

In this channel it enters the *pupa* stage, about spring. When fully developed, it is an inch long, with a round head that distinguishes it from the flat-headed borer, which also affects the apple tree.

The *imago* is a slender beetle, one inch long, with two broad, whitish stripes on the wing covers, and long jointed antennæ. It appears about June.

11. FLAT-HEADED BORER (*Chrysobothris femorata*).

This insect also attacks the trunk of the apple tree, but lays its eggs higher up the tree than the preceding one. The *larva* is a pale yellow, an inch long, and has a well-marked flat head, much wider than the body. It is sometimes found even in the limbs, and is not so long in developing as the round-headed borer. It cuts flat channels in the sapwood, and sometimes girdles the tree. Castings and discolored bark indicate its presence. It finally bores into the solid wood, and becomes a *pupa* for about two weeks, and then emerges as an *imago* about half an inch long, somewhat flat, and of a greenish black color, with three raised lines on each wing-cover. The legs and under side of the body present a coppery lustre.

Remedies.—1. Examine the trees in autumn, and where the sawdust-like castings indicate the presence of the "borer," a stiff wire may be pushed in and the larva killed, or sometimes the larva can be cut out with a knife.

2. About the beginning of June, apply the following mixture to the trunk of the tree:—One pound of hard soap, or one quart soft, in two gallons of water; heat to boiling, and add one pint crude carbolic acid; make a second application in three weeks. This can be well done by using an old scrubbing-brush to rub it in.

12. BUD MOTH (*Tmetocera ocellana*).

This insect is found attacking the buds upon the apple, and sometimes proves very injurious. The half-grown *larva* winters over, and appears in spring as a small brown caterpillar, just about the time the buds begin to open, and feeds upon them. It measures about half an inch when full grown. By rolling up one side of a leaf, and securely fastening it with silken threads, it forms a tube in which it enters the *pupa* stage, having lined the little chamber with a closely woven layer of silk. This condition lasts ten days. The *imago* is a small moth, resembling the codling moth in size and form. It is of an ash-gray color. The front wings have a whitish-gray band across the middle; the hind wings are a dusty brown. The expanded wings measure half an inch across.



Apple Tree Bud Moth, *Tmetocera ocellana*: a, moth; b, larva; c, pupa.

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