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UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF ENTOMOLOGY,
WASHINGTON, D. C.

FOREST ENTOMOLOGY,

June 1, 1916.

Brief I. THE DYING HICKORY TREES ON LONG ISLAND, NEW YORK.

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CAUSE.

During the past three or four years tens of thousands of hickory trees on Long Island have died.

Investigations have shown that wherever there are no other plainly evident causes for the death of the trees, such as fire, mechanical injuries, etc., it is caused by the **HICKORY BARKBEETLE** (*Scolytus quadrispinosus*).

Character and Seasonal History of the Beetle.

The adult parent beetles are small, short, stout, black, shining, with the posterior end of the body flattened and ascending obliquely in the female and excavated and armed with 4 spines in the male.

The immature stages are small, white, footless grubs or larvae which overwinter in the bark of trees killed and infested by the parent beetles the preceding summer and fall.

About the time the first leaves of the hickories are full grown or when the pollen is falling from the staminate tassels or catkins of the healthy trees, the overwintered broods begin to emerge from the dead trees through clear-cut round holes in the bark and to fly to living trees where they feed for a time on the young twigs at the base of the leaf stems.

By the time the trees are in full foliage and the buds are maturing on the new twigs, the beetles mate in pairs and begin to attack the trunks and branches of the living trees by boring somewhat oblique entrance holes through the outer hard bark and inner layers of living bark to the outer layer of wood. They then begin the construction of the egg gallery by boring a short vertical tunnel or gallery above the entrance and through the inner layers of the living bark and grooving the outer layer of wood. As this excavation progresses little closely placed niches are made in the sides of the gallery in each of which an egg is deposited. A wall of fine closely packed boring-dust is constructed to hold the eggs in place and as a protection from their natural enemies such as mites and small insects. By the time the gallery is half finished, the first eggs begin to hatch and the minute young larvae begin to feed and excavate their independent larval mines which are closely joined and parallel at first but soon begin to radiate from each other like a spreading fan, thus providing each larva with its required space of bark tissue to supply it with food.

Until the larvae are half to nearly full grown, they occupy the inner layers of bark after which they mine through the middle and outer layers in which they pass the winter. The connecting and overlapping of the larval mines of the large number of individual broods under and in the living bark of the trunk and branches serves to completely girdle the trees and to kill the bark and cambium by cutting off the flow of sap to and from the growing parts.

A. D. HOPKINS,

Forest Entomologist.

May 26, 1916.



