

Summary of Periods in Life-history of the Eye-spotted bud-moth.

Adult moths first seen flying July 3, last seen August 27; 54 days.

Longest life of adult 15 days, shortest 3 days; average 8.09 days.

Age of adult when oviposition takes place: youngest 2 days, oldest 12 days; average 7.66 days.

First eggs deposited July 10, last deposited August 24; 45 days.

Period of incubation: shortest 13 days, longest 17 days.

Number of eggs deposited by one adult: Largest 121, smallest 36; average 75.7.

Percentage of fertile eggs: highest 95.5, lowest 33.3; average 50.37.

First larva emerged July 23, last September 9; 48 days.

First pupæ found June 11, last July 20; 39 days.

Longest pupal period 26 days, shortest 17 days; average 20.36.

Emergence of Larva from Winter Hibernating Quarters.

| Year. | First Larva Emerged. | Last Larva Emerged. |
|---------------|----------------------|---------------------|
| 1912. | May 2. | May 11. |
| 1913. | April 25. | " 6. |
| 1915. | May 9. | " 23. |

Shortest period of emergence 10 days.

Longest period of emergence 15 days.

Egg deposition always extends over two days and often over three days.

DESCRIPTION OF *Tmetocera ocellana* D. & S.

THE EGG.

Average length .87 mm., width .70 mm.; shape when laid round to oval, flattened, waxy-white in colour resembling a small flat drop of translucent wax. Completely encircling it is flat flange like area averaging .07 mm. in width. The surface of the chorion is finely pitted and divided into irregular closed cells by many fine and inconspicuous ridges. As the larva develops its black head and prothoracic shield can be clearly seen through the transparent egg membrane.

A very large percentage of the eggs observed in the field proved infertile.

THE LARVA.

Stage I. Length upon hatching 1.5 mm. Head .22 mm. wide, dull black; mouth parts much lighter in colour. Prothoracic shield small, dark grey. General body colour, shortly after hatching, dirty white, soon turning to yellow, then to light brown. Anal plate at first concolourous with body later turning to a darker grey. Thoracic feet and prolegs concolourous with venter.

Stage II. Length soon after moulting 2.5 mm. Head .32 mm. wide, shiny, black. Prothoracic shield very dark brown, almost black, shiny. General body colour light brown. Tubercles distinct, light brown in colour, each bearing a single hair. Thoracic feet black, prolegs concolourous with venter. Anal, plate shield-shaped, dark-brown.

Stage III. Length soon after moulting 3.2 mm. Head .41 mm. wide, shiny, black; ocelli black. Prothoracic shield jet black, shiny. General body colour vandyke brown. Body finely granulose. Tubercles same colour as body. Spiracles small, round, ringed with black. Thoracic feet black, prolegs concolourous with venter. Anal plate dark brown, shield-shaped as before.

Stage IV. (autumn). Length 4.75 mm. Head averaging .55 mm. wide, black and shiny; ocelli black; mouth parts dark brown. Prothoracic shield pitchy black, shiny. General body colour vandyke brown, as in Stage III. Tubercles roundish to oval in