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**STEPHEN A. FORBES**

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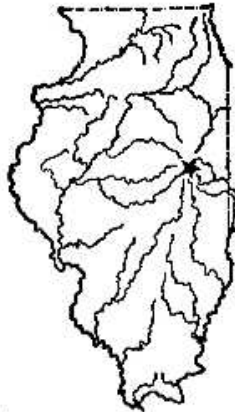
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SOME IMPORTANT INSECTS OF ILLINOIS  
SHADE TREES AND SHRUBS

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By STEPHEN A. FORBES  
STATE ENTOMOLOGIST



URBANA, ILLINOIS, OCTOBER, 1911

## SOME IMPORTANT INSECTS OF ILLINOIS SHADE TREES AND SHRUBS

BY STEPHEN A. FORBES, STATE ENTOMOLOGIST

The protection of the shade trees and ornamental shrubs of Illinois against insects has been for several years a problem of rapidly increasing importance. Many of our most desirable trees and shrubs are liable to slow destruction by obscure insect pests understood little if at all by those immediately concerned. Trees which have grown for years, becoming more attractive, more valuable, and more highly valued year by year, begin to weaken and decay, the owner does not know why. This is often due to borers or to scale insects, the presence of which has not been detected or suspected, but whose injuries might have been prevented if the facts had been known in time. More sudden losses are frequently caused by overwhelming attacks of leaf-eating insects which, altho conspicuous, are not dealt with because proper measures of procedure are not known. Observations and experiments upon this subject have been for several years a prominent part of the work of the office. Beginning in 1898, repeated careful examinations have been made of the trees and shrubs of the parks and boulevards of Chicago, and this work has been extended from time to time to other cities and towns thruout the state. With the establishment of a field assistant in Chicago in 1907, the subject received more continuous attention at the hands, first, of Mr. H. E. Hodgkiss and, later, of Mr. John J. Davis, the latter of whom especially has made many studies of the life histories of species previously but little known, and has added a mass of details to our knowledge of the subject in all its parts.

The general subject is still under investigation, and will be in due time reported upon in a much fuller and more elaborate article, but the present brief preliminary paper has been prepared in the hope that it may be found of immediate practical use to municipal authorities in control of parks, boulevards, and streets, to town improvement societies, and to owners of lawns and other private premises the appearance of which they are striving to improve by the use of trees and shrubs.

## THE CATALPA SPHINX

*(Ceratonia catalpa* Bdv.)

One of the most destructive of the few insects to which the catalpa tree is subject is a large showy caterpillar known as the catalpa sphinx (Fig. 1). It is a southern insect, and has not been found in this state north of Clay and Richland counties, altho it h

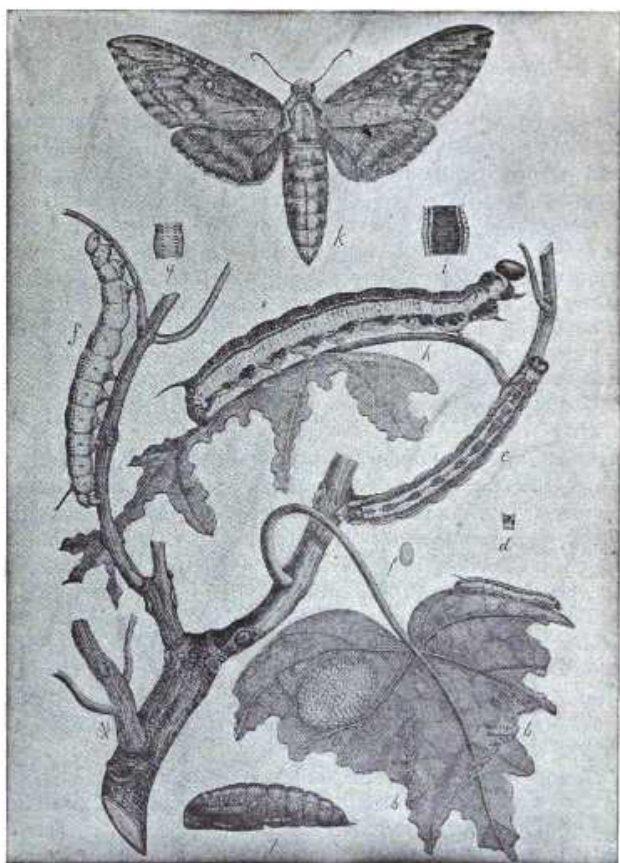


Fig. 1. Catalpa Sphinx (*Ceratonia catalpa*): a, egg mass; b, newly hatched larva; c, d, larvae one-third grown and one joint showing its dorsal pattern; e, f, g, h, i, mature larva, variously marked, and single joints showing dorsal patterns; j, pupa; k, moth; l, egg, enlarged; others all slightly less than natural size. (Ohio Experiment Station.)

