SCOLYTID NOTES[1]

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A. Hosts of *Anisandrus pyri* (Peck) —This ambrosia beetle is a common pest of many species of deciduous trees including most of the common fruit trees. In addition, Essig (1926) lists hemlock, cedar, and pine as hosts. Chamberlin (1939, 1958) states that these coniferous hosts were undoubtedly listed in error.

In a Douglas fir log at Cowichan Lake, B. C., two ambrosia beetle galleries were found which were of the diameter of *A. pyri*. The remains of an insect in one of the galleries was positively identified as a female of the species. In addition, the tunnels were occluded with a fungus. Upon minute examination, the spores of the fungus closely resembled those of the fungal symbiont of *Xyleborus dispar* described by Schneider-Orelli (1913). *X. dispar* is a European species closely related to, and probably synonymous with *A. pyri*.

Although evidence of brood development was not found, the fact that attack did occur in Douglas fir indicates that Essig's coniferous host records should be considered valid.

B. Pupation of *Orthotomicus vicinus* (Lec).—This species is doubtfully distinct from *O. caelatus* (Eichh.) according to Swaine (1918). Near Nanoose Bay, B. C., a white pine log was infested by the insect. The larvae typically destroy most of the inner bark. Pupae and young adults were found during August in the outer bark and in the sapwood. The sapwood pupal cells were of particular interest because this habit is infrequent among bark beetles. The larvae bored radially into the sapwood to a depth equivalent to about their body length, then turned and cut a pupal niche lying parallel with the grain of wood. White frass plugged the entrance. Upon emerging, the teneral adults bored through the frass plugs and directly through the outer bark. The L-shaped pupal cells are like minature replicas of those mined by the cerambycid, *Tetropium velutinum* Lec.

C. Excessive Brood Mortality of *Dendroctonus monticolae* Hopk. — High natural brood mortality of the mountain pine beetle is not uncommon. However, during the course of chemical control studies at Windermere, B. C., from 1951 to 1953, exceptionally high brood mortality during the late larval and pupal stages was often encountered. In June and July, large, apparently healthy larvae were found, but emergence in August was negligible. It was noted that in such trees much fungus mycelium was growing around the galleries in the inner bark. Dead larvae and pupae were often surrounded or completely covered with white mycelium.

An example can be cited from among ten lodgepole pine trees used for checks in a chemical control experiment. The trees were examined for attack and survival in August, 1953. All were infested to about the same degree, and whereas survival in nine of the trees averaged 17.8 ± 8.7 ($\bar{X} \pm t_{.05} S_{\bar{X}}$) insects per square foot, only an average of 1.4 beetles per square foot survived in the tenth tree. Heavy mycelium was present around the insect galleries in all parts of the infested bole. Blue stain invariably associated with the species was in the sapwood along with an incipient decay. Field culturing facilities necessary for determining the identity of the mycelial mass were not available at the time. Cultures inoculated from the wood in the laboratory later re-

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vealed that the decay fungus was *Peniophora gigantea* (Fr.) Massee. That wood decaying fungus might be implicated in the death of bark beetle broods is worth noting. Heretofore, certain mould fungi (*Erotium, Penicillium* and *Aspergillus*) are reported to have destroyed broods of *Ips* spp. (Trimble, 1924), but the possibility that decay fungi might have a smothering effect on broods has apparently received no attention in North America.

Fungi, other than the commensal bluestains, are so frequently observed proliferating in and around bark beetle brood galleries, that one is led to suspect that they are responsible for much undetermined bark beetle mortality. There is a need for carefully isolating and identifying fungi where they appear to be deleterious to broods, and to determine the conditions necessary for them to become operative.

D. *Trypodendron lineatum* (Oliv.) Attacks in Living Trees.—This ambrosia beetle usually confines its attacks to recently dead trees, windfalls or logs. During the last five years, at least two cases of the beetles attacking living trees have been observed.

The first instance was where one end of a log highly attractive to beetles had been tied to a healthy hemlock. Attacks on the log were very heavy. In autumn, when the bark of the living tree was wet with rain, small pitch exudations could be seen on the outer bark. When the bark was removed, it was found that beetles had attempted to gain entry to the sapwood, but had only succeeded in penetrating to the cambium.

The other case occurred in a mature forest next to a logging setting where susceptible logs had been left during the spring attack period. In August, a standing, but suppressed hemlock was noted at the edge of the forest with many small pitch exudations on the lower five feet of its bole. *Trypodendron* had succeeded in penetrating into the wood to a depth of at least one-half inch, but no brood developed. The tree added its annual ring of xylem and succeeded in covering over all the entrance holes. Only dimples on the surface of the sapwood revealed where the beetles had entered.

In both of these cases, it appears that the beetles had been confused by the presence of highly attractive wood nearby. The resinosis is evidence that the species is not capable of coping with living trees. Even in recently cut logs and in windthrown trees, it has occasionally been observed that resin flow has thwarted successful attack. Although tropical ambrosia beetles attack, and sometimes kill healthy trees, there is little likelihood of our conifers succumbing to attacks by indigenous ambrosia beetles.

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