

Conidia are apparently able to remain viable for a considerable time, for in this Laboratory the writer has been able to infect apple-fruits with conidia taken from pear-cankers which have been kept in the herbarium for over twelve months.

REMEDIAL TREATMENT.

As the mycelium of this fungus may remain alive in a canker for several seasons, and during the growing-period is capable of producing fructifications (pycnidia) bearing spores, it would appear that these cankers are the means by which the fungus is able to carry over from season to season. This is borne out by American experience, for there it has been observed that early in the season, in the vicinity of viable cankers, leaf-infection commences shortly after the leaves emerge from the buds. Furthermore, American workers have recorded the fact that infection may commence from mummified black-rot fruits remaining on the trees, for they have frequently observed leaf-infection to commence in the vicinity of these fruits. On spots on living leaves spore-production is so uncommon that it is probable leaf-infection occurs throughout the season from spores produced from pycnidia in cankers and mummified fruits. Fructifications are commonly produced on leaves that have fallen to the ground, so fallen leaves that have escaped desiccation during the winter months are in all probability a source of infection the following spring.

Doubtless in New Zealand black-rot is held in check somewhat by spray treatment, but not entirely, for it appears to be about equally common in sprayed and unsprayed orchards. Such being the case, the eradication of the sources of infection would appear to be the only effective treatment that can be recommended. These sources are (a) cankers on the branches, (b) mummified fruits remaining on the trees and lying on the surface of the ground, and probably (c) infected leaves which have escaped desiccation during the winter months. The following treatment is therefore suggested:—

(1.) Cut out cankered branches, cutting some 3 in. below the visible point of infection.

(2.) Remove and destroy any black-rot mummies lying on the ground or hanging on the trees.

(3.) Plough in late autumn, after the leaves have fallen, and with a spade turn under portions beneath trees which have been left untouched by the plough.

The writer does not suggest that any treatment of cankers be practised, for at best this is difficult and involves a great amount of work; furthermore, as the hyphæ of the fungus spread in the sap-wood some distance beyond the visible point of infection, control at best would be uncertain. As many wounds are caused by branches rubbing together, trees should be pruned in such a manner as to prevent this. Finally, all wounded surfaces should, as soon as made, be coated with coal-tar.

SUMMARY.

(1.) Black-rot forms cankers on the branches, spots on the leaves, and causes rotting of fruits.