extended up the Atlantic coast as far as New Jersey. It is likely to appear suddenly in large numbers upon single trees, stripping them completely.

The full-grown caterpillar (Fig. 1, *e*, *f*, *h*) is rather strongly marked, with a broad velvety black stripe on the back and sulphur-yellow sides spotted with black, while the under side of the body is pale green. It is unusually variable in color, however, there being both light and dark forms. It is from two and a fourth to three inches long, and has a hornlike appendage projecting from the hinder end of the back. The young caterpillars (Fig. 1, *c*) are pale yellow and spotted with black. There are probably but two generations in Illinois. The caterpillars leave the trees and go into the ground to pupate (Fig. 2).



Fig. 2. *Catalpa Sphinx, Ceratonia catalpa*, pupa in cell in earth.

The parent insect is a large heavy-bodied moth (Fig. 1, *k*) with strong, narrow, brownish-gray wings, with obscure lines and spots of black. The eggs (Fig. 1, *a*) are laid in masses on the leaves, sometimes as many as a thousand in a bunch, and the young, on hatching, feed at first in companies—a fact which makes it easy to destroy them if their presence is detected early, by picking off or spraying the infested leaves. A general spraying of a tree with arsenate of lead or Paris green will destroy the caterpillars at any time. Professor H. Garman, of Kentucky, says that the nearly grown worms can be shaken or jarred down from most catalpa trees and readily destroyed by hand.



THE FALL WEB-WORM  
(*Hyphantria textor* Harris)

The fall web-worm is the only common Illinois insect which makes a large conspicuous web in late summer and in fall, inclosing a considerable number of the leaves and twigs of a branch, together

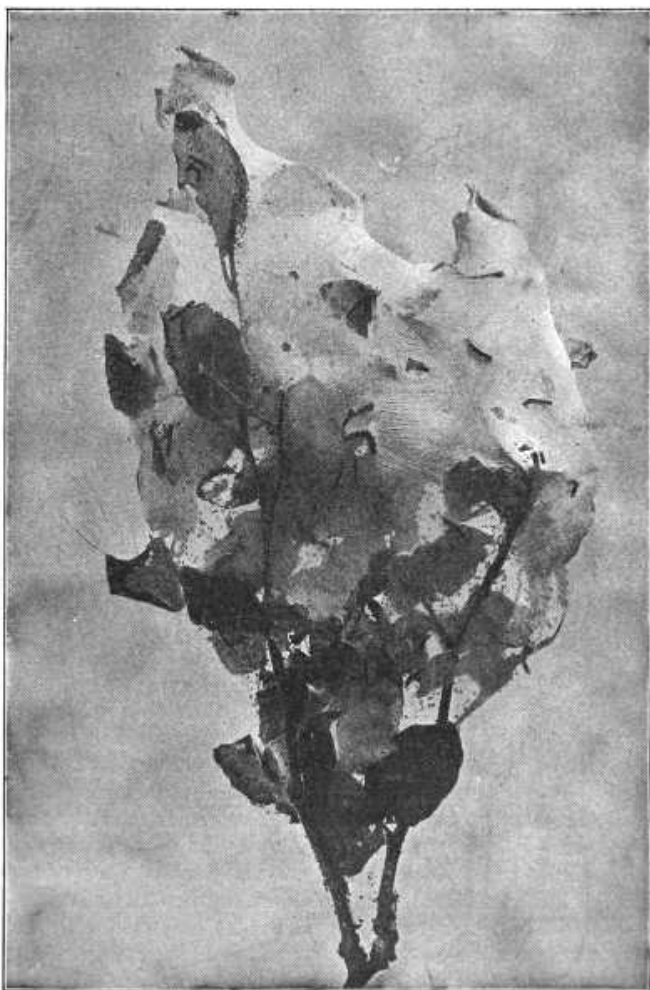


Fig. 3. Fall Web-worms, *Hyphantria textor*, and their web, on apple-tree.  
(New Hampshire Experiment Station.)

with a colony of caterpillars which feed under its protection (Fig. 3). It is unfortunately often called in Illinois the tent caterpillar, but the latter name is properly applied only to a caterpillar, not often seen in this state, which makes a small compact web in the forks of a branch in spring, which it uses only for protection while not eating.

