrence in the field.
6. Other plants or weeds affected (Camellias, Eurya, Gordonia, Rhododendron, etc.)
7. Seasonal variations with exact dates of observation of any sudden outbreaks

#### B. Remedial Measures

The above request presupposes that you will have the opportunity to record such observations. What can you do to avoid multiplying such opportunities? Frankly, as regards protecting your estate as a whole, in advance, nothing. It is quite impractical as a matter of economics to suggest the routine spraying of a perennial leaf crop just as a protection. Again, spraying the outside of the leaf once the fungus is inside the leaf will not eradicate it.

The only recourse is to limit the production of spores, and their spread, by picking of all affected leaves and burning them, on the spot, at once.\* The possibility of reducing liability to disease by alteration in cultural practices such as the length of the pruning cycle, by early tipping or by pruning at any particular season of the year may emerge from the data collected, should this disease make any further headway in Ceylon.\* But in-so-far as young tipping shoots are liable to especial damage, ensure that there are sufficient leaves on the pruned bush to carry it through any attack during the early stages of recovery from pruning.