A PRELIMINARY NOTE ON A DISEASE OF YOUNG RUBBER BUDDINGS.

R. K. S. MURRAY, A.R.C.Sc.,
MYCOLOGIST,
RUBBER RESEARCH SCHEME (CEYLON).

A disease of young shoots of bud-grafted Hevea which may prove to be important has recently been studied. Specimens of diseased green shoots were received almost simultaneously from two different estates in the Kalutara district. In both cases the shoot had evidently been attacked about three inches from the tip, and when the specimens were received the disease was manifested as a sunken discoloured area about six inches long on one side of the shoot. Both shoots bore the fructifications of *Gloeosporium alborubrum*.

Cultures made from the margins of the diseased tissue yielded two fungi, *Phytophthora* sp. and *Gloeosporium alborubrum*. Inoculations with a pure culture of the *Phytophthora* on young green shoots of nursery seedlings established this fungus as the cause of the disease. Both wounded and unwounded shoots were inoculated and in all cases infection took place while the control plants remained healthy. *Phytophthora* sp. was re-isolated in pure culture from one of the unwounded inoculated shoots, and further inoculations on unwounded shoots confirmed the causation of the disease.

On the inoculated shoots the disease first appeared as blackish, watery-looking, vertical streaks. After six days these had merged into black sunken areas 1 to 2 inches in length, on the surface of which sporangiophores and sporangia of *Phytophthora* could be seen with a microscope. Subsequently the disease spread up and down the shoots and secondary fungi gained entrance. A month after the inoculations had been made the shoots had died back for a distance of about 1 foot from the tip. Owing probably to the abnormally dry weather conditions obtaining at this time the die-back was checked at this stage, and new shoots developed below the affected parts.

It is not known whether this disease will prove to be a serious factor in retarding the development of young buddings. The fungus spreads by means of sporangia; these produce zoospores whose motility and germination are dependent on the presence of water. The disease, like others caused by species of *Phytophthora*, is therefore a wet-weather disease, and its importance will probably depend to a large extent on weather

conditions. The inoculation experiments referred to above indicate that a spell of dry weather tends to check the progress of the disease. The *Phytophthora* itself may be confined to the succulent portions of the shoot, but there is the danger of introdueing *Diplodia* and other fungi which may kill back the entire plant.

The fungus causing the disease has not been identified with any of the previously described tropical species of *Phytophthora*. It apparently differs morphologically from *P. palmivora* which, under the former name of *P. faberi*, is well known as the cause of secondary leaf-fall and other diseases of Hevea. The size and shape of the sporangia, which are taxonomic features, are however appreciably variable according to external conditions such as nature and age of culture, humidity, etc., so that the fungus will have to be grown under strictly standard conditions before it can be compared with other species.

The disease has only been reported as occurring in nature on buddings, but the inoculations show that seedlings are also susceptible to attack. The only reference that has been found to a similar disease in other countries is a note by Weir. He describes a disease which attacks the young bud-shoot at its extremity and mentions a *Phytophthora* as a possible causal agent. In the specimens examined in Ceylon the disease originated, not at the extremity of the shoot, but some inches below it. The Rubber Research Scheme would be glad to receive specimens of diseased shoots conforming to the symptoms described above.

Diseased shoots should be cut off well below the affected part and burnt. Spraying with Bordeaux Mixture has on one estate given effective control.

REFERENCE.

Weir, J. R. A blight of young buddings. *Quarterly Journal, Rubber Research Institute of Malaya*, Vol 1, Nos. 1 and 2, 1929.