The web-worm is an almost universal feeder and has been found on about a hundred and twenty species of fruit, shade, and ornamental trees, upon the leaves of which it feeds. It is one of the most annoying pests of the tree grower, its numerous large webs, enclosing brown, skeletonized leaves, making the tree very unsightly, and the injury done, as it spreads from branch to branch, often being considerable. While the caterpillars are growing they do not wander from their common web, but enlarge this to cover fresh leaves as fast as those within it are devoured. When they have nearly completed their growth, however, they scatter far and wide, running briskly about when disturbed, and feeding on almost

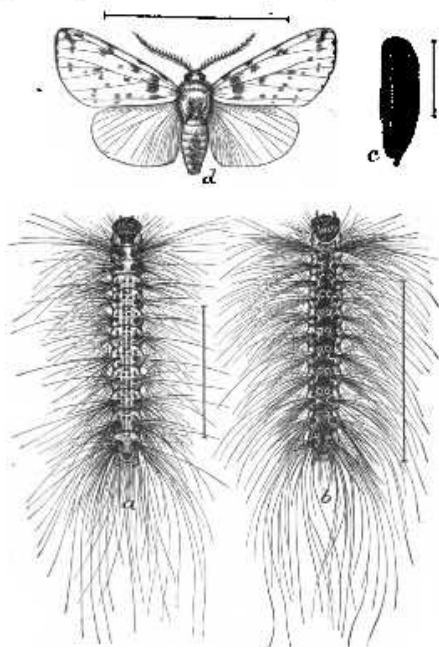


Fig. 4. Fall Web-worm. *Hypbantria texor*: a, b, larvæ, light and dark varieties; c, pupa; d, moth, spotted variety. All slightly enlarged. (New Hampshire Experiment Station.)

every green thing they find. At this time they become, when very abundant, an extremely destructive and annoying pest.

They are about an inch long when full grown, varying from pale yellow or grayish to a dark bluish-black hue. (Fig. 4, a, b.) The body is covered with long straight hairs grouped in tufts rising from small black or orange-yellow tubercles, of which there are a number on each segment. When mature, the caterpillars go to the ground, into which they burrow a short distance, or they creep under shelter above ground, where they form slight cocoons of silken web interwoven with the hairs from their bodies. Within these they change to dark brown pupæ (Fig. 4, c), and in this condition they pass the winter. The moths emerge in spring and lay their eggs in broad patches of several hundred each, on the under side of the leaves near the end of a branch, late in May and early in June. The adult insect is usually pure white, but is sometimes white spotted with black. There are either one or two broods of this species, according to the latitude, two in southern and central Illinois and probably but one in the northern part of the state.

The simplest and most effective method of controlling these insects is to destroy their webs, and the caterpillars within them, either by cutting off the twigs which bear them and crushing or burning them immediately, or by burning the webs on the tree. A bundle of rags or a few corn-cobs, or even a porous brick, wired to the end of a pole long enough to reach the nest and saturated with kerosene, makes a good torch for the purpose. Care must be taken, however, not to injure the tree, and to destroy the scattering worms which may drop from the nest without being killed. Where the infestation is too general to make this method convenient, or where the webs are so high in the trees that they can not be readily reached, a spray of arsenate of lead will eventually kill the web-worms as they extend their webs over the poisoned foliage. Paris green may be used instead, but the lead arsenate is to be preferred because, being much more adhesive, it lasts longer on the tree. This method is most effective when the caterpillars are young, since they are then extending their webs rapidly and are likely to be more promptly poisoned than when they are virtually full grown.

#### THE YELLOW POPLAR-CATERPILLAR

(*Apatela populi* Riley)

The prominence of the Carolina poplar as a city tree, especially in situations where it is difficult to find any other which can endure the conditions prevailing, makes it the duty of the Entomologist to discuss the insect enemies of even this rather inferior variety.