

to kill the caterpillars and to remove their means of migrating from the woods to the fields, and I found it necessary to write to one of the leading farmers living in the district infested, to ask him to explain the nature of the insect and prevent such absurd destruction.

The colony of the Maple-Leaf Cutter (*Incurvaria acerifoliella*, Pack.) mentioned in my last report as present at Ottawa, still continues to increase to an alarming extent. No parasites have as yet been observed.

CONIFERÆ.

PINES.

As a consequence of the hot dry summer, bush-fires have been very prevalent throughout the timber districts, and there is such anxiety amongst lumbermen that it is proposed, as soon as possible, to prepare a bulletin treating specially of the insects injurious to Pine timber. In this will be collected together as much as is known, or can be ascertained, as to the lives of the insects, and the most successful methods adopted by lumbermen to protect their property. Extensive correspondence is now being carried on, and it is hoped that before very long some useful information will be ready for distribution. The two insects which probably commit the most serious ravages on felled pine timber, or upon standing pine trees when they have been injured by fire, are the two Long-horned beetles known as *Monohammus confusor*, Kirby, and *M. scutellatus*, Say, the first is grey mottled with darker tufts of hair, and the latter is black with white marks. The life of these insects is briefly as follows: The egg is laid in a crevice or hole in the bark; when it hatches the grub eats its way into the cambium layer of the sap wood, and here spends the greater part of the first year. As winter approaches it penetrates into the solid wood. In the spring of the next year it eats further into the solid wood, and probably turns to the pupa or third stage the next spring and emerges as a perfect beetle in the summer of the third year.* Directly a fire passes through a forest the trees are brought into a condition suitable as food for these beetles, and it is marvellous how soon they discover them and begin to deposit their eggs.

The important point to discover then is how late in the year do these beetles lay their eggs, because when a fire occurs after the period during which eggs are laid, the trees will not receive injury from the borers until the next year. Owing to the prevalence of early fires this year lumbermen are forced to employ many more men in the shanties to prevent their logs being destroyed.

There seems to be conclusive evidence that logs kept shaded during the summer are very much protected against the borers. In a recent visit to Lindsay and Fenelon Falls, Ont., through the kindness of Mr. J. A. Barron, M.P., I was enabled to meet several of the lumbermen and foremen of that locality, and obtained much valuable and practical information. I found that they had no confidence in the operation known as "rossing," which consist of cutting a groove along the top of the log as they say "to let the rain in," but all seemed to agree that keeping the rays of the sun off the logs, by covering them with boughs of Balsam Fir, as explained by Mr. W. G. Perley, M.P., of Ottawa, before the Select Committee on Agriculture and Colonization last year, does decidedly protect against wood-boring beetles.

* Note.—Since writing the above, I have had an opportunity of examining standing pine injured by fire last spring. Larvæ of all sizes were found from half an inch to one and three-quarters in length. These latter, I should suppose, must be almost full-grown. Where they had been at work beneath the bark was plainly visible. After entering the solid wood they had penetrated to distances varying from one to ten inches. From the above observations it is now uncertain whether, under favourable circumstances, these large borers may not possibly pass through all their stages in one year. Arrangements have been made for a further study of this matter during the ensuing season. My thanks are due to Mr. Berkeley Powell (of the firm of Perley & Pattee) and Mr. W. R. Thistle, lumbermen of the Ottawa district, who have rendered me much assistance in this investigation. They themselves accompanied me to Pembroke and drove me through portions of their extensive limits which had been burnt at different times during the last year. By their kindness in placing horses and men at my disposal, I was enabled to visit distant points, and, when necessary, to fell trees for examination.