

Woodpeckers destroy large numbers of the Bark-beetles, and at times help considerably to check their ravages.

The tunnels, especially of the Timber-beetles, are frequently overrun with various species of mites. The eggs of these mites hatch before the young beetles are ready for their flight, and in this way young and adult mites are carried by the beetles attached to their bodies to the new tunnels. At certain times the declivity of the elytra of various species of *Ips* (*Tomicus*) will be found covered with minute mites, and *Pterocyclon mali* and *P. fasciatum* are frequently almost completely covered with them upon emerging from their tunnels in the spring. Many of these mites appear not to injure their hosts; but certain species are very destructive, and breed in the larval galleries or pupal cells upon the young of their hosts.

Fungous diseases are sometimes very destructive to them. All stages of the insects are frequently found, more particularly in wet weather, filled and covered with the white mycelium of the fungus. In a felled pine log I noticed that hundreds of adult *Ips pini* had died from this cause in less than two weeks.

*Friends of the Scolytidæ.*—As these beetles feed mainly upon dying and dead branches and trunks of trees, any cause which tends to weaken or destroy the trees aids the Scolytids in supplying the proper food-plant. Heavy storms, forest fires, other insects, and the destructive work of man, are perhaps the chief of these.

*Economic Importance.*—Owing to the destructive habits of many of its members, the family Scolytidæ is of considerable economic importance. The injury done by these beetles may take two forms: living trees may be weakened and killed, and standing and felled timber and sawn lumber may be rendered useless for many purposes by the tunnels of the beetles.

But few Scolytids attack living, healthy trees, although there are a few species which apparently choose only trees in this condition. The majority of species attack only dying or dead trees, and a few breed in dead wood only. Stumps, diseased or dead branches, brush piles and recently-felled logs are their favourite breeding places. Most species will not, as a rule, molest living trees at all if rapidly-dying and recently-felled food-plants are available, but if trees in this condition are not to be had in sufficient quantity, many of these species will attack perfectly healthy trees and prove very destructive.

The injury done by the species which attack healthy and diseased trees is, in certain regions and at recurring intervals, very considerable. The work of *Dendroctonus frontalis* in the spruce and pine of West Virginia and the adjoining States, of *D. piceaperda* in the spruce of the Northeast, and of *D. ponderosa*